STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SANTA ANA REGION

3737 Main Street, Suite 500, Riverside, CA 92501-3348
(951) 782-4130 • Fax (951) 781-6288
http://www.waterboards.ca.gov/santaana

ORDER NO. R8-2015-0001
NPDES PERMIT NO. CAS 618030

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM ("NPDES") PERMIT AND WASTE DISCHARGE REQUIREMENTS

Orange County Flood Control District, the County of Orange
And
The Incorporated Cities therein within the Santa Ana Region

Area-wide Urban Runoff, Santa Ana Region

The following Co-permittees, listed in Table 1, are subject to waste discharge requirements as set forth in this Order (or Permit):

Table 1: List of Entities Subject to the Requirements of this Order

County of Orange	City of La Habra
Orange County Flood Control District	City of La Palma
City of Anaheim	City of Lake Forest
City of Brea	City of Los Alamitos
City of Buena Park	City of Newport Beach
City of Costa Mesa	City of Orange
City of Cypress	City of Placentia
City of Fountain Valley	City of Santa Ana
City of Fullerton	City of Seal Beach
City of Garden Grove	City of Stanton
City of Huntington Beach	City of Tustin
City of Irvine	City of Villa Park
City of Laguna Hills	City of Westminster
City of Laguna Woods	City of Yorba Linda

ADMINISTRATIVE INFORMATION

This Order was adopted by the Santa Ana Regional Water Quality Control Board ("Regional Board") on:	Month day, 2015
This Order shall become effective on:	Month day, 2015
This Order shall expire on:	Month day, 2020
The U.S. Environmental Protection Agency ("USEPA") and the Regional Board have classified the discharges from the Co-permittees' municipal separate storm sewer systems ("MS4s") as a "large municipal separate storm sewer system" pursuant to 40 CFR 122.26(b)(4).	

IT IS HEREBY ORDERED that the Co-permittees[1] subject to this Permit, in order to meet the provisions contained in division 7 of the California Water Code (commencing with section 13000) and the provisions of the federal Clean Water Act ("CWA") and regulations and guidelines adopted thereunder, shall comply with the requirements of this Permit.

I, Kurt V. Berchtold, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Santa Ana Region, on MONTH DAY, 2015.

Kurt V. Berchtold
Executive Officer

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[1] This Order refers to all of the Co-permittees collectively as "Co-Permittees", including the Principal Permittee.

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FINDINGS

The California Regional Water Quality Control Board, Santa Ana Region (hereinafter Regional Board) finds that:

A. JURISDICTION

1. **MS4 Ownership or Operation**. Each of the Co-permittees owns or operates a municipal separate storm sewer system ("MS4), through which it discharges storm water and non-storm water (collectively "urban runoff") into waters of the U.S. within the Santa Ana Region. These MS4s fall into one or more of the following categories: (1) a medium or large MS4 that services a population of greater than 100,000 or 250,000 respectively; or (2) a small MS4 that is "interrelated" to a medium or large MS4; or (3) an MS4 which contributes to a violation of a water quality standard; or (4) an MS4 which is a significant contributor of pollutants to waters of the U.S.

2. **Regulated Sources and Activities**. This Order regulates the discharge of pollutants from anthropogenic sources in urban runoff from MS4s or activities within the jurisdiction and control of the Co-permittees. Except as noted in Finding 8 below, this Order authorizes discharges of urban runoff from MS4s subject to the conditions and provisions herein. This Order is not intended to obligate the Co-permittees to address non-anthropogenic pollutants or flows in receiving waters.

3. **Legal and Regulatory Authority**. This Order is issued pursuant to section 402 of the federal Clean Water Act ("CWA") and implementing regulations (Code of Federal Regulations [CFR] Title 40, Part 122 [40 CFR 122]) adopted by the United States Environmental Protection Agency ("USEPA"), and chapter 5.5, division 7 of the California Water Code ("CWC") (commencing with section13370). This Order serves as a National Pollutant Discharge Elimination System ("NPDES") permit for discharges of urban runoff from MS4s to waters of the U.S. This Order also serves as waste discharge requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the CWC (commencing with section 13260). The Regional Board has the legal authority to issue a system-wide MS4 permit pursuant to its authority under CWA section 402(p)(3)(B) and 40 CFR 122.26(a)(1)(v). The USEPA has established that the permitting authority, in this case the Regional Board, has the flexibility to establish system- or region-wide permits affecting multiple Co-permittees (40 CFR 122.26(a)(3)(ii)). The system-wide nature of this Order will ensure consistency of regulation within watersheds and is expected to result in overall cost savings for the Co-permittees and the Regional Board. The federal regulations make it clear that the Co-permittees need only comply with permit conditions relating to

discharges from the MS4s for which they are operators (40 CFR 122.26(a)(3)(vi)). This Order does not require the Co-permittees to manage storm water that originated outside of their jurisdictional boundaries, but rather to work collectively to improve storm water management within the Permit area.

4. **CWA NPDES Permit Conditions**. Pursuant to CWA section 402(p)(3)(B), NPDES permits for storm water discharges from MS4s must include: (1) requirements to effectively prohibit non-storm water discharges into MS4s; (2) controls to reduce the discharge of pollutants to the maximum extent practicable ("MEP"), including management practices, control techniques, and system, design and engineering methods and other such; and (3) such other provisions as the Regional Board determines are appropriate for the control of such pollutants. This Order prescribes conditions to comply with the CWA requirements for owners and operators of MS4s to effectively prohibit non-storm water discharges into the MS4s. This Order requires controls to reduce the discharge of pollutants in urban runoff from the MS4s to the MEP. This Order also includes such other provisions that the Regional Board has determined are appropriate to control pollutants.

5. **CWA and CWC Monitoring Requirements**. CWA section 308(a) and 40 CFR 122.41(h),(j)-(l) and 122.48 require that NPDES permits specify monitoring and reporting requirements. Federal regulations applicable to large and medium MS4s also specify additional monitoring and reporting requirements in 40 CFR 122.26(d)(1)(iv)(D), 122.26(d)(1)(v)(B), 122.26(d)(2)(i)(F), 122.26(d)(2)(iii)(D),122.26(d)(2)(iv)(B)(2) and 122.42(c). CWC section 13383 authorizes the Regional Board to establish monitoring, inspection, entry, reporting and recordkeeping requirements. This Order establishes monitoring and reporting requirements to implement federal and State requirements.

6. **Total Maximum Daily Loads**. CWA section 303(d)(1)(A) requires that each state "shall identify those waters within its boundaries for which the effluent limitations…are not stringent enough to implement any water quality standard applicable to such waters." The CWA also requires states to establish a priority ranking of impaired water bodies known as Water Quality Limited Segments and to establish Total Maximum Daily Loads ("TMDLs") for such waters. This priority list of impaired water bodies is called the Clean Water Act Section 303(d) List of Water Quality Limited Segments, commonly referred to as the "303(d) List". The CWA requires the 303(d) List to be updated every two years.

TMDLs are numerical calculations of the maximum amount of a pollutant that a water body can assimilate and still meet water quality standards. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point sources (waste load allocations or "WLAs") and non-point sources (load allocations or "LAs"), background contribution, plus a margin of safety. Discharges from MS4s are point source discharges.

The federal regulations (40 CFR 22.44(d)(1)(vii)(B)) require that NPDES permits incorporate water quality based effluent limitations ("WQBELs") developed to

protect a narrative water quality criterion, a numeric water quality criterion, or both, consistent with the assumptions and requirements of any available WLA for the discharge. This Order implements TMDLs that have been adopted by the Regional Board and approved by USEPA as of the time this Order is issued. This Order also implements TMDLs that have been promulgated by the USEPA. This Order establishes WQBELs consistent with the assumptions and requirements of TMDL implementation requirements and WLAs assigned to discharges from the Permittees' MS4s. The WQBELs are expected to be sufficient to cause the responsible Co-permittees to meet the WLAs by the compliance dates specified in their respective TMDLs and shown in Appendices B through H.

7. **Permit Modification.** In accordance with 40 CFR 122.41(f), this Order may be modified, revoked or reissued prior to its expiration date for cause. This includes the following reasons:
    a. To address significant changes in conditions identified in the technical reports required by the Regional Board which were unknown at the time of the issuance of this Order;
    b. To incorporate applicable requirements of state-wide water quality control plans adopted by the State Water Resources Control Board or any amendments to the Basin Plan approved by the Regional Board, the State Board, and, if necessary, by the Office of Administrative Law;
    c. To incorporate changes needed for consistency with standard provisions and precedential Orders adopted by the State Water Resources Control Board.
    d. To incorporate changes needed for consistency with standard provisions and precedential Orders adopted by the State Water Resourced Control Board;
    e. To comply with any applicable requirements, guidelines, or regulations issued or approved under the Clean Water Act, if the requirements, guidelines, or regulations contain different conditions or additional requirements than those included in this Order;
    f. Or to incorporate any requirements imposed upon the Co-permittees through the TMDL process.

8. **Non-Storm Water and Storm Water Discharges**. The discharge of pollutants from the MS4 is subject to the MEP standard and must include other provisions necessary to reduce pollutants whether the pollutants are transported by storm water or non-storm water. This Order requires each Co- Permittee to effectively prohibit discharges of non-storm water into its MS4 unless such discharges are authorized by an NPDES permit. The MS4s generally contain non-storm water flows such as wastewater from non-commercial car washing, wastewater from miscellaneous washing and cleaning operations, and other nuisance flows generally referred to as *de minimis* discharges. Federal regulations, 40 CFR122.26(d)(2)(i)(B), prohibit the discharge of non-storm water containing pollutants into the MS4s and to waters of the U.S. unless they are regulated under a separate NPDES permit, or are exempt, as indicated in Section III, Discharge Prohibitions, of this Order.

Certain non-storm water discharges may be permitted under various NPDES permits adopted by the Regional Board and the State Water Resources Control Board. These permits include NPDES Permit No. CAG998001 (commonly known as the *De Minimis* Permit); NPDES Permit No. CAG990002, Discharges from Utility Vaults and Underground Structures to Surface Waters; and NPDES Permit No. CAG918002, for discharges to surface waters of certain groundwater at sites within the San Diego Creek/Newport Bay watersheds. Non-storm water discharges permitted under these and other NPDES permits do not need to be prohibited by the Co- Permittees.

This Order authorizes the discharge of urban runoff from the Co-permittees' MS4s. This includes authorization for certain non-storm water discharges. Authorized non-storm water discharges are subject to both the requirements herein and the requirements of the *De Minimis* Permit. This Order does not authorize the Co-permittees' non-storm water discharges that are subject to NPDES Permit No. CAG918002. Authorization for such discharges must be obtained through the process described in NPDES Permit No. CAG918002.

Monitoring conducted by the Permittees, as well as the 303(d) List, have identified dry weather, non-storm water discharges from the MS4s as a source of pollutants causing or contributing to receiving water quality impairments in the Santa Ana Region. The federal regulations (40 CFR 122.26(d)(2)(iv)(B)(1)) require Co-permittees to have a program to prevent illicit discharges to the MS4. The federal regulations, however, allow specific categories of unpermitted non-storm water discharges or flows to be regarded as illicit discharges only where such discharges are identified as sources of pollutants to waters of the U.S. Such un-permitted non-storm water discharges are listed in this Order in Section III. However, this list of discharges is subject to modification during the term of this Order.

9. **Limits of Co-permittees' Jurisdiction over Urban Runoff.** The Co-permittees may lack or have limited legal jurisdiction over urban runoff into their MS4s from some state and federal facilities, Native American tribal lands, utilities, special districts, and other entities. The Regional Board recognizes that the Co-permittees can only be held responsible for discharges of pollutants from such entities to the extent that the Co-permittees have the authority to eliminate or control the pollutants. Recognizing these limitations, the Co-permittees are expected to control pollutants in discharges into their MS4s from such entities according to CWA Section 402(p)(3)(B).

10. **In-Stream Structural Treatment Control BMPs**. Pursuant to federal regulations (40 CFR 131.10(a)), in no case shall a state adopt waste transport or waste assimilation as a designated use for any waters of the U.S. Authorizing the construction of a structural treatment control BMP within a water of the U.S., or using the water body itself as a structural treatment control BMP or for conveyance to such a facility, would be tantamount to accepting waste

assimilation as an appropriate use for that water body. Waters of the U.S. should not be converted into structural treatment control best management practices ("BMPs", a.k.a. storm water control measures or "SMCs"). However, this exclusion does not preclude stream restoration or rehabilitation projects, constructed wetlands, or regional BMPs that have been properly permitted and whose water quality impacts have been fully mitigated. Construction, operation, and maintenance of a structural treatment control facility in a water body can otherwise negatively impact the physical, chemical, and biological integrity, as well as the beneficial uses, of the water body.

B. DISCHARGE CHARACTERISTICS AND RUNOFF MANAGEMENT

11. **Potential Beneficial Use Impairment**. The discharge of pollutants from MS4s may cause or threaten to cause the concentration of pollutants in receiving waters to exceed applicable water quality standards. Discharges from MS4s may result in alterations to the hydrology of receiving waters that negatively impact their physical integrity. These conditions may impair or threaten to impair designated beneficial uses resulting in a condition of pollution, contamination, or nuisance.

12. **Pollutants Generated by Land Development**. Land development has created, and continues to create, new sources of non-storm water discharges and pollutants in storm water discharges as human population density increases. This brings higher levels of automobile emissions, automobile maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, and trash. Development typically converts natural ground cover to impervious surfaces such as paved highways, streets, rooftops, and parking lots. Pollutants deposited on these surfaces are dumped or washed off the by non-storm water or storm water flows into and from the MS4s. As a result of the increased imperviousness in urban areas, less rain water can infiltrate through and flow over vegetated soil where physical, chemical, and biological processes can remove pollutants. Therefore, runoff leaving a developed area can contain greater pollutant loads and have significantly greater runoff volume, velocity, and peak flow rate than pre-development runoff conditions from the same area. Certain best management practices can minimize these impacts to water quality.

13. **Runoff Discharges to Receiving Waters**. The MS4s discharge runoff into lakes, reservoirs, rivers, streams, creeks, bays, estuaries, coastal lagoons, the Pacific Ocean, and tributaries thereto within the Santa Ana Region. Development generally makes use of natural drainage patterns and features to convey runoff. Rivers, streams and creeks in developed areas used in this manner and under the ownership and control of the Permittees are part of MS4s regardless of whether they are natural, anthropogenic, or partially-modified features. In these cases, the rivers, streams and creeks in the developed areas of the Permittees' jurisdictions are both an MS4 and receiving water. Discharges of runoff from MS4s must occur through outfalls (point sources) into waters of the U.S. Outfalls do not include open conveyances connecting two municipal separate storm

sewers. Outfalls also do not include pipes, tunnels, or other conveyances which connect segments of the same stream or other waters of the U.S. and are used to convey waters of the U.S. (40 CFR 122.26(b)(9))

14. **Pollutants in Urban Runoff**. The most common pollutants in urban runoff include total suspended solids, sediment, pathogens (e.g., bacteria, viruses, protozoa), heavy metals (e.g., cadmium, copper, lead, and zinc), petroleum products and polynuclear aromatic hydrocarbons, synthetic organics (e.g., pesticides, herbicides, and PCBs), nutrients (e.g., nitrogen and phosphorus), oxygen-demanding substances (e.g., decaying vegetation, animal waste), detergents, and trash. Pollutants in urban runoff are typically generated by persons or activities over which the Co-permittees have the authority to enact measures to control those pollutants. The Regional Board recognizes that the Co-permittees' authority is not equal for all persons or activities in their jurisdictions. The limits of the Co-permittees' authority over some persons, such as school districts, are not clear. Nonetheless, the Co-permittees are required to exercise their authority consistent with the requirements of the Clean Water Act and this Order.

15. **Human Health and Aquatic Life Impairment**. Pollutants in runoff discharged from the MS4s risk adversely affecting human health and aquatic organisms. Adverse human health effects include gastrointestinal diseases and infections. Adverse physiological responses to pollutants in runoff include impaired reproduction, growth anomalies and mortality in aquatic organisms. These responses may be the result of different mechanisms, including bioaccumulation of toxicants. During bioaccumulation, toxicants carry up the food chain and may affect both aquatic and non-aquatic organisms, including human health. Increased volume, velocity, rate, and duration of storm water runoff greatly accelerate the erosion of downstream natural channels. This alters stream channels and habitats and can adversely affect aquatic and terrestrial organisms.

16. **Best Management Practices**. Wastes which are deposited and accumulate in MS4 drainage structures will be discharged from these structures to waters of the U.S. unless they are removed. These discharges may cause or contribute to, or threaten to cause or contribute to, a condition of pollution in receiving waters. For this reason, pollutants in storm water discharges from the MS4s can be and must be effectively reduced in runoff by the application of a combination of pollution prevention, source control, and treatment control BMPs. Pollution prevention BMPs are practices that prevent or reduce the generation of potential pollutants, typically at their source. Pollution prevention is the "first line of defense". Source control BMPs (both structural and non-structural) eliminate or minimize the contact between potential pollutants and urban runoff, therefore preventing the transport of pollutants to receiving waters. Treatment control BMPs remove pollutants that have entered into urban runoff.

    Certain structural treatment control BMPs, such as constructed wetlands, are or will be waters of the state, and may support beneficial uses. The operation and maintenance of these BMPs may impact the beneficial uses of those waters.

Section III of this Order contains provisions to minimize impacts to those beneficial uses as the result of operating and maintaining structural treatment control BMPs. However, it is not the intent of the Regional Board to regulate discharges *within* structural treatment control BMPs in a way that interferes with efforts to comply with the requirements of this Order.

17. **BMP Implementation**. To reduce the discharge of storm water pollutants, to effectively prohibit non-storm water discharges, and to protect receiving waters, the water quality impacts of development need to be addressed during the three major phases of planning, construction, and use. Development which is not guided by water quality planning policies and principles can result in increased pollutant load discharges, flow rates, and flow durations which can negatively affect receiving water beneficial uses. Construction sites without adequate BMP implementation may result in sediment or runoff rates which greatly exceed natural erosion rates of undisturbed lands, causing siltation and potentially impairing the beneficial uses receiving waters. In addition, existing development can generate substantial pollutant loads which are discharged in runoff to receiving waters. Retrofitting areas of existing development with storm water pollutant control and hydro-modification management BMPs is necessary to address discharges of urban runoff that may cause or contribute to a condition of pollution or a violation of water quality standards.

18. **Water Quality Improvements**. Since 1990, the Permittees have been developing and implementing programs and BMPs intended to effectively prohibit non-storm water discharges to the MS4s and control pollutants in storm water discharges from the MS4s. As a result, beach closures have been significantly reduced, public awareness of water quality issues has increased, and several water body / pollutant combinations are being considered for removal from the CWA Section 303(d) List. The Permittees have been able to achieve improvements in water quality in some respects, but significant improvements to the quality of receiving waters and discharges from the MS4s are still necessary to meet the requirements and objectives of the CWA.

19. **Long Term Planning and Implementation**. Federal regulations require municipal storm water permits to expire 5 years from adoption, after which the permit must be renewed and reissued. The Regional Board recognizes that water quality degradation and impacts to beneficial uses in the Santa Ana Region occurred over several decades and will not be undone easily.

20. "**Iterative Process"**. This Order is based on an iterative approach that, in summary, is comprised of planning, implementing, evaluating, and improving BMPs carried out as part of the Co- Permittees' storm water programs. Multiple iterations will occur during this permit term, and are likely to occur over multiple permit terms, to achieve water quality standards. To fully effectuate the "iterative process", this Order includes prescriptive requirements for conducting program effectiveness assessments ("PEAs"). PEAs are a necessary component of the "iterative process". As part of the performance of PEAs, Co-permittees must

compare the outcomes of program activities to the requirements of this Order and to objective performance standards developed by the Permittees. The purposes of conducting PEAs include:

a. assessing compliance with the requirements of this Order;
b. tracking progress towards meeting water quality standards;
c. justifying the Permittees' commitment of resources, including the cessation of ineffective management practices;
d. providing feedback to Permittees' program managers, in part, to identify the "best" or most effective management practices undertaken; and
e. assessing reductions in pollutant loads to receiving waters and any relationship to management practices.

It is not the intent of the Regional Board that objective performance standards that are developed exclusively by the Permittees as part of PEAs, be used as the basis for enforcement action against any of the Permittees for failure to satisfy those standards. The intent of the Regional Board is that the Permittees constructively use those standards, and the related monitoring, to iteratively improve the performance of their storm water programs in a timely way to remove pollutants in urban runoff to the maximum extent practicable. Permittees are also required to periodically evaluate the validity of their performance standards and methods of measurement and make modifications accordingly.

C. WATER QUALITY STANDARDS

21. **Basin Plan**. The Regional Board adopted the *Water Quality Control Plan for the Santa Ana River Basin* (Basin Plan) on January 24, 1995. The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for receiving waters addressed through the plan. Subsequent revisions to the Basin Plan have also been adopted by the Regional Board and approved by the State Water Board, the Office of Administrative Law, and where appropriate, the USEPA. The requirements of this Order implement the Basin Plan.

The Basin Plan identifies the following existing and potential beneficial uses for surface waters in the Santa Ana Region: Municipal and Domestic Supply (MUN); Agricultural Supply (AGR); Industrial Process Supply (PROC); Industrial Service Supply (IND); Ground Water Recharge (GWR); Navigation (NAV); Hydropower Generation (POW); Water Contact Recreation (REC1); Non-contact Recreation (REC2); Commercial and Sport Fishing (COMM); Warm Freshwater Habitat (WARM); Limited Warm Freshwater Habitats (LWRM); Cold Freshwater Habitat (COLD); Preservation of Biological Habitats of Special Significance (BIOL); Wildlife Habitat (WILD); Rare, Threatened, or Endangered Species (RARE); Spawning, Reproduction, and Development (SPWN); Marine Habitat (MAR); Shellfish Harvesting (SHELL); and Estuarine Habitat (EST).

22. **Ocean Plan**. The State Water Board adopted the *Water Quality Control Plan for Ocean Waters of California, California Ocean Plan* (Ocean Plan) in 1972 and amended it in 1978, 1983, 1988, 1990, 1997, 2000, 2005, and 2009. The State Water Board adopted the latest amendment on October 16, 2012 and it became effective on August 19, 2013. The Ocean Plan is applicable, in its entirety, to point source discharges to the ocean. The requirements of this Order implement the Ocean Plan. The Ocean Plan identifies the following beneficial uses of ocean waters of the state to be protected: Industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture; preservation and enhancement of designated Areas of Special Biological Significance; rare and endangered species; marine habitat; fish spawning and shellfish harvesting.

23. **Sediment Quality Control Plan**. On September 16, 2008, the State Water Board adopted the *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality* (Sediment Quality Control Plan). The Sediment Quality Control Plan became effective on August 25, 2009. The Sediment Quality Control Plan establishes: 1) narrative sediment quality objectives for benthic community protection from exposure to contaminants in sediment and to protect human health, and 2) a program of implementation using a multiple lines of evidence approach to interpret the narrative sediment quality objectives. Requirements of this Order implement the Sediment Quality Control Plan.

24. **National Toxics Rule and California Toxics Rule**. USEPA adopted the National Toxics Rule (NTR) on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the California Toxics Rule (CTR). The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. The CTR and NTR contain water quality criteria for priority pollutants in discharges to surface water. However, the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* states that the Policy does not apply to regulation of storm water discharges. The Regional Board believes that compliance with Water Quality Standards through implementation of BMPs is appropriate for regulating urban runoff. The USEPA articulated this position on the use of BMPs in storm water permits in the policy memorandum entitled, ‘‘Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits’’ (61 FR 43761, August 9, 1996). The USEPA also has articulated this position with respect to implementing TMDLs in their policy memorandum entitled “Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on those WLAs”, November 22, 2002.

25. **Anti-degradation Policy**. Federal anti-degradation policy is applicable to all NPDES permits. 40 CFR 131.12 requires that State water quality standards

include an anti-degradation policy consistent with the federal policy. The State Water Resources Control Board established California's anti-degradation policy in State Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal anti-degradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Santa Ana Water Board's Basin Plan implements, and incorporates by reference, both the State and federal anti-degradation policies. This Order requires the Co-permittees to implement programs and policies necessary to improve water quality; the Order does not allow any degradation of existing water quality. Therefore, this Order is consistent with the anti-degradation provisions of 40 CFR 131.12 and State Board Resolution No. 68-16 as discussed further in the Technical Report.

26. **Anti-Backsliding Requirements**. Section 402(o)(2) of the CWA and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. All effluent limitations in this Order are at least as stringent as effluent limitations in the previous permits. Further discussion regarding anti-backsliding is in the Technical Report to this Order.

D. CONSIDERATIONS UNDER FEDERAL AND STATE LAW

27. **Coastal Zone Act Reauthorization Amendments**. Section 6217(g) of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) requires coastal states with approved coastal zone management programs to address non-point source pollution impacting or threatening coastal water quality. CZARA addresses five sources of non-point source pollution: agriculture, silviculture, urban, marinas, and hydro-modification. This Order addresses the management measures required by CZARA for the urban category, with the exception of septic systems. The programs developed pursuant to this Order fulfill the need for coastal cities to develop a runoff non-point source plan identified in the Non-Point Source Program Strategy and Implementation Plan. The Regional Board addresses septic systems through the administration of other programs.

28. **Endangered Species Act**. This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 USC sections 1531 to 1544). This Order requires compliance with receiving water limits, and other requirements to protect the beneficial uses of waters of the State. The Permittees are responsible for meeting all requirements of the applicable Endangered Species Act.

29. **Report of Waste Discharge Process**. The waste discharge requirements set

forth in this Order are based upon the Report of Waste Discharge submitted by the Orange County Permittees prior to the expiration of Order No. R8-2009-0030 (NPDES No. CAS618030). The federal regulations (40 CFR 122.21(d)(2)) and CWC section 13376 impose a duty on the Permittees to reapply for continued coverage through submittal of a Report of Waste Discharge no later than 180 days prior to expiration of a currently effective permit. This requirement is set forth in Provision XXIII.1. of Order No. R8-2009-0030. Order No. R8-2009-0030 (NPDES No. CAS618030) expired on May 22, 2014 but was administratively extended pursuant to 40 CFR 122.6(d). Once adopted and in effect, this Order supersedes Order No. R8-2009-0030, except for purposes of enforcement, and is subject to any necessary revisions to its requirements made after the Regional Board considers the Report of Waste Discharge through the public process provided in 40 CFR Part 124.

30. **Integrated Report and Clean Water Act Section 303(d) List**. The Santa Ana Regional Water Quality Control Board and the State Water Resources Control Board submit an Integrated Report to USEPA to comply with the reporting requirements of CWA sections 303(d), 305(b) and 314, which lists the attainment status of water quality standards for water bodies in the Santa Ana Region. USEPA issued its Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act on July 29, 2005, which advocates the use of a five-category approach for classifying the attainment status of water quality standards for water bodies in the Integrated Report. Water bodies included in Category 5 in the Integrated Report indicate at least one beneficial use is not being supported or is threatened, and a TMDL is required. Water bodies included in Category 5 in the Integrated Report are placed on the 303(d) List. The most recent 303(d) List was issued in 2010.

    Surface water bodies may be included in Category 4 of the Integrated Report if a TMDL has been adopted and approved by the USEPA for all identified pollutants or impairments (Category 4a); if other pollution control requirements required by a local, state or federal authority are stringent enough to implement applicable water quality standards within a reasonable period of time (Category 4b); or, if the failure to meet an applicable water quality standard is not caused by a pollutant, but caused by other types of pollution (Category 4c). According to the 2010 Integrated Report, no water bodies in the Santa Ana Region are identified in Category 4.

    Information acquired as part of implementing this Order may be used by the Regional Board to include surface waters impaired by discharges from the Permittees' MS4s in Category 4and Category 5 in the Integrated Report. The inclusion of those waters will allow for their consideration during the next 303(d) List submittal by the State to USEPA.

31. **Economic Considerations**. The California Supreme Court has ruled that, although CWC section 13263 requires the State and Regional Water Boards (collectively Water Boards) to consider factors set forth in CWC section 13241

when issuing an NPDES permit, the Water Board may not consider the factors to justify imposing pollutant restrictions that are less stringent than the applicable federal regulations require. (City of Burbank v. State Water Resources Control Bd. (2005) 35 Cal.4th 613, 618, 626-627.) However, when pollutant restrictions in an NPDES permit are more stringent than federal law requires, CWC section 13263 requires that the Water Boards consider the factors described in CWC section 13241 as they apply to those specific restrictions.

As noted in the following finding, the Regional Board finds that the requirements in this Order are not more stringent than the minimum federal requirements. The minimum federal requirements include: (1) the effective prohibition on the discharge of non-storm water into the MS4; (2) controls to reduce the discharge of pollutants in storm water to the MEP, including management practices, control techniques and system, design and engineering methods; and (3) such other provisions that the Regional Board has determined appropriate for the control of such pollutants. The minimum federal requirements also include requirements for limitations consistent with any applicable waste load allocation. Therefore, considerations pursuant to CWC section 13241 are not required. Notwithstanding the above, the Regional Board has taken into account economic considerations pertaining to the requirements in this Order, consistent with requirements in section 13241. The economic consideration is described in the accompanying Technical Report.

32. **Unfunded Mandates**. This Order does not constitute an unfunded local government mandate subject to subvention under Article XIIIB, Section (6) of the California Constitution for reasons detailed in the accompanying Technical Report.

33. **California Environmental Quality Act**. The issuance of this NPDES permit for the discharge of runoff from MS4s to waters of the U.S. is exempt from the requirement for preparation of environmental documents under the California Environmental Quality Act (CEQA) (Public Resources Code, Division 13, Chapter 3, section 21000 *et seq*.) in accordance with CWC section 13389.

E. STATE WATER RESOURCES CONTROL BOARD DECISIONS

34. **Compliance with Prohibitions and Limitations**. The receiving water limitation language specified in this Order is consistent with language recommended by the USEPA and established in State Water Board Order WQ 99-05 (amending WQ 98-01), Own Motion Review of the Petition of Environmental Health Coalition to Review Waste Discharge Requirements Order No. 96-03, NPDES Permit No. CAS0108740, adopted by the State Water Board on June 17, 1999.

35. **Special Conditions for Areas of Special Biological Significance**. On March20, 2012, the State Water Board approved Resolution No. 2012-0012 approving an exception to the Ocean Plan prohibition against discharges to Areas of Special Biological Significance (“ASBS”) for certain nonpoint source discharges

and NPDES permitted municipal storm water discharges. State Water Board Resolution No. 2012-0012 requires monitoring and testing of marine aquatic life and water quality in several ASBS to protect California's coastline during storms when rain water overflows into coastal waters. Specific terms, prohibitions, and special conditions were adopted to provide special protections for marine aquatic life and natural water quality in ASBS. The Special Protections contained in Attachment B to Resolution No. 2012-0012, applicable to discharges to ASBS', are hereby incorporated into this Order as if fully set forth herein (See Provision IV.E.).

F. ADMINISTRATIVE FINDINGS

38. **Executive Officer Delegation of Authority**. The Regional Board by prior resolution has delegated all matters that may legally be delegated to its Executive Officer to act on its behalf pursuant to CWC section 13223. Therefore, the Executive Officer is authorized to act on the Regional Board's behalf on any matter within this Order unless such delegation is unlawful under CWC section 13223 or this Order explicitly states otherwise.

39. **Standard Provisions**. Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in this Order.

40. **Fact Sheet/Technical Report**. The Technical Report for this Order contains background information, regulatory and legal citations, references and additional explanatory information and data in support of the requirements of this Order. The Technical Report serves as a fact sheet described in Parts 124.8 and 124.56 of the Code of Federal Regulations. The Technical Report is hereby incorporated into this Order and constitutes part of the Findings of this Order.

41. **Public Notice**. In accordance with State and federal laws and regulations, the Regional Board notified the Co-permittees, and interested agencies and persons of its intent to prescribe waste discharge requirements for the control of discharges into and from the MS4s to waters of the U.S. and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Technical Report.

42. **Public Hearing**. The Regional Board held a public hearing on MONTH(S), DATE(S) 2014, and heard and considered all comments pertaining to the terms and conditions of this Order. Details of the public hearing are provided in the Technical Report.

43. **Effective Date**. This Order serves as an NPDES permit pursuant to CWA section 402 or amendments thereto, and becomes effective fifty (50) days after the date of its adoption, provided that the Regional Administrator, USEPA,

Region IX, does not object to this Order.

44. **Review by the State Water Board**. Any person aggrieved by this action of the Regional Board may petition the State Water Board to review the action in accordance with CWC section 13320 and California Code of Regulations, title 23, sections 2050, *et seq*. The State Water Board must receive the petition by 5:00 p.m., 30 days after the Regional Board action, except that if the thirtieth day following the action falls on a Saturday, Sunday or State holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions will be provided upon request or may be found on the Internet at:

http://www.waterboards.ca.gov/public_notices/petitions/water_quality

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PERMIT REQUIREMENTS

IT IS HEREBY ORDERED that the Co-permittees[2], in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act, as amended, and regulations and guidelines adopted thereunder, must comply with the following:

I. GENERAL RESPONSIBILITIES OF THE CO-PERMITTEES

A. The Co-permittees (inclusive of the Principal Permittee), shall be responsible for the management of storm drain systems within their jurisdictions. To carry out the requirements of this Order, the Co-permittees must:
   1. Accurately document and effectively implement best management practices, including programs, policies, and procedures, within each of their respective jurisdictions.
   2. Develop and apply valid objective performance measures to track and assess the effectiveness of individual best management practices or systems of best management practices and execute timely program improvements necessary to improve the effectiveness of those practices.
   3. Annually evaluate the validity of performance measures and the methods used to measure achievement of performance measures.
   4. Participate with one another in the development of necessary programs, plans, procedures, strategies, and reports that are of mutual interest.
   5. Coordinate the relevant plans, policies, procedures, and standards of their internal agencies, departments, and divisions.
   6. Develop and execute necessary interagency agreements.
   7. Establish and maintain adequate legal authority, as required by the Federal Storm Water Regulations.
   8. Maintain records and submit reports that are adequate to determine compliance with the requirements of this Order.
   9. Monitor and report the progress of any plans, projects, and programs implemented to control the discharge of pollutants in urban runoff to their MS4s. Reports must include comparisons of outcomes to objectives, performance measures, or milestones prescribed by this Order or developed pursuant to Provision I.A.2. by the Co-permittees.

II. GENERAL RESPONSIBILITIES OF THE PRINCIPAL PERMITTEE

A. In addition to the General Responsibilities in Section I above, the Principal Permittee (County of Orange) is responsible for the overall management of the storm water program. To carry out the requirements of this Order, the Prinicpal

[2] As described in the Glossary of this Order, the term "Co-permittees" includes the Principal Permittee.

Permittee must:

1. Coordinate the planning and execution of necessary common programs, plans, policies, procedures, and strategies among the Co-permittees.
2. Monitor and report the progress of any plans, projects, and programs of mutual interest to the Co-permittees.
3. Conduct chemical and biological water quality monitoring and conduct any additional monitoring as directed by the Executive Officer and authorized by this Order.
4. Coordinate the preparation of written reports, programs, plans, and procedures, including the Annual Progress Report, and their submittal to the Executive Officer.

III. DISCHARGE PROHIBITIONS AND LIMITATIONS

A. Prohibitions

1. In accordance with the requirements of 40 CFR § 122.26(d)(2)(i)(B) and (F), the Co-permittees must effectively prohibit illicit/illegal discharges from entering into the municipal separate storm sewer system ("MS4") unless such discharges are authorized by an NPDES permit or are not prohibited according to Provision III.A.2., below.
2. The non-storm water discharges in Table 2 below do not need to be prohibited by the Co-permittees unless such discharges are identified by the Co-permittee(s) or the Executive Officer as a significant source of pollutants[3].
3. Except for those discharges described in Table 2 below, non-storm water discharges from Co-permittees' activities into waters of the U.S. are prohibited unless the discharge is authorized under an NPDES Permit.
4. With the recommendation of the Co-permittees or based on Substantial Evidence, the Executive Officer is authorized to add other types of discharges to Table 2 below, by way of written notice to the Co-permittees and after providing a minimum of 30 days for public comment.
5. Discharges of urban runoff from MS4s owned or operated by the Co-Permittees must be in compliance with the discharge prohibitions contained in Chapter 5 of the Basin Plan.
6. Discharges of urban runoff into waters of the U.S. from MS4s owned or operated by the Co-permittees which cause or contribute, or which threaten to cause or contribute to a condition of pollution, contamination, or nuisance (see CWC Section 13050) are prohibited.
7. The discharge to waters of the U.S. of any substance(s) in concentrations that are toxic to animal or plant life is prohibited.
8. The discharge to waters of the U.S. of any radiological, chemical, or biological warfare agent, or high-level radiological waste, is prohibited.

[3] Note that this Order now requires the effective prohibition of irrigation runoff into the MS4.

Table 2: Types of non-storm water discharges presumed to not be a significant source of pollutants

Air conditioning condensate
Passive foundation or footing drains
Water from crawl space pumps
Individual residential car washing and charity car washing events conducted by non-profit 501(c)organizations
De-chlorinated water from swimming pools (except cleaning wastewater and filter backwash)
Diverted stream flow
Rising ground water and natural springs
Ground water infiltration (as defined in 40 CFR § 35.2005(20)
Uncontaminated pumped groundwater
Flow from riparian habitats and wetlands
Temporary non-storm water discharges authorized by USEPA pursuant to Sections 104(a) or 104(b) of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA")[4]
Emergency firefighting flows necessary for the protection of life and property
Water not otherwise containing "waste", as defined in CWC Section 13050(d)

B. Limitations

1. The Co-permittees must implement an effective public education and outreach program for the purpose of reducing the volume of the anthropogenic non-storm water discharges included in Table 2 to the MS4s.
2. Non-storm water discharges occurring outside of the Newport Bay watershed from Co-permittee-owned or operated facilities or Co-permittee activities must be in compliance with the conditions and provisions of the General *De Minimis* Permit for Discharges to Surface Waters, Order No. R8-2009-0003, NPDES Permit No. CAG998001 (General *De Minimis* Permit) or subsequent reauthorizations or amendments.
3. Discharges to waters of the U.S. from swimming pools that are owned or operated by the Co-permittees must not be composed of pool cleaning

[4] These discharges must comply with water quality standards as applicable or relevant and appropriate requirements ("ARARs") under Section 121(d)(2) of CERCLA; or must be subject to either a written waiver of ARARs by USEPA pursuant to Section 121(d)(4) of CERCLA, or a written determination by USEPA that compliance with ARARs is not practicable considering the exigencies of the situation pursuant to 40CFR300.415(j).

wastewater or filter backwash.

4. The volume and velocity of non-storm water discharges must be controlled to prevent causing hydrologic conditions of concern.
5. Discharges from facilities owned or controlled by Co-permittees that extract, treat, and discharge water diverted from waters of the U.S. must meet the following requirements:
    a. The discharge to waters of the U.S. must not contain any pollutants added by the treatment process or contain pollutants in greater concentration(s) than the influent.
    b. The discharge must not cause or contribute to a condition of erosion or cause the suspension and discharge of pollutants already in the conveyance.
    c. The extraction and treatment must be in compliance with Section 404 of the Clean Water Act or with the conditions or provisions of any applicable permit, license, or CWA Section 401 Water Quality Standards Certification.

IV. RECEIVING WATER LIMITATIONS

A. Discharges of urban runoff from the Co-permittees' MS4s must not cause or contribute to a condition of nuisance or exceedances of water quality standards for surface waters and groundwaters.
B. Discharges of urban runoff from the Co-permittees' MS4s must comply with Provision IV.A. through timely implementation of storm water control measures and other actions to reduce pollutants in discharges according to the conditions and provisions of this Order. If exceedances of receiving waters limitations persist, notwithstanding implementation of storm water control measures and other actions, the responsible Co-permittees must achieve compliance with prohibitions and receiving waters limitations according to Subsection IV.D. below.
C. Determinations that discharges are causing or contributing to exceedances of water quality standards will be based, in part, on assessments of water quality data which are performed according to scheduled cycles of monitoring, analysis, and reporting required in attached Monitoring and Reporting Program No. R8-2015-0001 (Attachment A).
D. Upon a determination by a Co-permittee or the Executive Officer that a discharge is causing or contributing to the exceedance of an applicable water quality standard, the responsible Co-permittee(s) must submit a draft plan to the Executive Officer describing actions that will be taken to achieve compliance. A plan to achieve compliance with TMDL-related water quality-based effluent limits related to the exceeded water quality standard, and prepared according to Section XVIII of this Order, also satisfies this Provision.
    1. The draft plan must be submitted to the Executive Officer within 6 months of the Co-permittees becoming aware that a discharge is causing or contributing to the exceedance.
    2. Where a draft plan is requested in writing by the Executive Officer, the plan must be submitted by a date specified in the request.

3. The plan must:
    a. describe the pollutant(s) that are known or suspected of causing or contributing to the exceedance(s);
    b. describe the persons or activities believed to cause or contribute to the pollutant(s);
    c. describe the BMPs that are being employed to control the pollutant(s);
    d. describe any proposed new BMPs, or modification of currently-employed BMPs, along with a time schedule for their implementation to prevent or reduce the pollutant(s);
    e. include an objective analysis which provides a reasonable assurance that the new or modified BMPs can be expected to cause discharges to comply with the applicable water quality standard(s) as soon as possible[5]. The analysis must be supported, in part, by peer-reviewed models that are in the public domain where such models are available and appropriate.; AND
    f. include a monitoring program and periodic review to characterize the exceedance(s) and to objectively assess the effectiveness of BMPs employed to address them; OR
    g. provide objective evidence, acceptable to the Executive Officer, that there is a trend indicating that relevant pollutant loads or concentrations are decreasing and that the applicable water quality standard(s) are expected to be satisfied without further intervention; OR
    h. provide evidence, acceptable to the Executive Officer, that the cause of pollution is not within the jurisdiction or control of the Co-permittees.
4. The draft plan is subject to review by the Executive Officer. The Co-Permittees must make any such modifications to the plan within 60-days of written notification by the Executive Officer.
5. The draft plan becomes a final plan and must be fully implemented by the responsible Co-permittees upon approval by the Executive Officer. In the event that the Executive Officer determines that the Co-permittees have failed to fully implement the final plan, the Executive Officer may provide written Notice to the responsible Co-permittees and provide 60-days from the date of the Notice to correct the deficiencies.
6. The Executive Officer will provide a 30-day public review period prior to approving and finalizing the draft plan.
7. If, despite the implementation of the approved final plan described above in this Section, cycles of monitoring, analysis, and reporting continue to result in determinations that there are continuing or recurring exceedances of water quality standards caused or contributed to by discharges from the Co-permittees' MS4s, the Co-permittees must

[5] Taking into account the technological, operational, and economic factors that affect the design, development, and implementation of the BMPs necessary to comply with the water quality standard.

reinitiate the procedure in this Section[6]. Successive iterations must include in the new draft plan: (1) an updated reasonable assurance analysis; (2) modifications to BMPs, (3) additional BMPs, and (4) if appropriate, changes to the monitoring program.

8. The Co-permittees must make the final plan accessible to the public by posting the plan to the responsible Co-permittees' web sites, the Principal Permittee's web site, or another method acceptable to the Executive Officer.
9. Except for inconsequential grammatical or technical corrections, the final plan may be amended by the Co-permittees only with the approval of the Executive Officer.
10. Where the Co-permittee(s) believe that additional time is necessary to comply with a deadline in the implementation schedule of the final plan, and the Co-permittee(s) fail to timely request, or is not granted an extension, Co-permittees may request a time schedule order pursuant to California Water Code Section 13300.

E. The Special Protections contained in Attachment B to Resolution No. 2012-0012, as amended or reauthorized by the State Water Resources Control Board, are hereby incorporated into this Order as if fully set forth herein. The Special Protections are specifically applicable to discharges of urban runoff from the City of Newport Beach's MS4 to Newport Coast and Crystal Cove (ASBS 32 and ASBS 33, respectively) which are authorized by this Order. Where there are conflicts between this Order and the Special Protections, the most protective requirements, as determined by the Executive Officer, shall prevail. The Special Protections are accessible at:

http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0012.pdf

V. IMPLEMENTATION AGREEMENT

The Co-permittees must execute inter-agency and inter-Co-permittee agreements necessary to satisfy the requirements of this Order.

VI. LEGAL AUTHORITY/ENFORCEMENT

A. Each Co-permittee must secure and maintain legal authority adequate to control the discharge of pollutants in urban runoff to their MS4s pursuant to the requirements of this Order.
B. Each Co-permittee must track and evaluate challenges to their authority to control the discharge of pollutants in urban runoff to their MS4s.
    1. Where a formal or informal challenge indicates a weakness in the Co-

[6] Pursuant to Provision II.B.3.a. of MRP No. R8-2015-0001, the cycle of adaptive planning must occur not less than once every 5 years.

Permittees' authority, the Co-permittee must act in good faith and in a timely manner to make their authority adequate.

2. The Co-permittees must report any discovered weaknesses in their legal authority in their Program Effectiveness Assessment. The report must include a plan, with a schedule of action(s), to make their authority adequate.

C. Each Co-permittee must secure and maintain legal authority that is adequate to enter, inspect, and gather evidence (including pictures, video, samples, statements, and documents) from industrial, construction, and commercial establishments to determine compliance with ordinances, permits, conditions, and other requirements of the Co-permittees related to the control of discharges of pollutants to their MS4s.

D. Each Co-permittee must maintain adequate legal authority to impose a series of effective, progressive sanctions to compel compliance with their regulatory requirements related to the control of discharges of pollutants to their MS4s.

E. Within 90-days of the effective date of this Order, each Co-permittee must develop a formal, written program, which describes supporting policies and procedures that effectively promote the consistent and decisive use of their sanctions, and describes performance measures to track and objectively evaluate the sanctions' effectiveness.

VII. ILLICIT DISCHARGES, ILLICIT CONNECTIONS, AND ILLEGAL DUMPING; LITTER DEBRIS AND TRASH CONTROL

A. Each Co-permittee must effectively prohibit illicit discharges and illicit connections to their respective MS4s through their ordinances and other appropriate mechanisms.

B. Each Co-permittee must employ an effective mechanism for the public to report known or suspected illicit discharges, illicit connections, and illegal dumping. The reporting mechanism must be continuously advertised to the public by each Co-Permittee using a minimum of two media outlets (i.e. newsprint, internet, telephone directory, etc.).

C. Each Co-permittee must advertise the availability of mechanisms for residents to dispose of wastes that have the potential to be discharged to their MS4s.

D. The Co-permittees must implement an effective program to detect illicit discharges and illicit connections; to abate illegal dumping that has the potential to result in a discharge of pollutants to their MS4s; to trace the source of illicit discharges and connections; and to eliminate or permit such discharges and connections. The Co-permittees' program must be fully described in written processes and procedures. Sanitary Sewer Overflows shall be treated as a sub-class of illicit discharges subject to additional requirements of Subsection VII.F.

1. Co-permittees must provide mutual assistance to one another in detecting known or suspected illicit discharges, illicit connections, and illegal dumping.
2. Each Co-permittee must maintain an electronic database that tracks instances of known or suspected illicit discharges, illicit connections, and

illegal dumping within their respective jurisdictions.

a. The database must be designed and used to track compliance with the requirements of this Section (Subsection VII.D.).
b. The database must be designed and used to guide the Co-Permittees' most effective use of resources towards satisfying the requirements of this Section.

3. Each Co-permittee must identify the personnel or staff positions that are responsible for satisfying the requirements of Subsection VII.D. of this Order in their written program.
4. The Co-permittees must maintain maps of their respective MS4s that contain information of sufficient detail and quality to trace the source of suspected illicit discharges in a timely manner.
   a. The maps must be distributed in a format that is readily available to personnel responsible for satisfying the requirements of Subsection VII.D. of this Order.
   b. The maps must be reviewed and updated annually.
5. The Co-permittee that is the local jurisdiction must initiate (or cause to be initiated) a source investigation where bacterial monitoring (see Monitoring and Reporting Program No. R8-2015-0001) indicates AB411 receiving water standards are exceeded in ocean outfalls/tributaries and in the nearby surf zone.
6. A source investigation must occur in substantial conformance with a common set of written techniques and procedures developed by the Permittees as part of the written program described in Provision VII.D.
   a. When the source of an illicit discharge or illicit connection is discovered, the Co-permittee(s) must take immediate action to eliminate the discharge or connection or require that it be subject to appropriate NPDES permit(s) within 120 calendar days of discovery.

E. Each Co-permittees must implement an effective program to reduce and/or eliminate the discharge of trash and debris to waters of the U.S.
   1. Measures employed for the control of trash and debris must be reported and reviewed annually by the Co-permittees to objectively evaluate the measures' effectiveness. The results of the reviews must be provided annually in the Annual Progress Report.
   2. The principle Co-permittee must demonstrate that the Co-permittees have formally evaluated new technologies for the control of trash and debris, as they become aware of them, and report the findings in the Annual Progress Report.
   3. Co-permittees may discontinue control measures for trash and debris that they deem to pose an unmitigatable hazard or to be ineffective provided that the measure is replaced by an equal or more-effective measure.
      a. The permanent substitution of control measures must be reported in the Annual Progress Report and approved by the Executive Officer. The proposed substitution must be supported by substantial objective evidence. This applies to program-level changes and not to the day-to-day operation of control

measures.

b. Co-permittees must satisfy any conditions imposed by the Executive Officer as part of the approval of any substitution.

F. For those Co-permittees that own or operate sanitary sewer systems over one mile in length, the State Board has established minimum requirements to prevent and mitigate sanitary sewer overflows ("SSOs") in Order No. 2006-0003-DWQ, "Statewide General Waste Discharge Requirements for Wastewater Collection Agencies". The Co-permittees that are not subject to the requirements of Order No. 2006-0003-DWQ, or subsequent renewals, must implement an effective program to detect and mitigate SSOs as follows:

1. The Co-permittees' SSO program(s) must be comprised of the following elements:
    a. Procedures for responding to SSOs.
    b. A hands-on field training program for Co-permittees' staff responsible for responding to SSOs.
    c. An awareness-level training program for Co-permittees' field staff most likely to initially detect SSOs.
    d. If necessary, executed Memorandum/Memoranda of Understanding ("MOU") for delineating jurisdictional and financial responsibilities for the program.
    e. Objective program performance measures comprised, at a minimum, of SSO response time targets, training targets, and spill recovery targets.
2. Co-permittees must respond to SSOs according to the formal written response procedures unless there is cause to believe that such a response would not be most effective under the circumstances.
3. Co-permittees must maintain records adequate to demonstrate that they implemented the SSO program and its elements; records must be maintained for a minimum of five (5) years.
4. The Principal Permittee is responsible for developing a model SSO program and its elements; and for documenting and reporting the program(s') outcomes in the Annual Progress Report.

VIII. MUNICIPAL INSPECTIONS OF CONSTRUCTION SITES

A. Each Co-permittee must maintain an inventory of all construction sites within its jurisdiction.

1. The construction sites inventory must include sites where building or grading permits are applicable and where activities at the site include the following:
    a. Soil movement;
    b. Uncovered storage of materials or wastes, such as dirt, sand, fertilizer, or landscaping materials; OR
    c. Exterior mixing of cementitious products (i.e. concrete, mortar, or stucco).

2. All construction sites shall be included in the Co-permittees' inventory regardless of whether the site is subject to the Statewide General Construction Permit or an individual NPDES permit.
3. The inventory of construction sites must be updated once per month, at a minimum.
4. Each Co-permittees' inventory of construction sites must be maintained in an electronic-format database. The database records must include information on site/project ownership, project area, General Construction Permits WDID (if any), and location (latitude/longitude in decimal-degrees or NAD83/WGS84 format).

B. Each Co-permittee must inspect construction sites in their inventory. Each Co-permittee must have written policies and procedures that describe how inspections and related enforcement actions are carried out. Inspections and related enforcement actions must be carried out in a manner that enforces compliance with applicable ordinance(s), plans, permits, or other requirements related to the control of discharges of pollutants to their MS4s.
    1. Co-permittees must categorize all construction sites in their inventory as either "high-priority", "medium-priority", or "low-priority". Construction sites with an expected or actual duration of more than two weeks must be inspected according to the following schedule:
        a. May 1st through September 30th of each year (dry season): all construction sites must be inspected at a frequency where sediment and other pollutants are properly controlled and that unauthorized, non-storm water discharges are prevented.
        b. October 1st through April 30th of each year (wet season):
            i. High-priority sites must be inspected once every two (2) months in their entirety.
            ii. Medium-priority sites must be inspected twice during the wet season.
            iii. Low-priority sites must be inspected once during the wet season.
        c. Where a Co-permittee determines that BMPs or their maintenance are inadequate or out of compliance, the site must be inspected once per month until the deficiency is corrected.
    2. A construction site must be considered "high priority" if it meets any of the following minimum criteria:
        a. The site is 20-acres or larger;
        b. The site is over one acre and tributary to a water body listed according to Clean Water Act Section 303(d), as being impaired by sediment or turbidity; OR
        c. The site is tributary to, and within 500-feet of, an area defined by the Ocean Plan as an Area of Special Biological Significance ("ASBS").
    3. A construction site must be considered "medium-priority" if it consists of between 5 and 20 acres of disturbed soil and is not otherwise a high-priority site. All other sites may be considered "low-priority".
    4. Co-permittees must consider other factors or circumstances that could

cause a construction site to fall into a higher priority. These factors include, but are not limited to, soil erosion potential, site slope, proximity to a receiving water, and the sensitivity of the receiving water to potential pollutants from the site.

5. Co-permittees must inspect construction sites according to a checklist. The checklist must document, at a minimum, that the inspector:
   a. Verified that the site has been covered by the General Construction Permit, if applicable, during the initial inspection;
   b. Reviewed an Erosion and Sediment Control Plan, to verify that the BMPs on the site are appropriate for the phase of construction;
   c. Identified, through visual observation, any non-storm water discharges and potential pollutant sources;
   d. Assessed the effectiveness of BMPs implemented at the site; and
   e. Identified and communicated to the site representative non-compliance with requirements related to the control of discharges of pollutants to the Permittee's MS4s.
6. Co-permittees must address non-compliance with applicable ordinance(s), plans, permits, or other requirements related to the control of discharges of pollutants to their MS4s with a series of effective, progressive actions in order to compel compliance.
7. Completed inspections must be recorded in an electronic-format database. The database must be organized in a manner that is adequate to determine compliance with the requirements of this Order. Inspection records must be maintained a minimum of three (3) years from the date of the project's completion.
8. Construction site inspectors must be trained according to Section XVI of this Order; inspectors must undergo training once per year.
9. The Executive Officer must be notified of any known, suspected, or threatened violation of applicable waste discharge requirements (i.e. State-wide General Construction Permit, etc.), discovered during inspections of construction sites according to Section XVII.C. of this Order. Such violations include, but are not limited to:
   a. Failure to obtain coverage under the applicable waste discharge requirements.
   b. Unauthorized discharges.
10. Except as provided for in Section XVII of this Order, Co-permittees must investigate complaints regarding construction sites, received by internal departments or divisions, external agencies, or the public, within three (3) business days of the complaint being brought to their attention.

IX. MUNICIPAL INSPECTIONS OF INDUSTRIAL SITES

A. Each Co-permittee must maintain an inventory of all industrial sites with the potential to discharge pollutants to the MS4 within its jurisdiction.
   1. Industrial sites shall be included in the Co-permittees' inventory

regardless of whether the site is subject to the Statewide Industrial General Permit or other NPDES permit.

2. The inventory of industrial sites must be updated once every three months, or more frequently.
3. Each Co-permittees' inventory of industrial sites must be maintained in an electronic-format database. The database records must include information on site/project ownership, project area, Industrial General Permits WDID (if any), and location (latitude/longitude in decimal-degrees or NAD83/WGS84 format).

B. Each Co-permittee must inspect industrial sites in their inventory. Each Co-permittee must have written policies and procedures that describe how inspections and related enforcement actions are carried out. Inspections and related enforcement actions must be carried out in a manner that consistently enforces compliance with applicable ordinance(s), plans, permits, or other requirements related to the control of discharges of pollutants to their MS4s.
   1. Co-permittees must categorize all industrial sites in their inventory as either "high-priority", "medium-priority", or "low-priority". Industrial sites must be inspected according to the following schedule:
      a. High-priority sites must be inspected once per year in their entirety.
      b. Medium-priority sites must be inspected once every two years.
      c. Low-priority sites must be inspected once every five years.
      d. An inspection of an industrial site that is covered by the General Industrial Permit or other NPDES storm water permit and performed by Regional Board staff may be substituted for any one of the above-required inspections for the same site.
      e. Where a Co-permittee determines that a site is out of compliance with requirements, the industrial site must be inspected, at a minimum, once per month until the site is in compliance.
   2. An industrial site must be prioritized as high priority if the site meets any of the following criteria:
      a. The site is subject to Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 ("SARA");
      b. The site requires coverage under the General Industrial Permit or other NPDES storm water permit;
      c. The site has a history of unauthorized non-storm water discharges;
      d. The site is tributary to, and within 500-feet of, an area defined by the Ocean Plan as an Area of Special Biological Significance ("ASBS").
   3. Co-permittees must consider additional site- specific risk factors that could cause an industrial site to be categorized into a higher priority. These risk factors include, but are not limited to:
      a. quantity of materials or wastes used or stored outside;
      b. the potential for pollutants to be mobilized by storm water;
      c. facility size;
      d. proximity to a receiving water;
      e. the presence of an infiltration LID BMP that accepts "storm water

associated with industrial activity"[7];
f. the sensitivity of the receiving water to potential pollutants from the site (e.g. water bodies listed on the 303(d) List); AND
g. any other relevant factors.

4. Co-permittees must conduct inspections of industrial sites according to a checklist. The checklist must document, at a minimum, that:
   a. During the initial inspection, the inspector verified that the site has been covered by the General Industrial Permit, if applicable;
   b. The inspector identified, through visual observation, any non-storm water discharges and potential pollutant sources;
   c. The inspector assessed the effectiveness of BMPs implemented at the site;
   d. The inspector documents evidence of non-compliance or threatened non-compliance with requirements related to the control of discharges of pollutants to the Co-permittee's MS4s.
5. Industrial site inspections must be recorded in an electronic-format database in a manner that is adequate to determine compliance with the requirements of this Order. Inspection records for a facility operator must be maintained for a minimum of five (5) years while in business and three (3) years following termination of business at the site.
6. Co-permittees must address instances of non-compliance with a series of effective, progressive actions to ultimately compel compliance.
7. Industrial site inspectors must be trained according to Provision XVI of this Order; inspectors must undergo training once per year.
8. The Executive Officer must be notified of any known, suspected, or threatened violation of applicable waste discharge requirements (i.e. State-wide General Industrial or Construction Permits, etc.), discovered during inspections of industrial sites according to Provision XVII.C. of this Order. Such violations include, but are not limited to:
   a. Failure to obtain coverage under the applicable waste discharge requirements.
   b. Unauthorized discharges.
9. Except as provided for in Provision XVII of this Order, Co-permittees must investigate complaints regarding industrial sites, received by internal staff, external public agency staff, or the public, within three (3) business days of the complaint being brought to their attention.

X. MUNICIPAL INSPECTIONS OF COMMERCIAL SITES

A. Each Co-permittee must maintain an inventory of commercial sites listed in Subsection X.A.3 below within its jurisdiction.
   1. The inventory of commercial sites must be updated once every three months, at a minimum.
   2. Each Co-permittees' inventory of commercial sites must be maintained in

[7] See the Industrial General Permit for a detailed definition of "storm water associated with industrial activity".

an electronic-format database. The database records must include information on the following attributes:

a. site/business ownership;
b. site area;
c. any related approved Water Quality Management Plans and associated structural treatment control BMPs; AND
d. location (latitude/longitude in decimal-degrees or NAD83/WGS84 format).

3. Commercial sites include, but are not limited to those engaged in the following:
   a. Aircraft maintenance, fueling, or cleaning;
   b. Animal care facilities such as petting zoos and boarding and training facilities;
   c. Automobile and other motor vehicle body repair or painting;
   d. Automobile impound and storage facilities;
   e. Automobile mechanical repair, maintenance, fueling, or cleaning;
   f. Botanical or zoological gardens;
   g. Building material retail and storage facilities;
   h. Cemeteries;
   i. Eating or drinking establishments, including food markets and restaurants;
   j. Golf courses, parks, and other recreational areas or facilities;
   k. Landscape and hardscape installation;
   l. Machinery and equipment repair, maintenance, fueling, or cleaning;
   m. Marina operations;
   n. Nurseries and greenhouses;
   o. Painting and coating;
   p. Pest control service facilities;
   q. Pool, lake and fountain cleaning;
   r. Portable sanitary service facilities;
   s. Transportation services for passengers, parcels or freight;
   t. Watercraft maintenance, fueling, or cleaning;
   u. Any commercial sites that is tributary to, and within 500-feet of, an area defined by the Ocean Plan as an Area of Special Biological Significance; AND
   v. Other commercial sites that the Co-permittee determines may be a significant contributor of pollutants to the MS4.

B. Each Co-permittee must inspect commercial sites in their inventory. Inspections must occur according to written processes and procedures, and in a manner to enforce compliance with ordinance(s), plans, permits, WQMPs, or other requirements related to the control of discharges of pollutants to their MS4s.
   1. Co-permittees must prioritize all commercial sites (except for eating or drinking establishments, see Subsection X.C. below) in their inventory as either “high-priority”, “medium-priority” or “low-priority”.
   2. Each Co-permittee must categorize a minimum of 5% of their inventoried commercial sites as “high-priority”; a minimum of 15% of their inventoried commercial sites as “medium-priority”; and the remainder as “low-priority”.

3. Prioritized commercial sites must be inspected according to the following schedule:
    a. High-priority sites must be inspected once per year in their entirety.
    b. Medium-priority sites must be inspected once every two years.
    c. Low-priority sites must be inspected once every five (5) years.
4. Any Co-permittee may propose an alternative priority category distribution of their commercial sites and implement the related inspection schedule within their jurisdiction subject to the written approval of the Executive Officer.
    a. The approved alternative distribution and schedule must be implemented in lieu of the distribution and inspection schedule prescribed in this Section subject to any conditions of approval established by the Executive Officer.
    b. The Executive Officer may rescind that approval for cause with written notification to the Co-permittee(s).
5. Where a Co-permittee determines that BMPs or their maintenance is inadequate or out of compliance, the commercial site must be re-inspected within two weeks until BMPs and their maintenance is adequate or in compliance.
6. If Regional Board staff inspects a commercial site, the Co-permittee may substitute Regional Board staff's inspection for an inspection required under this Order for the same site.
7. Co-permittees must exercise their discretion and consider site-specific factors that could cause a commercial site to be categorized into a higher priority. These factors include, but are not limited to, soil erosion potential, site slope, proximity to a receiving water, and the sensitivity of the receiving water to potential pollutants from the site.
8. Co-permittees must conduct inspections of commercial sites according to a checklist. The Co-permittees must use the checklist to document, at a minimum, that:
    a. The inspector identified, through visual observation, any non-storm water discharges, evidence of non-storm water discharges, and potential pollutant sources;
    b. The inspector assessed the effectiveness of BMPs implemented at the site;
    c. The inspector documented evidence of non-compliance or threatened non-compliance;
    d. If the inspector identifies non-compliance or a threat of non-compliance with relevant requirements, or determines that BMPs are ineffective; the inspector notified the site operator and provided the applicable BMP Fact Sheet(s) and any other relevant published educational materials.
9. Commercial site inspections must be recorded in an electronic-format database in a manner that is adequate to determine compliance with the

requirements of this Order. Inspection records for a site operator must be maintained for a minimum of five (5) years while in business and three (3) years following the termination of business at the site.

10. Co-permittees must address non-compliance with a series of effective, progressive actions to ultimately compel compliance.
11. Commercial site inspectors must be trained according to Provision XVI of this Order; inspectors must undergo training once per year.
12. The Executive Officer must be notified of any known, suspected, or threatened violation of applicable waste discharge requirements (i.e. State-wide Construction Permit, etc.), discovered during inspections of commercial sites according to Provision XVII of this Order.
13. Except as provided for in Provision XVII of this Order, Co-permittees must investigate complaints regarding commercial sites, received by internal departments or divisions, external agencies, or the public, within three (3) business days of the complaint being brought to their attention.

C. The Co-permittees must inspect eating or drinking establishments annually or cause such inspections to occur on their behalf by another party. These third-party inspections are anticipated to occur as part of the Orange County Health Care Agency ("HCA") restaurant inspection program.
   1. The inspections must occur, in part, to enforce the local Co-permittee's requirements related to the control of discharges of pollutants to their MS4s (See Section III).
   2. Where the inspecting agency staff observes known or suspected violations of a local Co-permittee's requirements related to the control of discharges of pollutants to their MS4s, the known or suspected violation must be referred to the Co-permittee within two (2) business days.
   3. Co-permittees must respond to referrals from the HCA or other third-party within three (3) business days of the matter being brought to their attention.

D. The Co-permittees must implement an enforcement and outreach program for the following mobile businesses operating in the permit area: automobile wash/detail services, carpet cleaners, and pet services. The purpose of the program must be to identify potential dischargers and eliminate illicit non-storm water discharges into the MS4.

XI. RESIDENTIAL PROGRAM (INCORPORATED INTO PUBLIC EDUCATION)

XII. NEW DEVELOPMENT (INCLUDING SIGNIFICANT REDEVELOPMENT)

A. Planning Requirements

1. Each Co-permittee must adopt policies and procedures that are effective at integrating source control, site design and structural treatment control BMPs as early in the land-use planning and development process as

practicable.

2. The Executive Officer or his designee, must be given the appropriate notices where a Co-permittee initiates an amendment or update of their General Plan which may directly, indirectly, or cumulatively impact beneficial uses, consistent with the requirements of Government Code Section 65350 *et seq*. This requirement does not diminish any other obligations of the Co-permittees' to provide notice to the Regional Board as a Responsible Agency pursuant to CEQA.
3. Within 12-months of the effective date of this Order, the Principal Permittee must review, update and submit to the Executive Officer any studies performed to examine feasible opportunities to retrofit existing storm water conveyance systems, parks, and other recreational areas with regional or sub-regional structural treatment control BMPs. The update shall expand the scope of the examination to include areas owned or controlled by the Co-permittees. If necessary, work necessary to complete only the expanded scope may be phased, but all phases must be completed no later than 36-months from the effective date of this Order.
4. Within 12 months of the effective date of this Order, the Principal Permittee must, in coordination with the groundwater management agencies, develop a water quality monitoring project to assess the potential impacts of storm water infiltration on groundwater quality. The project shall consider other similar studies that have been conducted to ensure that this project will complement those studies and add new data and/or information. The monitoring project may be conducted by: (1) analyzing the quality of the runoff prior to infiltration; (2) by monitoring the quality of the infiltrate through the vadose zone; and/or (3) by monitoring groundwater quality upstream and downstream of the infiltration systems. The project shall be implemented over the permit term and reported on within the Annual Progress Report.

B. Classifying and Processing Priority and Non-priority Projects

1. The requirements of Section XII.B., and subsequent sub-sections of Section XII., apply to initial project applications received by the Co-Permittees beginning 90-days after the effective date of this Order (50-days following adoption) and thereafter. For projects initiated by the Co-permittees, the requirements apply to projects that are approved 90-days after the effective date of this Order and thereafter. In the interim, the relevant requirements of Order No. R8-2009-0030 shall apply.
2. Each Co-permittee must classify development and redevelopment projects over which they have approval authority as "priority projects" (see Subsection XII.B.5. below) or "non-priority projects". Non-priority projects may be further subdivided by the Co-permittees into those requiring Non-priority Project Plans and those that do not, as described in Subsection XII.M.
3. Each Co-permittee must employ a standardized form, checklist, or similar mechanism to document the basis for classifying a project as a priority

project or a non-priority project.

a. Each Co-permittee is responsible for ensuring the accuracy of information relied on in support of the Co-permittee's classification.
b. The Co-permittees must maintain records of the basis for classification for a minimum of five years following the completion of the project.

4. Co-permittees must consider the whole of the project in classifying a project; the Co-permittees must not piecemeal a project.
5. Each Co-permittee must regard projects that fit any of the following categories of projects as priority projects; all other projects may be regarded as non-priority projects:
    a. Significant redevelopment projects that include the addition or replacement of 5,000 square feet or more of impervious surfaces on a developed site.
        i. Redevelopment projects do not include those areas where impervious surfaces are replaced as part of routine maintenance activities, or as part of activities that are conducted to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.
        ii. Redevelopment projects do not include those areas where impervious surfaces are replaced as part of the replacement, upgrade, or installation of dry utilities (e.g. gas, electric, and telecommunications), sanitary sewer, petroleum pipelines, or water distribution lines in existing rights of way.
        iii. Where a redevelopment project results in the addition or replacement of 50% or less of the impervious surfaces of an existing developed site, and the existing development was not subjected to a properly-implemented and properly-approved WQMP, the numeric sizing requirements for structural treatment control BMPs apply only to runoff from the impervious areas added or replaced and not from the entire developed site.
        iv. Where a redevelopment project results in the addition or replacement of more than 50% of the impervious surfaces of an existing developed site, the numeric sizing requirements must be applied to runoff from the entire development.
    b. New developments that create a total of 10,000 square feet or more of impervious surfaces, including commercial, industrial, and mixed-use developments; public and private capital improvement projects; and subdivisions for single and multi-family dwelling units. This category includes public or private land development projects subject to the planning and building authorities of the Co-permittees.
    c. New automotive repair shops that engage in activities described by Standard Industrial Classification ("SIC") codes 5013, 5014, 5541, 7532 through 7534, and 7536 through 7539.
    d. Restaurants where the area of land development is 5,000 square feet or more.

e. Hillside developments affecting 5,000 square feet or more, in areas with known erosive soil conditions or where the natural slope is 25% or more.
f. Development that includes the construction of 2,500 square feet or more of impervious surface that is located within 200 feet of, or which discharges the site's runoff into, an environmentally sensitive area where the discharge is not commingled with discharges from other sites.
g. Parking lots, or other land areas or facilities for the temporary storage of motor vehicles, that includes the construction of 5,000 square feet or more of impervious surface exposed to storm water.
h. Street, road, highway and freeway improvement or construction projects affecting 5,000 square feet or more of paved surface used for the transportation of vehicles.
    i. This category excludes routine maintenance to restore or preserve the surface type and line and grade.
    ii. Project WQMPs for this category must be consistent with the USEPA's "Managing Wet Weather with Green Infrastructure Municipal Handbook: Green Streets"[8].
i. New retail gasoline outlets of 5,000 square feet or more and with a projected average daily traffic of 100 or more vehicles per day.

6. Each Co-permittee must require a preliminary WQMP or a non-priority project plan as part of a complete application for a project. Both the preliminary WQMP and non-priority project plan must be subject to the Co-permittee's approval. A preliminary WQMP must be approved prior to the project's approval by the Co-permittee's decision-making body (e.g. city council, Board of Supervisors, etc.).
7. A WQMP or Non-Priority Project Plan is not required for a project which, in its entirety, is necessary to mitigate an emergency.
8. The Co-permittees' staff, contractors, or vendors responsible for preparing, reviewing or approving WQMPs or non-priority project plans or for enforcing their implementation must be trained according to Section XVI of this Order.
9. Each Co-permittee must employ an effective mechanism to inform potential project applicants of the need for a preliminary WQMP or a non- priority project plan as part of a complete application prior to the submittal of an application.
10. A Co-permittee must not allow precise grading or final construction work to proceed on the subject phase of a project prior to approval of a final project WQMP or non-priority project plan for that phase.
11. Each Co-permittee must have an effective process that enforces substantial conformance between relevant project plans (i.e. grading plans, drainage

[8] Lukes, Robb and Kloss, Christopher, "Managing Wet Weather with Green Infrastructure Municipal Handbook: Green Streets", USEPA, Low Impact Development Center, EPA-833-F-08-009, December 2008. Available at: http://water.epa.gov/infrastructure/greeninfrastructure/upload/gi_munichandbook_green_streets.pdf

plans, landscaping plans, etc.) and the approved preliminary and final project WQMP or non-priority project plans.

12. Each project WQMP or non-priority project plan approved by the Co-Permittees must contain sufficient information to demonstrate that the final WQMP or non-priority project plan was approved according to the requirements of this Order.
13. Each Co-permittee must have effective standard processes to ensure that the final project WQMP and non-priority project plan is internally consistent and free of material contradictions.
14. As part of the project approval process, each Co-permittee must apply standard conditions of approval, or some other effective measure(s), that requires the proper operation and maintenance of all source control, site design, and structural treatment control BMPs by the project applicant, their successors and assigns over the life of the project.
15. Each Co-permittee must have an effective inspection program to identify and correct missing, damaged, or deficient source control, site design, and structural treatment control BMPs during the construction or development of priority and non-priority projects.
16. In addition to using published and generally-accepted engineering design criteria (see Subsection D below), each Co-permittee must develop, publish, and apply guidelines developed for the purpose of providing that site design and structural treatment controls to be readily inspected and maintainable and generally of a quality that is satisfactory to the Co-permittee.
17. Co-permittees are prohibited from permitting final occupancy or otherwise effectively issuing final approval of a priority or non-priority project site until all source control, site design, and, where applicable, structural treatment control BMPs are constructed, serviceable, and satisfactory to the Co-permittee or otherwise certified as such by a licensed professional engineer on behalf of the project applicant.
    a. Serviceable facilities must operate as intended; where the Co-Permittee is unable to conclusively determine that a facility is serviceable, the Co-permittee must require that the project applicant conduct a satisfactory field demonstration.
    b. Where deficiencies exist, the Co-permittee may permit final occupancy or issue final approval only if written enforcement action is taken and a time schedule to bring the site into compliance with its WQMP or non-priority project plan has been approved by the Co-permittee.
    c. Co-permittees must require that certifications by the licensed professional engineer be affixed with said engineer's stamp and maintained as part of the WQMP or non-priority project plan.
18. Each Co-permittee must have effective standard processes that provide the following:
    a. Approved final project WQMPs and non-priority project plans are retained using a system that allows for their ready retrieval for the life of the project.

b. The Co-permittee is able to validate the authenticity of approved final project WQMPs and non-priority project plans.
c. Approved final WQMPs and non-priority project plans are protected by the Co-permittee's standard record protection practices in the event of fire, information system failure or attack, or other loss or damage.

C. General Requirements for Priority Projects

1. The Co-permittees must require priority projects to use source control, site design, and structural treatment control BMPs to remove pollutants in urban runoff [9]. These BMPs and other information necessary to demonstrate compliance with this Order must be documented in a project WQMP.
2. Project WQMPs must be prepared in substantial conformance with uniform written technical guidance[10]. The technical guidance must implement the requirements of this Order for the benefit of persons responsible for preparing, reviewing and approving, enforcing, and implementing WQMPs.
3. Project WQMPd must be prepared by or under the supervision of a registered civil engineer or licensed landscape architect (See Provision XII.D.8. below).
4. Final project WQMPs must be approved by or under the supervision of a registered civil engineer acting on behalf, and with the expressed permission, of the Co-permittee.
5. Each Co-permittee must employ effective, uniform mechanisms to provide efficiency and consistency in their WQMP-approval process. The mechanisms must be subject to a bi-annual review by the Co- Permittees for the purpose of promoting the mechanisms' continual improvement. Such mechanisms may include the following:
    a. Use of written standard instructions, processes, procedures, and methods.
    b. Use of standardized paper forms, checklists, and worksheets.
    c. Use of model language for project WQMPs or categories of project WQMPs.
    d. Use of standardized models, electronic spreadsheets, web-based tools, and other software.
    e. Prepared maps, tables and other sources of information necessary for preparers and reviewers to evaluate the feasibility of structural treatment control BMPs.
6. The Co-permittees must provide and promote a mechanism for stakeholder input in the continual improvement process for the preparation, review, enforcement, and implementation of WQMPs.
7. The Co-permittees must require project proponents to demonstrate

[9] See Glossary for the meaning of "structural treatment control BMP".
[10] This guidance is anticipated to consist of the 2011 Model Water Quality Management Plan and its accompanying Technical Guidance Document as amended or revised by the Co-permittees to satisfy the requirements of this Order.

in each approved project WQMP that there is a source of funding available and a party responsible for the long-term performance, operation, and maintenance of source control, site design, and on-site or off-site structural treatment control BMPs over the life of the project.

8. The Co-permittees must provide that approved WQMPs are maintained in public records in a manner that allows for their discovery by interested parties and facilitates the transfer of responsibility in the event of the sale, lease, or other transfer of ownership or control of the affected site (e.g. a lease).
9. The Co-permittees must provide that any covenants, conditions, and restrictions, easements or other similar mechanisms necessary for the implementation of an approved WQMP are properly maintained in public records with the County and/or the relevant city.
10. The Co-permittees must maintain an electronic database adequate to identify sites affected by an approved WQMP.
    a. The database must be established within 6-months of the effective date of this Order. The database must include records identifying all structural treatment control BMPs installed after May 22, 2009 and their following attributes:
        i. Type of structural treatment control. If a 'type' does not comply with Provision XII.C.5., the facility must be identified as "undetermined".
        ii. For infiltration LID BMPs: depth of invert and screen interval, if applicable.
        iii. Standards applied to the design of the facility.
        iv. Location by watershed and by a scale sufficient for location in the field.
        v. Date of construction or date first placed in service.
        vi. Party responsible for maintenance and their contact information, including emergency contact information.
        vii. Source of funding for operation and maintenance.
        viii. Actual or alleged performance, maintenance, or nuisance problems identified during any site inspections by the Co-Permittees or brought to their attention.
    b. Information regarding WQMPs that were approved prior to May 22, 2009 must populate the database on an opportunistic basis.
    c. Sites that are part of the Co-permittees' industrial and commercial inspection program inventories and which are subject to any approved WQMPs must have their information populated in the database no later than 60 months from the effective date of this Order.
11. The Co-permittees must refer nuisance problems associated with structural treatment control BMPs to the Orange County Vector Control District within 5 business days of the problem becoming known. The Co-Permittees must cooperate in good faith with the Orange County Vector Control District to remedy any confirmed nuisance problems.

D. General Requirements for Structural Treatment Control BMPs

1. Structural treatment control BMPs must be sized to infiltrate, filter, or remove pollutants from the design capture volume or design capture flow from their respective tributary areas as required by this Subsection (Subsection XII.D.).
2. The Co-permittees must have effective processes and policies in their written technical guidance that provide that the selection of structural treatment control BMPs conforms to the requirements of Subsections XII.E. through M. of this Order (See also ProvisionXII.C.2.).
3. A singular or set of structural treatment control BMPs that are volume-based must be sized to infiltrate, filter, or remove pollutants from any of the following design capture volumes from their tributary area:
    a. The volume of runoff produced by a 24-hour, 85th percentile storm event. The volume must be calculated using the County of Orange's 85th Percentile Precipitation Isopluvial map.
    b. The volume of annual runoff produced by the 85th percentile, 24-hour rainfall event, determined as the maximized capture storm water volume for the area, from the formula recommended in Urban Runoff Quality Management, WEF Manual of Practice No. 23/American Society of Civil Engineers Manual of Practice No. 87 (1998).
    b. 80% or more of the annual runoff volume, based on published and generally accepted methods (e.g. California Stormwater Best Management Practices Handbook – Industrial/Commercial).
    c. The volume of runoff, as determined from the local historical rainfall record, that achieves approximately the same reduction in pollutant loads and flows as would be achieved by treatment of the volume of runoff produced by an 85th percentile, 24-hour rain event.
4. A singular or set of structural treatment control BMPs that are flow-based must be sized to infiltrate, filter, or remove pollutants from any of the following design flows from their tributary area:
    a. The maximum flow rate of runoff produced from a rainfall intensity of 0.2 inch of rainfall per hour, for each hour of a storm event.
    b. The maximum flow rate of runoff produced by the 85th percentile hourly rainfall intensity, as determined from the local historical rainfall record, multiplied by a factor of two.
    c. The maximum flow rate of runoff, as determined from the local historical rainfall record, which achieves approximately the same reduction in pollutant loads and flows as would be achieved by treatment of the flow produced by the 85th percentile hourly rainfall intensity multiplied by a factor of two.
5. Structural treatment control BMPs intended to retain the design capture volume must be designed to infiltrate, evaporate, evapotranspire, or use

the volume over a period not to exceed 48-hours; this drawdown period may be extended or shortened provided that the combination of design capture volume and drawdown time achieve retention of 80% or more of the average annual storm water runoff. Any remaining volume must be passed on to another structural treatment control BMP selected according to the requirements of this Order.

6. The design capture volume or flow may be treated by routing the runoff through multiple structural treatment control BMPs organized in series or parallel. Co-permittees must require that the design capture volume or flow be calculated for each area tributary to a structural treatment control or group of structural treatment control BMPs.
7. Co-permittees must require practical and durable mechanisms designed to indicate the need for maintenance of structural treatment control BMPs for the benefit of the party responsible for long-term maintenance. The mechanism(s) must be readily identifiable and located on, within, or in close proximity to structural treatment control BMPs; such mechanisms must be documented in the related approved project WQMP.
8. Structural treatment control BMPs must be sized and designed by, or under the direction of, a registered civil engineer.
9. Structural treatment control BMPs must incorporate design features to minimize the entrainment and bypass of captured pollutants in the course of routine maintenance, normal operation, or overflow.
10. Where a structural treatment control BMP satisfies the requirements of this Order but is undersized relative to the volume or flow that it accepts from its tributary area, Co-permittees must require that the WQMP disclose any unconventional operation and maintenance requirements for the facility that are necessary to maintain the performance of the facility or to address unusual hazards .
11. The Co-permittees must conduct inspections of all approved structural treatment control BMPs according to the following schedule:
    a. All privately-owned or operated structural treatment control BMPs, must be inspected a minimum of once every 5 years[11].
    b. All Co-permittee-owned or operated structural treatment control BMPs must be inspected annually prior to the wet season (October 1st).
12. Structural treatment control BMPs must not cause a condition of nuisance or pollution, as defined in CWC Section 13050.
13. Structural treatment control BMPs must not cause or contribute to an exceedance of groundwater quality objectives.
14. Structural treatment control BMPs must not be approved in a final WQMP if they are located within waters of the U.S. unless the related discharges have been authorized pursuant to a Clean Water Act Section 401 Water Quality Standards Certification or waste discharge requirements.

[11]Structural treatment controls that are part of sites in the Co-permittees' industrial and commercial inventories are required to be inspected as part of the requirements of Sections IX and X of this Order. This requirement does not supersede the inspection schedules in those Sections.

15. Except as permitted by Subsection E, below, structural treatment control BMPs must:
    a. Be identified using standard nomenclature; AND
    b. Must be sized and designed in substantial conformance with standards and methods found in published and generally-accepted engineering design manuals; unnecessary deviations from those standards and methods are prohibited. Where those manuals conflict with the requirements of this Order, this Order shall prevail; Or
    c. Have had their expected performance substantiated in field tests using published and recognized protocols.
16. All requirements in this Order for the design of structural treatment control BMPs apply to both on-site or off-site facilities.

E. Nonconforming Structural Treatment Control BMPs: Demonstration Facilities

1. The Co-permittees are prohibited from approving or allowing to be placed into service structural treatment control BMPs which do not substantially conform to published and generally-accepted engineering design criteria or whose expected performance has not been substantiated in field tests using published and recognized protocols (nonconforming structural treatment control) unless the following requirements are satisfied:
    a. The design of the nonconforming structural treatment control BMP is based on sound principles of operation and pollutant-removal mechanisms exhibited by similar conforming structural treatment control BMPs.
    b. The tributary area of any single nonconforming structural treatment control BMP is three (3) acres or less.
    c. The Co-permittees approve no more than three (3) such similar nonconforming structural treatment control BMPs in total until and unless the results of a performance monitoring plan substantiates the expected performance of the facility, using published and recognized protocols, such that the facility performs in a similar or better manner as compared to the most similar conforming structural treatment control.
    d. The nonconforming structural treatment control BMP is subject to all other requirements of this Order.
2. Co-permittees must report both the application for approval and approval or denial of any nonconforming structural treatment control BMPs within their jurisdiction to the Principal Permittee.
3. The Principal Permittee is responsible for coordinating the Co-permittees in complying with the requirements of this Subsection.

F. First Priority Consideration of Retention LID BMPs in WQMPs

1. The Co-permittees must require that low impact development (“LID”)

controls that employ harvest and use, evaporation/transpiration, infiltration (collectively "retention LID BMPs") , or any combination thereof, of the entire design capture volume be given preference and first consideration in all WQMPs. That consideration must be demonstrated in the approved final WQMP in substantial conformance with uniform written technical guidance (see Provision XII.C.2.).

2. The Co-permittees must require retention LID BMPs for the design capture volume, or the maximum portion thereof, unless such controls are:
    a. Technically infeasible;
    b. Economically infeasible; OR
    c. where environmental and public health hazards cannot be mitigated to an acceptable level.
3. Co-permittees must document the specific basis for their rejection of retention LID BMPs in the approved final WQMP. The rejection of retention LID BMPs must be supported with Substantial Evidence[12].
4. The Co-permittees must require project applicants to mitigate the environmental and public health hazards of retention LID BMPs to an acceptable level where the absence of such mitigation would, by itself, make the use of retention LID BMPs infeasible. Mitigation is limited to activities that may be reasonably undertaken as part of the development project and are within the authority of the Co-permittees to mandate. Mitigation is not necessary if the costs disproportionately outweigh the pollution control benefits; any such finding must be documented in the final WQMP and be supported with Substantial Evidence.

G. Second Priority Consideration of Biotreatment Control BMPs in WQMPs

1. The Co-permittees must require that structural treatment control BMPs that employ biological uptake, transformation, or degradation of pollutants and incidental infiltration and evapotranspiration ("biotreatment control BMPs") be given secondary consideration in the project final WQMP, when, based on Substantial Evidence, any of the following conditions exist:
    a. Retention LID BMPs have been demonstrated to be technically or economically infeasible;
    b. The hazards of using retention LID BMPs cannot be mitigated to an acceptable level; OR
    c. A retention LID BMP is proposed but cannot be sized to treat the tributary area's entire design capture volume and a complementing biotreatment control BMP can be designed to treat the remainder of the design capture volume or a portion thereof.
2. The Co-permittees must ensure that the final approved project WQMP demonstrates preferential consideration of biotreatment control BMPs over non-LID BMPs.

[12] See Glossary.

3. When retention LID BMPs are demonstrated to be infeasible according to Section XII.G.1. above, the Co-permittees must require biotreatment control BMPs unless such controls are:
    a. Technically infeasible;
    b. economically infeasible; OR
    c. where the environmental and public health hazards cannot be mitigated to an acceptable level.
4. Where biotreatment control BMPs cannot meet the above criteria, the Co-Permittees must document the specific basis for their rejection in the approved final WQMP. The rejection of biotreatment control BMPs must be based on Substantial Evidence.
5. The Co-permittees must mitigate the environmental and public health hazards of biotreatment control BMPs to an acceptable level where the absence of such mitigation would, by itself, make the use of biotreatment control BMPs infeasible. Mitigation is not necessary if the costs disproportionately outweigh the pollution control benefits; any such finding must be documented in the final WQMP and be supported with Substantial Evidence.
6. Biotreatment control BMPs must be designed to maximize the infiltration of the design capture volume or flow.
7. Biotreatment control BMPs must be sized and designed to treat 1.5 times the design capture volume not retained or using an alternative sizing factor acceptable to the Executive Officer.

H. Third Priority Consideration of All Other Structural Treatment Control BMPs: Non-LID BMPs

1. The Co-permittees must maintain and employ a common schedule which rates the expected performance of specific structural treatment control BMPs, or categories of structural treatment control BMPs.
    a. Any category of structural treatment control BMPs must include only those controls that employ the same principal of operation; use similar treatment mechanisms, and which can reasonably be expected to exhibit generally similar performance in the removal of pollutants.
    b. The performance of structural treatment control BMPs must be rated based on the reasonably-expected level of removal of categories of pollutants. The performance ratings must be classified as “high”, “medium”, and “low” level of removal. These ratings must be distinguished by fixed numeric thresholds.
    c. The Co-permittees’ assignment of the expected level of performance for the structural treatment control BMPs must be based on the best available objective evidence (e.g. International BMP Database). The evidence must include field performance test data specific to the BMP and the data must have been collected according to published and recognized protocols.

d. The categorizations of structural treatment control BMPs and their performance ratings must be reviewed and updated within 12-months of the effective date of this Order so that they are supported by the best available information.

2. Structural treatment control BMPs, which are not LID BMPs ("non-LID BMPs") may be necessary to complement LID BMPs. Non-LID BMPs must not be accepted in an approved project WQMP in lieu of LID BMPs unless LID BMPs cannot be employed pursuant to Sections XII.F. and XII.G. above.
3. The Co-permittees must maintain and employ a common schedule of project types and a corresponding common list of pollutants which can reasonably be expected to be found in urban runoff from those project types.
4. If non-LID BMPs are the only type of structural treatment control BMP employed to treat the design capture volume from a tributary area of a project, the Co- Permittees must only accept the use of non-LID BMPs that provide either a "medium" or "high" level of treatment for the expected pollutants.
    a. The Co-permittees must use the performance rating schedule in Provision XII.H.1. above and the project category schedule in Provision XII.H.3. above to identify acceptable non-LID BMPs for a project.
    b. Approved WQMPs must reflect the use of this prescribed methodology.
5. If a project does not propose to use any LID BMPs on-site and a regional or sub-regional off-site LID BMP, that meets the requirements in Section XII.K. below, is planned to serve the project, the Co-permittees may require the use of the regional or sub-regional facility. The Co-permittees must require any BMPs that are needed to satisfy pre-treatment requirements for that facility where applicable.

I. Fourth Priority Consideration of Offsets through Retrofit of Existing Development

1. Co-permittees must require that project proponents give fourth priority consideration to offsetting all or any portion of the untreated design capture volume with treatment of the same or greater design capture volume using structural treatment controls (according to Subsections XII.F. XII.G., and XII.H. above) through retrofits of existing development at an off-site location.
2. The retrofit site must be located within the same watershed of the nearest receiving waters of the U.S.
3. If the entire design capture volume cannot be treated on-site, the project must be eligible for and receive a Waiver (see Subsection XII.L).
4. The off-site location must not have a pending or submitted development application which would produce similar structural treatment controls on its

own.

5. The structural treatment control(s) selection process at the off-site location must be subject to the requirements of Section XII as applicable.
6. The operator of the structural treatment control(s) at the retrofit site must be subject to requirements in the project WQMP or another equally-effective mechanism that provides for its proper operation and maintenance.
7. The retro-fit option applies only to the subject project and not to future redevelopment of the same site; future redevelopment projects must consider incorporation of structural treatment controls.

L. Waiver of Structural Treatment Control BMPs and Credit Programs

1. Co-permittees are authorized to waive their requirement to provide structural treatment control BMPs (see Provision XII.C.1 above) to remove pollutants and subsequently approve a WQMP if all of the following conditions are met:
   a. Employing structural treatment control BMPs has been demonstrated in the project WQMP to be technically and economically infeasible; or there is no structural treatment control BMP available for which the environmental and public health impacts can be mitigated to an acceptable level;
   b. No feasible opportunities are available to retrofit existing development in the tributary area of the same receiving water to treat the untreated design capture volume;
   c. Source and site design BMPs have been incorporated to maximize the infiltration of urban runoff;
   d. If a schedule has been designed to mitigate the water quality impacts of the untreated design capture volume and has been approved by the Executive Officer, the Co-permittee has collected the related impact fees or services from the project proponent;
   e. The Executive Officer has been provided written notice of the Co-Permittee's intent to issue the waiver, along with adequate supporting documentation, at least 30-days prior to issuance by the Co-permittee; AND
   f. The Executive Officer approves the proposed waiver or 30-days has elapsed without action by the Executive Officer on the proposed waiver, whereby it is "deemed approved".
2. Co-permittees are authorized to allow transactions of design capture volume or flow "credits" between projects within the same watershed of the nearest receiving water of the U.S. The "credit" shall be generated when a LID BMP has been designed to treat the design capture volume or flow from an area that is outside of the project boundaries. Credits must be generated and traded subject to the following additional limitations:
   a. Credits may not be generated by oversizing the LID BMP relative to its tributary area.
   b. The receiving project must be eligible for a waiver as described above.

c. The credit may only be used for the receiving project; it may not be re-used for future projects in the same site as the original project receiving the credit. The selection of structural treatment controls for future projects must be based on the merits of the project alone and not on credits allowed for past projects in the same space.
d. The Co-permittees where the affected projects are located must have and employ an effective system of accounting and tracking for the credit transfers.

J. Specific Requirements for Infiltration LID BMPs

1. The requirements of this Section apply to retention LID BMPs that are intended to infiltrate the entire design capture volume or a portion thereof (infiltration LID BMPs). The requirements of this Section are not intended to apply to bio-treatment control or other structural treatment control BMPs that incidentally infiltrate a portion of the design capture volume or flow.
2. Co-permittees must provide the local groundwater management agency with an opportunity for consultation on the potential impacts of any proposed infiltration LID BMPs prior to the approval of the final WQMP. If the agency requests consultation, the Co-permittee must provide the agency with adequate information to review the potential impacts of the BMP on groundwater quality.
3. The vertical separation from the bottom of the infiltration LID BMPs to the seasonal high groundwater must be a distance of 10-feet or more unless the facility is known to pose a low risk of contaminating groundwater; if the facility is low risk, the vertical separation may be reduced to 5 feet according to criteria established in the Co-permittees' written technical guidance. Where the groundwater does not support, or does not have the potential to support, beneficial uses, the Co-permittee may approve infiltration LID BMPs with less vertical separation, provided that groundwater quality is maintained and that other potential hazards presented by such facilities can be mitigated to an acceptable level.
4. Infiltration LID BMPs must be located a minimum horizontal distance of 100-feet from any water supply wells.
5. Where an infiltration LID BMP overlies known groundwater or soil contamination, infiltration facilities must not be used for storm water runoff associated with industrial activity, storm water runoff from highways subject to motorized vehicular traffic of 25,000 average annual daily traffic, automotive repair shops, car washes, motorized fleet vehicle storage, nurseries, or other land uses or activities that pose a high-threat toground water quality.
6. Infiltration LID BMPs must incorporate one or more practical mechanisms to allow verification of the loss rate of the design capture volume. The mechanisms must be durable and useful over the life of the project and designed for the benefit of the party responsible for the operation of the facility.

7. Infiltration LID BMPs which constitute Class V Injection Wells must comply with all applicable County and municipal well construction or destruction ordinances and standards, and USEPA's Class V Rule, as amended or revised[13].
8. Structural treatment control BMPs must be provided to pre-treat and remove pollutants that could unreasonably diminish the performance of the infiltration LID BMP for the duration of the project unless pre-treatment mechanisms are incorporated into the facility design itself.
9. The Co-permittees must develop, publish, and employ a common factor(s) of safety in their written technical guidance that must be used to size infiltration facilities. The factor(s) of safety must be based on those recommended in published and generally- accepted engineering design manuals.
10. The Co-permittees must develop, publish, and employ a uniform protocol in their written technical guidance for estimating the loss or draw-down rate used for designing LID BMPs that infiltrate.
    a. The protocol must be consistent with those used in published and generally-accepted engineering design manuals.
    b. The protocol must employ the best available information for estimating the loss rate.
    c. The Co-permittees must require that the following categories of projects use relevant site-specific methods to estimate soil infiltration rates:
        i. Residential projects affecting more than 10-acres or greater than 30 dwelling units.
        ii. Commercial or institutional projects affecting more than 5-acres or greater than 50,000 square feet of floor space.
        iii. Industrial projects affecting more than 2-acres or greater than 20,000 square feet of floor space.

K. Specific Requirements for Harvest and Use LID BMPs

1. The Co-permittees must not accept insufficient demand for harvested storm water as the sole basis for rejecting harvest and use LID BMPs unless the basis is supported by water demand calculations. Calculated estimates must demonstrate that the expected wet season water demand is insufficient to use the harvested design capture volume within a 48-hour period according to the following:
    a. The Co-permittees must publish and employ tables of daily average wet-season (October 1st through April 30th) demand rates and objective project characteristics necessary to provide sufficient demand for harvested storm water. The demand rates must be used for estimating anticipated non-potable uses of harvested storm water.

[13] USEPA, Office of Water, "Revisions to the Underground Injection Control Regulations for Class V Wells", 64 FR 68545-68573, December 7, 1999 (or as amended or revised)

i. The rates and thresholds must be based on published and generally accepted rates or methods for calculating average daily demand of harvested storm water for non-potable uses such as toilet and urinal flushing, landscape irrigation, industrial process supply, evaporative cooling, and vehicle washing.
ii. The rates and thresholds must account for the off-setting effects of rainfall, reclaimed water, water conservation or the inconsistent nature of demand.
iii. Reclaimed water supplies must be based on available supplies, not speculative supplies.

b. Where demand rates are dependent upon variable site occupancy, average daily occupancy during the wet season must be used.

L. Off-Site Structural Treatment Control BMPs: Regional and Sub-Regional Facilities

1. Co-permittees must require that structural treatment control BMPs be located on the project site except under the following conditions:
   a. A regional or sub-regional structural treatment control BMP has been planned as part of a WQMP for a Specific Plan, parcel map, master tract map, master plan of drainage, or similar larger plan of development that was approved prior to the effective date of this Order and all of the following requirements will be met:
      i. The project and the regional or sub-regional structural treatment control BMP are both located within the approved Specific Plan, parcel map, or similar larger plan of development.
      ii. The WQMP for the larger plan of development has been prepared and approved according to the requirements of this Order, Order No. R8-2009-0030 or Order No. R8-2002-0010, whichever was in force at the time.
      iii. The WQMP for the project complies with all other requirements of this Order to the extent that those requirements do not conflict with this Subsection (Subsection XII.K.).
      iv. The regional or sub-regional facility is constructed, serviceable, and satisfactory to the Co-permittee prior to final occupancy or use of the project site(s) in its tributary area.
   b. A <u>regional or sub-regional retention LID BMP</u> has been planned by the Co-permittees,another public agency, or other legal entity and the following requirements will be met:
      i. Site design and source control BMPs have been provided in the project WQMP.
      ii. Any structural treatment control BMPs deemed necessary by the party responsible for the facility's performance ("Operator") to pre-treat and remove pollutants that could

unreasonably diminish the performance of the facility or cause or contribute to a condition of nuisance over its service life have been provided in the project WQMP.

iii. An Operator will maintain ownership or control over the facility over the life of projects located within the facility's tributary area.

iv. The facility complies with, and/or is subject to, the requirements in Section XII.D. and, if an infiltration facility, Section XII.J. above.

v. The regional or sub-regional facility is constructed, serviceable, and satisfactory to the Co-permittee prior to final occupancy of the project site(s) in its tributary area.

vi. The project WQMP is otherwise prepared according to the requirements of this Order.

c. A regional or sub-regional biotreatment control BMP has been planned by the Co-permittees, another public agency, or other legal entity and the following requirements will be met:

i. Retention of the design capture volume has been maximized on the project site using site design and source control BMPs.

ii. The requirements in Section XII.L.1.b. (for regional or sub-regional retention LID BMPs above) have been or will be met as appropriate.

d. There is an infiltration LID BMP located offsite for which the Co-permittees' approval for use would not otherwise cause the Co-permittee to violate any provision of this Order[14]. The requirements include, but are not limited to, the requirements to:

i. maximize retention of the site's design capture volume on-site;

ii. demonstrate the capacity of the off-site facility to serve the project;

iii. demonstrate adequate funding for the off-site facility's construction, and/or operation and maintenance for the life of the project; AND

iv. place the facility in service prior to final occupancy or use of the project site.

M. General Requirements for Non-Priority Projects

1. Where a non-priority project includes modifications or improvements that are, or affect areas that are exposed to storm water and which may be sources of pollution in urban runoff, Co-permittees must require non-priority

[14] In other words, the Co-permittee is faced with the choice of approving a WQMP where either a retention LID control could be located on-site or off-site, or where an eligible biotreatment control could be located on-site or off-site. Except for the facility's location, the approval would not violate the requirements of this Order

projects (see Section XII.B.) to implement source control and site design BMPs to remove pollutants in urban runoff consistent with the maximum extent practicable standard[15].

a. Each Co-permittee must develop policies and procedures to identify non-priority projects that have the potential to incorporate source control or site design BMPs.
b. Each Co-permittee must report the policies and procedures used to comply with this Subsection in the first Annual Report due not less than 6-months from the date of the adoption of this Order. Updates must be reported in subsequent Annual Reports thereafter.

2. BMPs must be documented in a Non-Priority Project Plan. The Non-Priority Project Plan must include a summary rationale for BMP selection.
4. Source and site design BMPs must generally conform to published and generally-accepted designs or methods.
5. Non-priority project plans must be approved by or under the supervision of a registered civil engineer or licensed landscape architect acting on behalf of, and with the expressed permission of, the applicable Co-permittee.
6.

N. Hydrologic Conditions of Concern

1. Co-permittees must address the changes in a priority project site's hydrology in the project WQMP according to the requirements of this Section except under any of the following conditions:
   a. The runoff volume and time of concentration for the two-year frequency, 24-hour storm event are not significantly affected by the project. A significant effect must be deemed to occur only where:
      i. The calculated runoff volume from the site increases by 5% or more over the pre-project condition and/or
      ii. The calculated time of concentration for runoff from the site decreases by 5% or more over the pre-project condition.
   b. All downstream conveyance channels that will receive runoff from the project are engineered and regularly maintained to accommodate the necessary design flow capacity as dictated by the latest version of the Orange County Hydrology Manual, and no sensitive stream habitat areas have the potential to be adversely affected by discrete or cumulative changes in hydrology.
   c. The project has the demonstrated capacity to infiltrate, harvest and use, evaporate, or evapotranspire the volume of runoff produced by a two-year storm event within a 48-hour period.
   d. The Executive Officer grants an individual or general variance in

[15] This requirement must not be construed to mean that structural treatment control BMPs are not required for non- priority projects; only that there is no presumption requiring rebuttal that treatment control BMPs are economically or technically feasible.

writing to the Permittee(s).

i. The granting of such variances must be supported by objective and relevant studies.
ii. The Co-permittees must comply with any conditions placed on the issuance of the variance by the Executive Officer.
iii. The Executive Officer and the requesting Co-permittee(s) must provide the public an opportunity to comment on the proposed variance for a period of not less than 30-days prior to its issuance.

2. For those priority projects that do not meet the conditions in Subsection XII.N.1. above, the Co-permittees must apply the following conditions:
   a. The project WQMP must include a hydrology study that quantifies the pre- and post-project runoff volumes, peak flow rates, and times of concentration for a 2-year, 24-hour storm event.
   b. Except as provided in Section XII.N.2.c.,the project WQMP must provide BMPs that modify runoff volumes and times from the project site for the 2-year, 24-hour storm event such that:
      ii. Post-project runoff volumes for the 2-year, 24-hour storm event do not increase by more than 10% compared to the pre-project runoff volumes for the 2-year, 24-hour storm event; AND
      iii. Post-project times of concentration for the 2-year, 24-hour storm event do not decrease by more than 10% compared to the pre-project times of concentration for the 2-year, 24-hour storm event.
   c. The provisions of Section XII.N.2.b. above apply unless any of the following have occurred:
      i. A Clean Water Act Section 401 Water Quality Standards Certification has been issued authorizing discharges of fill associated with channel modifications that would accommodate the project's changes in hydrology while protecting beneficial uses.
      ii. Site design and/or structural treatment control BMPs proposed for the site to reduce pollutants in urban runoff already effectively modify runoff volumes and times of concentration such that they satisfy Provision XII.N.2.b. above.
      iii. The Project WQMP has demonstrated that it is infeasible to satisfy the criteria of Provision XII.N.2.b. above and there are site design, structural treatment control, and/or flow-control BMPs such that the post-project peak runoff flow rates for the 2-year, 24-hour storm event are not increased by more than 10% compared to the pre-project peak runoff flow rates for the 2-year, 24-hour storm event.

2. Co-permittees must prepare a set of watershed maps that identify management areas tributary to drainages that have not been engineered

and regularly maintained to accommodate the design flow capacity, as dictated by the latest version of the Orange County Hydrology Manual, and and management areas that are tributary to sensitive stream habitat areas have the potential to be adversely affected by discrete or cumulative changes in hydrology (see Provision XII.N.1.b. above).

a. The Co-permittees must submit the watershed maps in draft form to the Executive Officer for approval no later than 6 months following the effective date of this Order.
b. The Co-permittees must make changes requested by the Executive Officer within 30-days of receipt of the request. The Executive Officer is authorized to approve the watershed maps conditioned upon completion of the changes.
c. Upon approval by the Executive Officer, the Co-permittees must consistently use the applicable maps to identify projects that will be subject to the limitations on changes in runoff volumes, peak flow rates, and times of concentration provided in this Section (Section XII.N.).

XIII. PUBLIC EDUCATION AND OUTREACH

A. The Co-permittees must implement an effective public education program that both raises awareness of pollution-prevention best practices and causes the audience to take action to reduce pollution of urban runoff. The program must include a general audience, consisting of residents of school age and older and commercial and industrial establishments, and a target audience selected from the general audience to address high- priority urban runoff pollution issues identified by the Co-permittees.
B. The public education program must be described in a written plan. The Co-permittees must:
   1. Make a minimum of 10 Million annual impressions on the general audience using educational content in multiple media to raise awareness of pollution in urban runoff;
   2. Identify goals and related measurable objectives that address a minimum of three high-priority urban runoff pollution issues over the term of this Order. Issues must be identified for the entire permit area, for each watershed, or for each city;
   3. Identify and analyze target audiences believed to have the greatest influence on the selected high-priority urban runoff pollution issues;
   4. Create specific messages that are appropriate to the target audiences and to identified sub-groups within the general audience;
   5. Develop educational content for media with the most potential to appeal to the audiences;
   6. Determine the methods and processes of distributing the educational content;
   7. Objectively evaluate the effectiveness of the program; AND
   8. Provide opportunities for public input, and demonstrate consideration of

that input, in the development of the program.

C. The Co-permittees must provide a rationale in a written plan to justify the selected high-priority urban runoff issues and related target audiences.
D. During the term of this Order, the Co-permittees must distribute the educational content, using one or more of the selected methods and procedures determined most appropriate by the Co-permittees. The content must be distributed in a manner that is designed to communicate the program's messages to the general and target audiences annually, beginning with the next full monitoring and reporting period after the effective date of this Order.
E. The Co-permittees must implement an effective program to measure the achievement of the objectives and requirements in this Section XIII.
    1. The program must include an annual assessment of progress towards meeting the goals and objectives of the education program.
    2. The Co-permittees must adapt their educational program in response to any shortcomings found as a result of the annual assessment.
    3. The program must include a statistically valid survey to measure:
        a. the general audiences' knowledge regarding the sources of urban runoff pollution;
        b. the general audiences' knowledge of the impacts of the pollutant(s) on the environment; awareness of what the general audience can do to help prevent urban runoff pollution; AND
        c. specific changes in the general audiences' behavior(s) to prevent urban runoff pollution.
    3. The survey must be completed no later than 60 months from the effective date of this Order.
    4. The survey results must be made available to the public through a press-release, web site, or similar method acceptable to the Executive Officer.

XIV. MUNICIPAL FACILITIES/ACTIVITIES

A. Each Co-permittee must maintain an inventory of fixed facilities, owned or controlled by the Co-permittee, that have the potential to discharge pollutants in urban runoff.
    1. The inventory must include the following:
        a. Catch basins, storm drain inlets, and open channels;
        b. Municipal landfills;
        c. Waste incinerators;
        d. Solid waste transfer facilities;
        e. Land application sites;
        f. Sewage collection and treatment facilities;
        g. Hazardous waste treatment, disposal, and recovery facilities;
        h. Corporation, maintenance, and storage yards;
        i. Airfields;
        j. Parks, golf courses, and recreation areas;
        k. Cemeteries;
        l. Public buildings (police and fire stations and training facilities,

libraries, etc.)
m. Stadiums and other special event venues;
n. Equestrian facilities;
o. Animal shelters and kennels;
p. Boat yards and marinas;
q. Public parking facilities; and
r. Areas or facilities that discharge directly to lagoons, the ocean, or environmentally sensitive areas.

B. The Principal Permittee may propose a schedule for visual inspection and mechanical or physical cleaning of catch basins, storm drain inlets, and open channels under the Co- Permittees' control. The proposed schedule is subject to the approval of the Executive Officer. If approved, the schedule will serve as an alternative to the schedule prescribed by Subsection XIV.C. below.

C. Each Co-permittee must visually inspect a minimum of 80% of catch basins, storm drain inlets, and open channels under their control annually. 100% of the systems must be inspected every two years. Each Co-permittee must prepare a written inspection and maintenance schedule for each facility subject to this requirement.
1. Accumulated pollutants must be physically removed from the systems in a timely manner when found.
2. Where other agencies' authorization is required to remove pollutants from the systems (i.e. CWA Section 404 permit), the Co-permittee must make a good faith effort to secure the necessary authorizations and remove the accumulated pollutants in a timely manner.
3. Co-permittees must exercise their discretion and increase the inspection and cleaning frequency as necessary for those portions of the systems which accumulate "unusually large quantities" of pollutants.
4. Each Co-permittee must establish objective thresholds to define "unusually large quantities" of pollutants in systems that they own or control.
5. Each Co-permittee must have an effective management system to identify portions of the systems which accumulate unusually large quantities of pollutants.
6. Each Co-permittee must have an effective management system in place to detect and eliminate or minimize the seepage of wastewater from sanitary sewers to the storm drain system.

D. Except for catch basins, storm drain inlets, and open channels, each Co-Permittee must categorize fixed facilities that they own or control into "high-priority", "medium-priority", and "low-priority" sites.
1. The Co-permittee must inspect each fixed facility according to the following schedule:
a. High-priority sites must be inspected once per year.
b. Medium-priority sites must be inspected once every two years.
c. Low-priority sites must be inspected once every five years.
2. The following fixed facilities must be categorized as "high-priority" sites:
a. Municipal landfills

b. Publicly-owned treatment works
c. Waste incinerators
d. Solid waste transfer facilities
e. Land application sites
f. Corporation, maintenance, and storage yards
g. Hazardous waste treatment, disposal , and recovery facilities
h. Land-side areas of airfields
i. Facilities that are located adjacent or within an environmentally sensitive area or that discharge directly to an environmentally sensitive area.

3. Co-permittees must categorize all other fixed facilities according to a uniform objective ranking system developed by the Principal Permittee. The ranking system must be based on the following factors:
   a. The degree to which potentially polluting activities occur in areas exposed to storm water.
   b. The quantity of potentially polluting materials used or stored at the facility.
   c. Whether or not the activities at a site could produce pollutants that cause or contribute to the impairment of a water body listed according to CWA Section 303(d).
   d. The risk of a release of a pollutant.
   e. The occurrence of known or suspected non-storm water discharges.
   f. The size of a facility, the number of employees assigned to the facility, and the number of visitors.
4. Co-permittees must carry out inspections of fixed facilities to: identify and correct observed violations of the municipal code or ordinance related to protecting water quality; identify and correct unnecessary deviations from standard operating procedures (see Section XIV.E. below); internally enforce relevant discharge requirements; and identify and eliminate known or suspected unauthorized non-storm water discharges.

E. Co-permittees must implement an effective program to prevent the discharge of pollutants from Co-permittees' field activities and fixed facilities.
   1. The program must include the imposition of written standard requirements on the person(s) performing field activities on behalf of Co-permittees. The requirements must direct the person(s) to effectively employ BMPs that are specific and relevant to the activity to prevent the discharge of pollutants to storm water.
   2. The program must include written standard operating procedures for Co-Permittees' staff that engage in field activities and activities at fixed facilities that have the potential to discharge pollutants in urban runoff.
      a. The standard operating procedures must incorporate BMPs to prevent or minimize such discharges of pollutants.
      b. The standard operating procedures must be subject to an annual review to verify their relevance and effectiveness. Each standard operating procedure must display the date of the last review, the identity of the reviewing personnel, and the due date for the next review.

3. The program must include a training program to provide Co-permittees' staff with an awareness of the responsibilities described in standard operating procedures relevant to their duties (See Section XVI below).
4. The program must include an inspection program for field activities to: identify and correct observed violations of the municipal code or ordinance related to protecting water quality; identify and correct unnecessary deviations from standard operating procedures; internally enforce compliance with relevant waste discharge requirements; and identify and eliminate or minimize known or suspected non-storm water discharges.

F. Each Co-permittee must implement an effective program: to reduce the use of unwarranted or excessive applications of pesticide and fertilizer at facilities that they own or control; to ensure that pests are controlled using the best available methods while protecting water quality; and to ensure that pesticides are used in accordance with Federal, State, and local laws and regulations[16].
   1. Each Co-permittee must develop and implement Integrated Pest Management, Pesticide and Fertilizer Guidelines.
   2. Each Co-permittee must conduct annual integrated pest management audits for chemicals known or suspected of impairing water quality to enforce the use Integrated Pest Management Strategies that reduce their potential entry into MS4s.
   3. Each Co-permittee must conduct annual fertilizer use audits to verify that application rates do not exceed those recommended by University of California Integrated Pest Management Research, or similarly qualified organizations, and to enforce fertilizer application methods that eliminate or minimize fertilizer entry into MS4s.

XV. MUNICIPAL CONSTRUCTION PROJECTS AND ACTIVITIES

A. This Order authorizes the discharge of storm water runoff from construction projects that are under the ownership or direct responsibility of any of the Co-Permittees and that may result in land disturbance of one acre or more; or less than one acre if the project is part of a larger common plan of development or sale which is one acre or more.

B. All construction activities must be in compliance with the conditions and provision of the latest version of the State Board's General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (NPDES Permit No. CAS000002) as amended or revised with the following exceptions:
   1. A Notice of Intent must be submitted in an electronic format acceptable to the Executive Officer.
   2. No additional fees are necessary to authorize discharges associated with construction and land disturbance activities.
   3. The conditions and provisions in this Order pertaining to post-construction BMPs prevail.

[16] The term "pesticide" includes herbicides, rodenticides, insecticides, etc., consistent with the common meaning of the term.

XVI. TRAINING PROGRAMS

A. Each Co-permittee must have an effective training program for their staff, contractors and vendors whose duties or responsibilities directly or indirectly affect the Co-permittee's capacity to satisfy the requirements of this Order (collectively, "personnel").
    1. Those personnel include, but are not limited to, the following:
        a. Storm water program managers;
        b. CEQA practitioners;
        c. Inspectors;
        d. Maintenance personnel;
        e. Plan checkers;
        f. Planners;
        g. The division heads of all of the above staff;
        h. Contractors and vendors who perform duties similar to the above staff.
    2. Each Co-permittee must maintain a roster of personnel or staff positions whose duties or responsibilities directly or indirectly affect the Co-Permittee's capacity to satisfy the requirements of this Order.
    3. Except for industrial, commercial, and construction site inspectors, personnel must undergo training a minimum of once every two years. New hires must receive their initial training within 6 months of their initial hire date.
    4. The training program must be subjected to an annual review, for the purpose of achieving continual improvement of its effectiveness, and must be updated accordingly.
    5. Training materials must be written in plain, straightforward language, avoiding technical terms as much as possible, and using a coherent and easily readable style.
    6. The Co-permittees must employ a method that objectively demonstrates that personnel individually have the necessary level of expertise and competence commensurate with their duties and responsibilities.
    7. The Co-permittees must maintain records demonstrating that personnel have satisfied the requirements of the training program; records must be maintained for a minimum of three (3) years.
    8. Training records must be maintained for staff and contract and vendor records, as part of a region-wide training registry, or through another mechanism acceptable to the Executive Officer.

B. The Principal Permittee must establish a written training curriculum for use by the Co-permittees. The contents of the curriculum must be commensurate with the duties and responsibilities of the affected personnel.
    1. At a minimum, all affected personnel must be trained in the following subject matter:
        a. An overview of Federal, state and local water quality laws and regulations pertaining to urban runoff.
        b. The potential direct and indirect impacts of urban runoff on

receiving waters.
c. Current water quality impairments.
d. The potential sources of pollutants in urban runoff.
e. Specific actions that personnel are obligated to take to reduce pollutants in urban runoff.

2. At a minimum, personnel who are responsible for inspecting construction sites must be trained in the following subject matter:
   a. Federal, state and local water quality laws and regulations pertaining to construction and grading activities.
   b. The potential effects of construction and grading activities and urbanization on water quality.
   c. The proper application and use of erosion and sediment control BMPs.
   d. The Co-permittee's enforcement tools and procedures.
3. At a minimum, personnel responsible for inspecting commercial and industrial sites must be trained in the following subject matter:
   a. Federal, state and local water quality laws and regulations pertaining to commercial and industrial activities.
   b. The potential effects of commercial and industrial activities and urbanization on water quality.
   c. The proper application and use of non-structural and structural treatment control BMPs.
   d. The Co-permittee's enforcement tools and procedures.
4. At a minimum, personnel responsible for inspecting restaurants must be trained in the following subject matter:
   a. Proper oil and grease disposal.
   b. Proper housekeeping of trash bins and trash bin enclosures.
   c. Proper cleaning of floor mats, mops, filters, and garbage containers and proper disposal of related waste water.
   d. Proper methods of cleaning parking lot areas.
   b. Proper spill clean-up methods.
   c. Proper operation and maintenance of devices designed to separate fat, oil, and grease from wastewater.
   d. The Co-permittee's enforcement tools and procedures.
5. At a minimum, personnel responsible for investigating, eliminating or permitting illicit discharges and illicit connections must be trained in the following subject matter:
   a. The potential effects of illicit discharges and illicit connections on water quality.
   b. SSO and general spill response and coordination procedures.
   c. Investigation techniques and procedures.
   b. The Co-permittee's enforcement tools and procedures.
6. At a minimum, personnel responsible for preparing, reviewing or approving Water Quality Management Plans or non-priority project plans or for ensuring their implementation must be trained in the following subject matter:
   a. The requirements found in Section XII of this Order.

b. The related written processes, procedures, and methods for selecting, sizing, and designing source control, site design, and structural treatment control BMPs.
c. Investigation techniques and procedures.
d. The Co-permittee's enforcement tools and procedures.

XVII. NOTIFICATION REQUIREMENTS

A. When Co-permittees become aware of a site or incident within their jurisdiction that poses an imminent threat to human health or the environment, the Co-Permittee(s) must take the following actions:
    1. Provide oral or electronic mail notification to Regional Board staff of the imminent threat within 24 hours of becoming aware.
    2. Submit a written report within five (5) business days following the initial notification to Regional Board staff. The report must provide the following information:
        a. Details of the location, nature and circumstances of the threat to human health or the environment.
        b. Details of any corrective action(s) taken or planned to mitigate the threat and prevent its reoccurrence.
        c. Identity of the responsible parties.
        d. Describe any enforcement actions taken or planned by the Co-Permittee.
    3. Record incidences and the related report in the applicable construction, industrial or commercial site database.
B. For the purposes of this Section, sewage spills in excess of 1,000 gallons and all reportable quantities of hazardous waste spills, as per 40 CFR § 117 and 40CFR § 302, constitute imminent threats to human health or the environment.
C. If, during the course of a site inspection or complaint investigation, Co-permittees or their representatives become aware of a known, suspected, or threatened violation of applicable waste discharge requirements (i.e. State-wide General Industrial or Construction Permits, etc.), the Permittee must provide written notice to the Executive Officer.
    1. Where circumstances do not pose an imminent threat to human health or the environment, the written notice must be provided on a quarterly basis. For the purposes of this Provision, each quarter of the monitoring and reporting period constitutes a reporting period, with the notice due within 30-days of the end of each period.
    2. The notice must include the location, nature and circumstance of the known, suspected, or threatened violation(s); prior history of any relevant violations of state and local requirements; and action(s) taken or planned by the Co-permittee(s) to bring the site operator into compliance.

XVIII. TOTAL MAXIMUM DAILY LOAD IMPLEMENTATION

The provisions in this section require compliance with water quality-based effluent limits ("WQBELs") that implement waste load allocations ("WLAs"). The WLAs have been established in Total Daily Maximum Loads ("TMDLs") that have been adopted and approved by the Regional Board or promulgated by USEPA. The Co-permittees that are subject to each TMDL are shown in Appendix A. The applicable WQBELs are specified in Appendices B through H.

A. General TMDL Provisions

1. The responsible Co-permittees identified in Appendix A must comply with the applicable WQBELs shown in Appendices B through H according to the methods described in this Section (Section XVIII).
2. The TMDLs shown in Appendices G and H were promulgated by USEPA and, as of the adoption of this Order, do not have implementation plans or schedules. Until implementation plans and schedules are provided, Co-permittees responsible for complying with the WQBELs in Appendices G and H must either: (1) demonstrate that the applicable WQBELs have been achieved by the effective date of this Order; OR (2) demonstrate compliance through any one of the means identified in Subsections XVIII.B. through XVIII.E. below.
3. A Co-permittee may comply with WQBELs through any lawful means.
4. The responsible Co-permittees must submit reports which are consistent with the requirements of the TMDL.

B. Provisions for WLAs in State-Adopted TMDLs Where Final Compliance Deadlines Have Passed

1. Appendices B, C, D and F include WQBELs where the final compliance deadline established by the underlying TMDL has passed[17]. The responsible Co-permittees must comply immediately with these final WQBELs. Compliance with final WQBELs shall be determined using one of the following methods:
    a. The responsible Co-permittees may demonstrate compliance with final WQBELs using monitoring data as follows:
        i. Demonstrating that there are no exceedances of receiving water limitations using monitoring data that has been collected and analyzed pursuant to an approved TMDL monitoring plan; OR
        ii. Demonstrating that there are no exceedances of WLAs at MS4 outfalls which have been designated pursuant to the

[17] Appendix C contains compliance dates where some have passed and others have not. Consequently, Appendix C appears in both Subsections XVIII.B. and XVIII.C.

requirements of Monitoring and Reporting Program R8-2015-0001; OR

iii. Demonstrating that there is no discharge from the responsible Co-permittees' MS4(s) to the receiving water during the time period subject to the WLA.

b. Co-permittee(s) may fully implement a Time Schedule Order ("TSO)" issued by the Regional Board pursuant to California Water Code Section 13300. The responsible Co-permittees may request a TSO if they believe that additional time to comply with final WQBELs is necessary.

C. Provisions for WLA's in State-Adopted TMDLs Where Final Compliance Deadlines Have Not Passed

1. WQBELs set forth in Appendices C and E are based on TMDLs where the final compliance deadlines have not passed[18]. The responsible Co-permittees must achieve compliance with the WQBELs by the final compliance dates set forth in Appendices C and E by one of the following methods:
   a. The responsible Co-permittees may demonstrate compliance with applicable WQBELs using monitoring data as follows:
      i. Demonstrating that there are no exceedances of receiving water limitations using monitoring data that has been collected and analyzed pursuant to an approved TMDL monitoring plan; OR
      ii. Demonstrating that there are no exceedances of WLAs at MS4 outfalls which have been designated pursuant to the requirements of Monitoring and Reporting Program R8-2015-0001; OR
      iii. Demonstrating that there is no discharge from the responsible Co-permittees' MS4(s) to the receiving water during the time period subject to the WLA.
2. The responsible Co-permittees may implement an approved plan designed to comply with final WQBELS ("WQBEL compliance plan") according to the following requirements:
   a. The Co-permittees must submit written notice to the Executive Officer of their intent to develop a WQBEL compliance plan within 180 days of the effective date of this Order or two (2) years prior to the final compliance date, whichever is shorter.
   b. For WQBELs where the related TMDL has an implementation plan that includes a requirement that the Co-permittees develop a compliance plan, the draft WQBEL compliance plan must be submitted consistent with the schedule specified in the implementation plan. Otherwise, the draft WQBEL plan must be

[18] See footnote 18.

submitted within six (6) months of submission of the written notice of intent to develop the plan.

c. For WQBELs where a compliance plan has already been developed for the related TMDL and is currently being implemented, the responsible Co-permittees may request in their written notification that the Executive Officer approve the plan as satisfying the requirements of Subsection XVIII.C.
d. A WQBEL compliance plan may be developed separately for a specific WQBEL or a group of WQBELs may be combined and addressed in one plan, subject to the discretion of the Regional Board.
e. At a minimum, the draft WQBEL compliance plan must contain the following:
    i. A characterization of the water quality in the receiving waters, as it pertains to the applicable WQBELs;
    ii. Quantification of the contributions of related pollutants from the responsible Co-permittees' MS4 outfalls to the receiving waters;
    iii. A description of the BMPs that are currently being employed to control the pollutant(s);
    iv. A description of any proposed new BMPs, or modification of currently-employed BMPs, necessary to achieve the WQBEL(s);
    v. An analysis that provides reasonable assurance that the proposed actions will achieve the final WQBEL(s). The analysis must be supported, in part, by peer-reviewed models that are in the public domain where such models are available and appropriate (The analysis can include trend analyses that demonstrate that no additional actions are necessary to achieve the final WQBEL(s).).
    vi. A description of the adaptive management process that will be used to evaluate the effectiveness of the BMPs to achieve the WQBEL(s) and make improvements as necessary; AND
    vii. A time schedule for the implementation of the BMPs.
f. Any draft WQBEL compliance plans is subject to the review and approval of the Executive Officer. Responsible Co-permittees must modify the plan within 60-days of written notification by the Executive Officer. Upon approval by the Executive Officer, the plan is considered final and the responsible Co-permittees must fully implement the final WQBEL compliance plan. To be considered fully implementing an approved plan, responsible Co-permittee(s) must carry out all actions consistent with the final WQBEL compliance plan and related time schedules contained therein.
g. Draft WQBEL compliance plans will be subject to a 30-day public review period. All final WQBEL compliance plans must be made available to the public and posted to the responsible Co-permittee

website(s), the Principal Permittee's website, or by another method acceptable to the Executive Officer.

h. Except for inconsequential grammatical or technical corrections, changes to final WQBEL compliance plans are subject to the approval of the Executive Officer following 30-days public review as described above.

3. Co-permittee(s) may fully implement a Time Schedule Order ("TSO)" issued by the Regional Board pursuant to California Water Code Section 13300. The responsible Co-permittees may request a TSO if they believe that additional time to comply with final WQBELs is necessary.

D. Provisions for TMDLs Established by USEPA

1. WQBELs in Appendices G and H are based on TMDLs promulgated by USEPA. These TMDLs do not include an implementation plan adopted pursuant to California Water Code Section 13242. However, USEPA has included recommendations for implementation as part of the TMDLs. The responsible Co-permittees, subject to the WQBELs in Appendices G and H must achieve compliance with these WQBELs by one of the following methods:
    a. The responsible Co-permittees may demonstrate compliance with applicable WQBELs using monitoring data as follows:
        i. Demonstrating that there are no exceedances of receiving water limitations using monitoring data that has been collected and analyzed pursuant to an approved TMDL monitoring plan; OR
        ii. Demonstrating that there are no exceedances of WLAs at MS4 outfalls which have been designated pursuant to the requirements of Monitoring and Reporting Program R8-2015-0001; OR
        iii. There is no discharge from the responsible Co-permittees' MS4(s) to the receiving water during the time period subject to the WLA.
    b. The responsible Co-permittees may implement an approved plan designed to comply with final WQBELS ("WQBEL compliance plan") according to the following requirements:
        i. The Co-permittees must submit written notice to the Executive Officer of their intent to develop a WQBEL compliance plan within 180 days of the effective date of this Order.
        ii. For WQBELs where a compliance plan has already been developed for the related TMDL and is currently being implemented, the responsible Co-permittees may request in their written notification that the Executive Officer approve the plan as satisfying the requirements of Subsection XVIII.D.
        iii. A WQBEL compliance plan may be developed separately for a specific WQBEL or a group of WQBELs may be combined and

addressed in one plan, subject to the discretion of the Regional Board.

iv. At a minimum, the draft WQBEL compliance plan must contain the following:
   A. A characterization of the water quality in the receiving waters, as it pertains to the applicable WQBELs;
   B. Quantification of the contributions of related pollutants from the responsible Co-permittees' MS4 outfalls to the receiving waters;
   C. A description of the BMPs that are currently being employed to control the pollutant(s);
   D. A description of any proposed new BMPs, or modification of currently-employed BMPs, necessary to achieve the WQBEL(s);
   E. An analysis that provides reasonable assurance that the proposed actions will achieve the final WQBEL(s). The analysis must be supported, in part, by peer-reviewed models that are in the public domain where such models are available and appropriate. (The analysis can include trend analyses that demonstrate that no additional actions are necessary to achieve the final WQBEL(s).).
   F. A description of the adaptive management process that will be used to evaluate the effectiveness of the BMPs to achieve the WQBEL(s) and make improvements as necessary; AND
   G. A time schedule for the implementation of the BMPs.

v. Any draft WQBEL compliance plans is subject to the review and approval of the Executive Officer. Responsible Co-permittees must modify the plan within 60-days of written notification by the Executive Officer. Upon approval by the Executive Officer, the plan is considered final and the responsible Co-permittees must fully implement the final WQBEL compliance plan. To be considered fully implementing an approved plan, responsible Co-permittee(s) must carry out all actions consistent with the final WQBEL compliance plan and related time schedules contained therein.

vi. Draft WQBEL compliance plans will be subject to a 30-day public review period. All final WQBEL compliance plans must be made available to the public and posted to the responsible Co-permittee website(s), the Principal Permittee's website, or by another method acceptable to the Executive Officer.

vii. Except for inconsequential grammatical or technical corrections, changes to final WQBEL compliance plans are subject to the approval of the Executive Officer following 30-days public review as described above.

XIX. PROGRAM EFFECTIVENESS ASSESSMENTS

A. Each Co-permittee must have a program in place to objectively assess the effectiveness of best management practices or groups of best management practices employed in each of the elements of their storm water program. The program must be documented in writing.
B. The Principal Permittee must develop a model program effectiveness assessment. The model assessment must address storm water program elements that are common to all or a majority of the Co-permittees and that are necessary to compile information on the overall performance of the Co-Permittees' collective efforts.
C. Each Co-permittees' programs must be comprised of the following elements:
    1. Conceptual generalized model(s) of how each pollutant, or functionally similar group of pollutants, are released to the environment and transported to the receiving water(s) (pollution process).
    2. A description of each of the best management practices (interventions) in the pollution process and where in the process they are intended to be applied.
    3. A system to objectively measure the performance of each intervention or group of interventions. The system must include valid performance metrics (or measures), the method(s) to measure and analyze the metrics, and a method to track and document outcomes.
    4. Annual evaluation of the validity of the program; how effective the interventions are in achieving the desired outcomes; if the performance metrics and the method(s) for measuring outcomes are valid; and any changes found necessary to improve the effectiveness of the interventions or the overall process.
D. Each Co-permittee must perform assessments of their best management practices annually. The results must be included in the Annual Progress Report (see Monitoring and Reporting Program No. R8-2015-0001). Reported outcomes must be expressly compared to the objective requirements of this Order (prescribed performance standards) where they are provided. The Principal Permittee is responsible for compiling and analyzing information where necessary to demonstrate compliance with the requirements of this Order.
E. Each Co-permittee must have an effective mechanism that solicits input from stakeholders in the development and implementation of the program effectiveness assessments.

XX. FISCAL ANALYSIS

A. The Co-permittees must prepare and submit a unified fiscal analysis to the Executive Officer of the Regional Board. The analysis must conform to fiscal reporting guidance issued by USEPA when

available. The analysis must be submitted with the Annual Progress Report (see Monitoring and Reporting Program No. R8-2015-0001) and, at a minimum, include:

1. An accounting of each Co-permittee's expenditures for the previous fiscal year;
2. An accounting of each Co-permittee's budget for the current fiscal year;
3. A description of the source of funds; AND
4. Each Co-permittee's estimated budget for the next fiscal year.

XXI. PROVISIONS

A. All reports that are submitted by the Co-permittees according to the requirements of this Order and which are subject to the approval of the Executive Officer will be publicly-noticed and made available at the Regional Board's web site or through other means. Noticed reports will be subject to public review and comment. The Executive Officer will consider all comments received prior to approval of the reports. Any unresolved, significant issues will be scheduled for a public hearing at a Regional Board meeting prior to approval by the Executive Officer.

B. The Co-permittees must comply with the requirements of Monitoring and Reporting Program No. R8-2015-0001 ("MRP"), as amended or revised during the term of this Order. The MRP is hereby made a part of this Order. The requirements of the MRP are subject to revision under the direction of the Executive Officer.

   1. Any proposed revisions to the MRP must be submitted in writing to the Executive Officer for approval.
   2. The Principal Permittee must provide public notice of any proposed revisions. The public notice must include direct notice given to potential and known interested stakeholders.
   3. The Executive Officer will provide a minimum of 30-days to interested parties to comment before approving any revisions.
   2. The Co-permittees must make available to the public the results of field and laboratory analyses performed on all samples collected pursuant to the MRP.

C. The NPDES program requirements contained in 40CFR§122.21(a), (b), (d)(2), (f), (p), (h), (i), (j), (k), and (l); and 40CFR§122.42(c) are incorporated into this order by reference.

D. The Co-permittees must report to the Executive Officer of the Regional Board any known discharges of storm water or non-storm water which may have an impact on human health or the environment.

E. The Co-permittees must report to the Executive Officer any suspected or known

activities on federal, state, or other entity's land or facilities where the Co-Permittees do not have jurisdiction, where the activities may be contributing pollutants to waters of the U.S.

XXII. PERMIT MODIFICATION

A. In accordance with 40CFR§122.41(f), this Order may be modified, revoked or reissued prior to its expiration date for the following reasons:
    1. To address significant changes in conditions identified in the technical reports required by the Regional Board which were unknown at the time of the issuance of this Order;
    2. To incorporate applicable requirements of state-wide water quality control plans adopted by the State Water Resources Control Board or any amendments to the Basin Plan approved by the Regional Board, the State Board, and, if necessary, by the Office of Administrative Law;
    3. To incorporate changes needed for consistency with standard provisions and precedential Orders adopted by the State Water Resources Control Board.
    4. To comply with any applicable requirements, guidelines, or regulations issued or approved under the Clean Water Act, if the requirements, guidelines, or regulations contain different conditions or additional requirements than those included in this Order; OR
    5. To incorporate any requirements imposed upon the Co-permittees through the TMDL process.
B. The filing of a request by the Co-permittees for modification, revocation, and reissuance or termination or a notification of planned changes or anticipated noncompliance does not stay any conditions of this Order.

XXIII. PERMIT EXPIRATION AND RENEWAL

A. This Order will expire on MONTH DAY, 2019. The Co-permittees must file a report of waste discharge (permit application) no later than 180 days in advance of the expiration of this Order after which this Order may be administratively extended (40 CFR §122.6). The submittal of a report of waste discharge will constitute an application for issuance of new waste discharge requirements (40 CFR § 122.41(b)).
B. All permit applications (reports of waste discharge), Annual Progress Reports, and other information submitted under this Order must be signed by either a principal executive officer or a ranking elected official (40 CFR § 122.22(a)(3)) or a duly-authorized representative as per 40 CFR § 122.22(b).
C. This Order shall serve as a National Pollutant Discharge Elimination System

(NPDES) Permit pursuant to Section 402(p) of the Clean Water Act, or amendments thereto. This Order shall become effective fifty (50) days after the date of its adoption, provided that the Regional Administrator of the USEPA has no objections. If the Regional Administrator objects to its issuance, this Order shall not become effective until such objection is withdrawn.

D. Except for enforcement purposes, Order No. R8-2009-0030 is hereby withdrawn upon the effective date of this Order.

XXIV. STANDARD PROVISIONS

A. Duty to Comply
   1. The Co-permittee(s) must comply with all of the conditions and provisions of this Order. Any noncompliance with the requirements of this Order constitutes a violation of the CWA and the CWC. Noncompliance is grounds for enforcement action and/or removal from Permit coverage.
   2. Any failure to take appropriate corrective action(s) as specified in this Order or as directed by the Executive Officer is also a violation of this Order.
   3. The Co-permittee(s) must comply with effluent standards or prohibitions established under section 307(a) of the CWA for toxic pollutants. Compliance must be achieved within the time provided in the regulations that establish these standards or prohibitions, even if this Permit has not yet been modified to incorporate the requirement.

B. General Permit Actions

   If any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under section 307(a) of the CWA for a toxic pollutant which is present in the discharge and that standards or prohibition is more stringent than any limitation on the pollutant in this Permit, this Permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition and the Co-permittees so notified.

C. Need to Halt or Reduce Activity Not a Defense

   It shall not be a defense for a Co-permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Permit.

D. Duty to Mitigate

   The Co-permittee(s) must take all responsible steps to minimize or prevent any discharge which has a reasonable likelihood of adversely affecting human health or the environment.

E. Proper Operation and Maintenance

   The Co-permittees must at all times properly operate and maintain any

facilities and systems of treatment and control (and related equipment and apparatuses) which are installed or used by the Co-permittee to achieve compliance with the conditions of this Permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance may require the operation of back-up or auxiliary facilities or similar systems installed by a Co-permittee when necessary to achieve compliance with the conditions of this Permit.

F. Property Rights

This Permit does not convey any property rights or any sort of exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor does it authorize any infringement of Federal, State, or local laws or regulations.

G. Duty to Provide Information

The Co-permittees must provide to the Regional Board, State Board, or USEPA, within a reasonable time, any requested information to determine compliance with this Permit. The Co-permittees must also furnish, upon request, copies of records that are required to be kept by this Permit.

H. Inspection and Entry

1. The Co-permittees must allow Regional Board staff, State Board staff USEPA staff, or an authorized representative of the municipal operator of the MS4 receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:
    a. Enter upon the Co-permittees premises at reasonable times where a regulated activity is being conducted or where records must be kept under the conditions of this Permit;
    b. Access and copy at reasonable times any records that must be kept under the conditions of this Permit.
    c. Inspect at reasonable times the facility; AND
    d. Take pictures, collect samples, collect evidence, or monitor at reasonable times for the purpose of ensuring Permit compliance.

I. Monitoring and Records

1. Samples and measurements taken for the purpose of monitoring must be representative of the monitored activity.
2. Records of monitoring must include:
    a. The date, exact place, and time of sampling or measurements;
    b. The date(s) analyses were performed;
    c. The individual(s) who performed the analyses;
    d. The analytical techniques or methods used; AND
    e. The results of such analysis.
3. The Co-permittees must maintain a paper or electronic copy of all storm water monitoring information, copies of all reports (including the Annual

Progress Reports), SWPPPS, and all other required records, including a copy of this Permit, for a period of at least five (5) years from the date generated or date submitted, whichever is later.

J. Electronic Signature and Certification Requirements

All Annual Progress Reports or other information required by this Permit or requested by the Regional Board, State Board, USEPA, or local storm water management agency must be certified and submitted by the Legally Responsible Person ("LRP") or the Duly Authorized Representative ("DAR").

K. Certification

Any person signing documents under Section XXIV.J. above, must make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

L. Anticipated Noncompliance

The Co-permittee(s) must give notice to the Regional Board and local storm water management agency of any planned changes in any municipal activity which may result in noncompliance with this Permit's requirements.

M. Penalties for Falsification of Reports

Section 309(4) of the CWA provides that any person who knowingly makes a false material statement, representation, or certification in any record or other document submitted or required to be maintained under this Permit, including reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than two years, or by both.

N. Oil and Hazardous Substance Liability

Nothing in this Permit shall be construed to preclude the institution of any legal action or relieve the Co-permittee(s) from any responsibilities, liabilities, or penalties to which the Co-permittee(s) is or may be subject to under Section 311 of the CWA.

O. Severability

The provisions of this Permit are severable; and, if any provision of this Permit or the application of any provision of this Permit to any

circumstance is held invalid, the application of such provision to other circumstances and the remainder of this Permit shall not be affected thereby.

P. Penalties for Violations of Permit Conditions

Section 309 of the CWA provided significant penalties for any person who violated a permit condition the implements Sections 301, 302, 306, 307, 308, 318, or 405 of the CWA or any permit condition or limitation implementing any such section in a permit issued under section 401. Any person who violated any permit condition of this Permit is subject to civil penalty not to exceed $37,500 per calendar day of such violation, as well as any other appropriate sanction provided by Section 309 of the CWA. The Porter-Cologne Water Quality Control Act also provides for civil and criminal penalties, which in some cases are greater than those under the CWA

Q. Transfers (not applicable)

R. Continuation of Expired Permit

1. This Permit continues in full force and effect until a new Permit is issued or the Regional Board rescinds this Permit.
2. Only those Co-permittees authorized to discharge under the expiring Permit are covered by the continued Permit.

S. Other Federal Requirements

All other requirements of 40 CFR § 122.41 and 40 CFR § 122.42 are incorporated into this Permit by reference.

ACRONYMS

ASBS Areas of Special Biological Significance

BMPs Best Management Practices

CCC Criterion Continuous Concentration

CCR California Code of Regulations (State Water Board regulations are in Title 23)

CEQA California Environmental Quality Act

CFR Code of Federal Regulations

CMC Criterion Maximum Concentration

CTR California Toxics Rule

CWA Clean Water Act

CWC California Water Code

DAMP Drainage Area Management Plan

DAR Duly Authorized Representative

DDT Dichlorodiphenyltrichloroethane

HCA Health Care Agency

LA Load Allocation

LID Low Impact Development

LIP Local Implementation Plan

LRP Legally Responsible Person

MOU Memorandum of Understanding

MPN Most Probable Number

MRP Monitoring and Reporting Program, R8-2015-0001

MS4 Municipal Separate Storm Sewer System

NPDES National Pollutant Discharge Elimination System

PCB Polychlorinated Biphenyl

PEA Program Effectiveness Assessment

POTW Publicly-Owned Treatment Works

QAPP Quality Assurance Project Plan

SARA Superfund Amendments and Reauthorization Act of 1986

SIC Standard Industrial Classification

SIP State Implementation Plan or, more formally, Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California

SSO Sanitary Sewer Overflow

SWAMP Surface Water Ambient Monitoring Program

SWRCB State Water Resources Control Board

TDS Total Dissolved Solids

TMDL Total Maximum Daily Load

USEPA United States Environmental Protection Agency

WEF Water Environment Federation

WDID Waste Discharger Identification

WDR Waste Discharge Requirements

WLA Waste Load Allocation

WQBEL water quality-based effluent limit

WQMP Water Quality Management Plan

GLOSSARY

This Glossary has been prepared for the convenience of the reader. This Glossary is not an exhaustive catalog of terminology used in this Order. Additional terminology is defined in the Clean Water Act, USEPA regulations, and the California Water Code; all such terms not appearing below are incorporated into this Permit by reference.

Authorized non-Storm Water Discharges – Non-storm water discharges authorized pursuant to an NPDES permit. Authorized non-storm water includes: uncontaminated condensate from air conditioners, coolers, and compressors and from the outside storage of refrigerated gases or liquids; flows from riparian habitats and wetlands; passive footing and foundation drains or crawlspace pumps; non-commercial vehicle washing; de-chlorinated water from swimming pools; diverted stream flows; uncontaminated groundwater or spring water; landscape watering, provided that all pesticides, herbicides, and fertilizers have been applied according to the approved labeling; discharges from emergency fire-fighting activities; irrigation water/drainage; and waters otherwise not containing waste.

Basin Plan – The Water Quality Control Plan for the Santa Ana River Basin (1995) and subsequent amendments.

Beneficial Uses – The uses of water necessary for the survival or well-being of man, plants, and wildlife. These uses of water serve to promote the tangible and intangible economic, social, and environmental goals. "Beneficial Uses" that may be protected against include, but are not limited to: domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves. Existing beneficial uses are uses that were attained in the surface or groundwater on or after November 28, 1975; and potential beneficial uses are uses that would probably develop in future years through the implementation of various control measures. "Beneficial Uses" are equivalent to "Designated Uses" under federal law (California Water Code Section 13050(f). Beneficial Uses for the Receiving Waters are identified in the Basin Plan.

Best Management Practices ("BMPs") – Also known as storm water control measures. Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating

procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage (40 CFR § 122.2).

Bioaccumulate – The progressive accumulation of contaminants in the tissues of organisms to a higher concentration than in the surrounding environment. Bioaccumulation may occur through any route, including respiration, ingestion, or direct contact with contaminated water, sediment, pore water, or dredged material. Bioaccumulation occurs with exposure and is independent of the trophic level of the organism.

Bioassessment – The use of biological community information to evaluate the biological integrity of a water body and its watershed. With respect to aquatic ecosystems, bio-assessment is the collection and analysis of samples of the benthic macro invertebrate community together with physical/habitat quality measurements associated with the sampling site and the watershed to evaluate the biological condition (i.e. biological integrity) of a water body.

Biological Integrity – Defined in Karr J.R. and D.R. Dudley. 1981. Ecological perspective on water quality goals. Environmental Management 5:55-68 as: “A balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of natural habitat of the region.” Also referred to as ‘ecosystem health’.

Biotreatment Control BMP – A sub-category of structural treatment control BMPs that employ biological uptake, transformation, or degradation of pollutants as their principal mechanism(s) of pollutant removal. Although a portion of the design capture volume or flow may incidentally infiltrate, evaporate, or evapotranspirate, the principal of operation involves the discharge of the treated storm water after detention in a densely-vegetated basin and/or passing through porous, biologically-active medium, dense vegetation or both.

California Toxics Rule – Numeric water quality criteria for certain Priority Toxic Pollutants and other water quality standards provisions promulgated by the USEPA for waters in the state of California. The California Toxics Rule is found in 40 CFR § 131.

Clean Water Act Section 402(p) – The federal statute, codified at 33 USC 1342(p), requiring municipal and industrial Co-permittees to obtain NPDES permits for their discharges of storm water.

Clean Water Act Section 303(d)-Listed Water Body – An impaired water body; a water body in which water quality does not meet applicable water quality standards and/or is

not expected to meet water quality standards, even after the application of technology-based pollution controls required by the CWA.

Construction Site – Any project, including projects requiring coverage under the General Construction Permit, that involves soil disturbing activities including, but not limited to, clearing, grading, disturbances to ground such as stockpiling, and excavation.

Contamination – An impairment of the quality of waters of the State by waste to a degree which creates a hazard to the public health through poisoning or through the spread of disease. “Contamination” includes any equivalent effect resulting from the disposal of waste whether or not waters of the State (inclusive of waters of the U.S.) are affected. (California Water Code Section 13050(k))

Co-permittee(s) – Entities regulated under Order No. R8-2015-0001, inclusive of the Principle Co-permittee.

Criteria – The numeric values and the narrative standards that represent contaminant concentrations that are not to be exceeded in the receiving environmental media (surface water, groundwater, sediment) to protect beneficial uses.

Debris – Debris is defined as the remains of anything destroyed or broken, or accumulated loose fragments of rock.

Design Capture Flow – The calculated flow rate of storm water runoff, typically expressed as cubic feet per second (“cfs”), that must be treated in one or more structural treatment control BMPs according to the requirements of this Order.

Design Capture Volume – The calculated volume of storm water runoff, typically expressed in gallons or cubic feet, that must be treated in one or more structural treatment control BMPs according to the requirements of this Order.

Dry Weather – Weather in which there is no precipitation.

Duly Authorized Representative – All reports required by this permit, and other requested information shall be signed by the LRP or by a duly authorized representative of that person. A person is a duly authorized representative only if:

- The authorization is made electronically submitted by the LRP;
- The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated activity such as a position of plant manager, superintendent, position of equal responsibility, or

an individual or position having overall responsibility for environmental matters for the municipality.

Effluent – Any discharge of water either to the receiving water or beyond the property boundary controlled by the discharger.

Effluent Limit/Limitation – Means any restriction on quantities, discharge rates, and concentrations of pollutants which are discharged from point sources into Waters of the United States, waters of the "contiguous zone," or the ocean. (40 CFR §122.2)

Emergency – A sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property, or essential public services (Public Resources Code Section 21060.3).

Environmentally Sensitive Area ("ESA") – An area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which would be easily disturbed or degraded by human activities and developments (Public Resources Code Section 30107.5). These areas include, but are not limited to: water bodies designated with the RARE beneficial use in the Basin Plan (Water Quality Control Plan for the Santa Ana River Basin [1995] and amendments); an area designated in the Ocean Plan as an Area of Special Biological Significance; a water body listed as being impaired pursuant to CWA Section 303(d); areas designated as preserves or their equivalent under the Natural Communities Conservation Program (Multiple Species Habitat Conservation Plan, "MSHCP") within the Cities and Counties of Orange, Riverside and San Bernardino; or any area designated as such by a public agency with designation powers.

Erosion – The process whereby material (such as sediment) is detached and entrained in water or air and can be transported to a different location. Chemical erosion involves materials that are dissolved and removed and transported.

Executive Officer – The Executive Officer of the Santa Ana Regional Water Quality Control Board or delegated staff.

Grading – The cutting and/or filling of the land surface to a desired slope or elevation.

Harvest and Use Low-Impact Development Best Management Practice ("Harvest and Use LID BMP") – A sub-category of retention LID BMPs that uses harvest and use of the design capture volume or quantified portion thereof. The captured volume is typically used for non-potable uses such as toilet-flushing, industrial process supply, and

landscape irrigation.

Hazardous Substance – Any substance that poses a threat to human health or the environment due to its toxicity, corrosiveness, ignitability, explosive nature or chemical reactivity; any substance designated under 40 CFR §116 pursuant to Section 311(b)(2) of the Clean Water Act (40 CFR § 122.2).

Hydrologic Condition of Concern ("HCOC") – A condition of a stream or channel, or some reach thereof; or a condition of some other water body (e.g. a vernal pool), where its hydrology is, or is proposed to be, altered by past or future development such that there has been, or could be, cumulatively significant adverse impacts to the physical or biological integrity of the water body. A condition where a proposed development site discharges directly or indirectly to a water body where such conditions are known or suspected to exist based on Substantial Evidence.

Illicit Discharge – Any discharge to a municipal separate storm sewer that is not composed entirely of storm water. This does not include discharges that occur pursuant to an NPDES permit, other than the MS4 Permit, and discharges resulting from fire-fighting activities (40 CFR § 122.26(b)(2)).

Impaired Water Body – Section 303(b) of the CWA requires each of California's Regional Water Quality Control Boards to routinely monitor and assess the quality of waters of their respective regions. If this assessment indicates that Beneficial Uses are not met, then that water body must be listed under Section 303(d) of the CWA as an Impaired Water Body.

Impervious Surface – That part of a developed parcel that has been modified to reduce the land's natural ability to absorb and hold rainfall. It includes hard surfaces which cause water to run off the surface in greater quantities or at an increased rate of flow from the flow that existed under natural conditions prior to development. For example, common impervious surfaces include, but are not limited to, rooftops, walkways, patios, courtyards, driveways, parking lots, storage areas, concrete or asphalt paving, gravel roads, or any cleared, graded, graveled, paved, or compacted surfaces, or other surfaces which similarly impede the natural infiltration of surface water into the soil.

Infiltration – The flow of water into the soil by crossing the soil surface.

Infiltration Low-Impact Development Best Management Practice ("Infiltration LID BMP") – A type of retention LID BMP that employs infiltration at the principal mechanism for the loss of the design capture volume or quantified portion thereof.

Isopluvia – A line on a map drawn through geographical points having the same pluvial (rain, precipitation) index.

Land Disturbance – The clearing, grading, excavation, stockpiling, or other construction activity that results in the possible mobilization of soils or other pollutants into the MS4. This specifically does not include routine maintenance activity to maintain the original line

and grade, hydraulic capacity, or original purpose of the facility. This also does not include emergency construction activities required to protect public health and safety.

Legally Responsible Person – The legally responsible person who is responsible for signing, certifying, and electronically submitting Permit Registration Documents, Notices of Termination, and any other documents, reports, or information required by a Permit, the State or Regional Water Board, or U.S. EPA. The LRP must be one of the following:

- For a municipality, State, Federal, or other public agency: a principal executive officer, ranking elected official, city manager, council president, or other public employee with managerial responsibility over the municipality (including, but not limited to, project manager, project superintendent, or resident engineer).

Load Allocations ("LA") – Distribution or assignment of TMDL pollutant loads to entities or sources for existing and future nonpoint sources, including background loads.

Low-Impact Development ("LID") – A storm water management and land development strategy that combines a hydrologically functional site design with pollution prevention measures to compensate for land development impacts on hydrology and water quality. LID techniques mimic the site's predevelopment hydrology by using site design techniques that store, infiltrate, evapotranspirate, bio-filter or detain runoff close to its source.

Maximum Extent Practicable ("MEP") - refers to a standard for implementation of storm water management programs. Section 402(p)(3)(B)(iii) of the Clean Water Act requires that municipal storm water permits "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques, and system design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants."

In practice, compliance with the MEP standard is evaluated by how well the Co-Permittees implement the "minimum measures" identified by EPA, including: (1) Public education and outreach on storm water impacts; (2) Public involvement/participation; (3) Illicit discharge detection and elimination; (4) Construction site storm water runoff control; (5) Post-construction storm water management in new development and redevelopment; and (6) Pollution prevention/good housekeeping for municipal operations. Collectively, these minimum measures are often referred to as "Best Management Practices" or BMPs. The MEP standard does not require Co-permittees to reduce pollutant concentrations below natural background levels, nor does it require further reductions where pollutant concentrations in the receiving water already meet water

quality objectives.

MEP is a technology-based standard established by Congress in CWA section 402(p)(3)(B)(iii) that operators of MS4s must meet. Technology-based standards establish the level of pollutant reductions that dischargers must achieve, typically by treatment or by a combination of source control and treatment control BMPs. MEP generally emphasizes pollution prevention and source control BMPs primarily (as the first line of defense) in combination with treatment methods serving as a backup (additional line of defense). MEP considers economics and is generally, but not necessarily, less stringent than BAT.

A definition for MEP is not provided either in the statute or in the regulations. Instead the definition of MEP is dynamic and will be defined by the following process over time: municipalities propose their definition of MEP by way of their urban runoff management programs. Their total collective and individual activities conducted pursuant to the urban runoff management programs becomes their proposal for MEP as it applies both to their overall effort, as well as to specific activities (e.g., MEP for street sweeping, or MEP for MS4 maintenance). In the absence of a proposal acceptable to the Regional Board, the Regional Board defines MEP.

In a memo dated February 11, 1993, entitled "Definition of Maximum Extent Practicable," Elizabeth Jennings, Senior Staff Counsel, SWRCB addressed the achievement of the MEP standard as follows:

> "To achieve the MEP standard, municipalities must employ whatever Best management Practices (BMPs) are technically feasible (i.e., are likely to be effective) and are not cost prohibitive. The major emphasis is on technical feasibility. Reducing pollutants to the MEP means choosing effective BMPs, and rejecting applicable BMPS only where other effective BMPS will serve the same purpose or the BMPS would not be technically feasible, or the cost would be prohibitive. In selecting BMPS to achieve the MEP standard, the following factors may be useful to consider:
>
> a. Effectiveness: Will the BMPS address a pollutant (or pollutant source) of concern?
> b. Regulatory Compliance: Is the BMP in compliance with storm water regulations as well as other environmental regulations?
> c. Public Acceptance: Does the BMP have public support?
> d. Cost: Will the cost of implementing the BMP have a reasonable relationship to the pollution control benefits to be achieved?
> e. Technical Feasibility: Is the BMP technically feasible considering soils, geography, water resources, etc?
>
> The final determination regarding whether a municipality has reduced pollutants to the maximum extent practicable can only be made by the

> Regional or State Water Boards, and not by the municipal discharger. If a municipality reviews a lengthy menu of BMPs and chooses to select only a few of the least expensive, it is likely that MEP has not been met. On the other hand, if a municipal discharger employs all applicable BMPs except those where it can show that they are not technically feasible in the locality, or whose cost would exceed any benefit derived, it would have met the standard. Where a choice may be made between two BMPs that should provide generally comparable effectiveness, the discharger may choose the least expensive alternative and exclude the more expensive BMP. However, it would not be acceptable either to reject all BMPs that would address a pollutant source, or to pick a BMP based solely on cost, which would be clearly less effective. In selecting BMPs the municipality must make a serious attempt to comply and practical solutions may not be lightly rejected. In any case, the burden would be on the municipal discharger to show compliance with its permit. After selecting a menu of BMPs, it is the responsibility of the discharger to ensure that all BMPs are implemented."

Monitoring and Reporting Period – For purposes of this Order, the monitoring and reporting period is July 1 to June 30 with a reporting deadline of the following November 15th of each year for Annual Progress Reports.

Municipal Storm Water Conveyance System – (See Municipal Separate Storm Sewer System or MS4).

Municipal Separate Storm Sewer System ("MS4") – A conveyance or system of conveyances designed to collect and/or transport urban runoff (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, natural drainage features or channels, modified natural channels, man-made channels, or storm drains): (i) Owned or operated by a State, city town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes; (ii) Designated or used for collecting of conveying storm water; (iii) Which is not a combined sewer; (iv) Which is not part of the Publicly Owned Treatment Works (POTW)
as defined at 40 CFR § 122.2 (40 CFR § 126.26(b)(8)).

Most Probable Number ("MPN") – The most probable number (MPN) of coliform or fecal coliform bacteria per unit volume of a sample. It is expressed as the number of organisms which are most likely to have produced the laboratory results noted in a particular test.

National Pollutant Discharge Elimination System ("NPDES") Permit – A national program under section 402 of the Clean Water Act for regulation of discharges of pollutants from point sources to waters of the United States. Discharges of pollutants are

prohibited unless specifically exempted or authorized by an NPDES permit.

Non-Storm Water – Non-storm water consists of all discharges to and from a storm water conveyance system that do not originate from precipitation events (i.e., all discharges from a conveyance system other than storm water). Non-storm water includes illicit discharges, prohibited discharges, and NPDES permitted discharges.

Nuisance – anything which meets all of the following requirements: 1) Is injurious to health, or is indecent, or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property. 2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal. 3) Occurs during, or as a result of, the treatment or disposal of wastes (CWC Section 13050(m)).

Outfall - A *point source*, as defined by 40 CFR 122.2, at the point where an MS4 discharges to waters of the United States. An outfall does not include open conveyances connecting two municipal separate storm sewers. An outfall does not include pipes, tunnels, or other conveyances which connect segments of the same stream or other waters of the U.S. and are used to convey waters of the U.S. (40 CFR 122.26(b)(9)).

Party – Defined as an individual, association, partnership, corporation, municipality, state or federal agency, or an agent or employee thereof (40 CFR § 122.2).

Permit Area – Areas that are under the jurisdiction of the Santa Ana Regional Water Quality Control Board. These include north and northwestern portions of Orange County, north and western portions of Riverside County and western portions of San Bernardino County. See the Basin Plan for a detailed description of the Regional Board boundaries.

Permit Registration Documents ("PRDs") – Include the Notice of Intent, Storm Water Pollution Prevention Plan, Site Map and the appropriate filing fee necessary to authorize a discharge under general waste discharge requirements.

Person – A person is defined as an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof (40 CFR § 122.2).

pH - An indicator of the acidity or alkalinity of water.

Point Source – Any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, runoff from concentrated animal feeding operations, landfill leachate collection systems, vessel, or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

Pollutant – Any agent that may cause or contribute to the degradation of water quality such that a condition of pollution or contamination is created or aggravated. It includes any type of industrial, municipal, and agricultural waste discharged into water. The term "pollutant" is defined in section 502(6) of the Clean Water Act as follows: "The term 'pollutant' means dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water." It has also been interpreted to include water characteristics such as toxicity or acidity.

Pollution – The alteration of the quality of the Waters of the U.S. by waste, to a degree that unreasonably affects either of the following: 1) The waters for beneficial uses; or 2) Facilities that serve these beneficial uses. Pollution may include contamination (CWC Section 13050(l)).

Pollution Prevention – Practices and processes that reduce or eliminate the generation of pollutants, in contrast to source control, treatment, or disposal.

Principal Permittee – The County of Orange

Priority Toxic Pollutant – A pollutant identified in the California Toxics Rule.

Receiving Waters – Waters of the United States within the Permit area.

Receiving Water Limitations – Waste discharge requirements issued by the Regional Board typically include both: (1) "Effluent Limitations" (or "Discharge Limitations") that specify the technology-based or water-quality-based effluent limitations; and (2) "Receiving Water Limitations" that specify the water quality objectives in the Basin Plan as well as any other limitations necessary to attain those objectives. In summary, the "Receiving Water Limitations" provision is the provision used to implement the requirement of CWA SECTION 301(b)(1)(C) that NPDES permits must include any more stringent limitations necessary to meet water quality standards.

Retention Low-Impact Development Best Management Practice ("Retention LID BMP") – A sub-category of structural treatment control BMPs that employ retention of the design capture volume or a quantified portion thereof. The retained volume is infiltrated, evaporated, evapotranspirated, or used (typically for non-potable uses).

Sediment – Soil, sand, and minerals washed from land into water. Sediment resulting from anthropogenic sources (i.e. human-induced land disturbance activities) is considered a pollutant. This Order regulates only the discharges of sediment from anthropogenic sources and does not regulate naturally-occurring sources of sediment. Sediment can destroy fish-nesting areas, clog animal habitats, and cloud waters so that sunlight does not reach aquatic plants.

Source Control and Site Design BMPs – In general, activities or programs to educate the public or provide low-cost non-physical solutions, as well as facility design or practices aimed to limit the contact between pollutant sources and storm water or authorized non-storm water. Examples include: activity schedules, prohibitions of practices, industrial area sweeping, facility maintenance, detection and elimination of illegal and unauthorized discharges, and other non-structural measures. Facility design (structural) examples include providing attached lids to trash containers, canopies for fueling islands, secondary containment, or roof or awning over material and trash storage areas to prevent direct contact between storm water and pollutants

Standard Industrial Classification ("SIC") Code – Four digit industry code, as defined by the US Department of Labor, Occupational Safety and Health Administration. The SIC Code is used to identify if a facility requires coverage under the Industrial Activities Storm Water Permits.

State Implementation Plan ("SIP") – Formally known as the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California. The SIP implements the California Toxics Rule.

State Board – California State Water Resources Control Board

Storm Water – Storm water runoff, snowmelt runoff and surface runoff and drainage (40 CFR § 122.26(b)(13)).

Storm Water General Permits – General Permit-Industrial (State Board Order No. 97-03 DWQ, NPDES No. CAS000001), and General Permit-Construction (State Board Order No. 2009-0009-DWQ, NPDES No. CAS000002).

Structural treatment control BMPs – Any system designed and constructed according to published and generally-accepted engineering criteria to remove pollutants from urban runoff. Pollutants are removed by simple gravity settling of particulate pollutants, filtration, biological uptake, media adsorption or any other physical, biological, or chemical process. In this Order, structural treatment control BMPs are classified as LID BMPs and non-LID BMPs. LID BMPs are further sub-classified into Retention LID BMPs and Biotreatment

Control BMPs. All of these classes of structural treatment control BMPs are subject to general and specific requirements in this Order.

Substantial Evidence – Facts, reasonable assumptions predicated on facts, or expert opinion supported by facts. Substantial Evidence does not include argument, speculation, unsubstantiated opinion or narrative, or evidence which is clearly erroneous or inaccurate (Public Resources Code Section 21080(e)).

Storm Water Pollution Prevention Plan ("SWPPP") – A plan developed to minimize and control the discharge of pollutants from the industrial site to storm water conveyance systems. The plan shall identify pollutant sources, control measures for each pollutant source, good housekeeping practices and employee training programs.

Total Dissolved Solids ("TDS") – A measure of the total dissolved minerals in the water; the total dissolved (filterable) solids as determined by use of the method specified in 40 CFR § 136 (40 CFR § 122.2)

Total Maximum Daily Load ("TMDL") – The maximum amount of a pollutant that can be discharged into a water body from all sources (point and non-point) and still maintain water quality standards. Under Clean Water Act § 303(d), TMDLs must be developed for all water bodies that do not meet water quality standards after application of technology-based controls.

TMDL Implementation Plan – Component of a TMDL that describes actions, including monitoring, needed to reduce pollutant loadings and a timeline for implementation. TMDL implementation plans can include a monitoring or modeling plan and milestones for measuring progress, plans for revising the TMDL if progress toward cleaning up the waters is not made, and the date by which water quality standards will be met (USEPA Final TMDL Rule: Fulfilling the Goals of the CWA, EPA 841-F-00-008, July 2000).

Toxicity – Adverse responses of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies.

Turbidity – The cloudiness of water quantified by the degree to which light traveling through a water column is scattered by the suspended organic and inorganic particles it contains. The turbidity test is reported in Nephelometric Turbidity Units (NTU) or Jackson Turbidity Units (JTU)

Uncontaminated Groundwater – Groundwater that is not impaired by waste to a degree which creates a hazard to the public health through poisoning or through the

spread of disease

Urban Runoff – Urban runoff is defined as all flows in a storm water conveyance system from urban areas which include residential, commercial, industrial, and construction areas. Urban runoff consists of the following components: (1) storm water runoff and (2) authorized non-storm water discharges (See Section III of this Order). Urban runoff does not include runoff from undeveloped open space, feedlots, dairies, farms, and agricultural fields.

Waste – Waste includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal (CWC Section 13050(d)). Article 2 of CCR Title 23, Chapter 15 (Chapter 15) contains a waste classification system which applies to solid and semi-solid waste which cannot be discharged directly or indirectly to water of the state and which therefore must be discharged to land for treatment, storage, or disposal in accordance with Chapter 15. There are four classifications of waste (listed in order of highest to lowest threat to water quality): hazardous waste, designated waste, nonhazardous solid waste, and inert waste.

Waste Discharge Requirements ("WDR") – As defined in section 13374 of the California Water Code, the term "Waste Discharge Requirements" is the equivalent of the term "permits" as used in the Federal Water Pollution Control Act, as amended. The Regional Board usually uses the terms "permit" and "Order" to refer to Waste Discharge Requirements for discharges to Waters of the U.S.

Waste Load Allocations ("WLA") – WLA is the distribution or assignment of pollutant loads to entities or sources for existing and future point sources according to a TMDL; the maximum quantity of pollutants a discharger is allowed to release into a particular waterway, as set by a regulatory authority. Discharge limits usually are required for each specific water quality criterion being, or expected to be, violated.

Water Quality Assessment – An assessment conducted to evaluate the condition of water bodies which receive process wastewater, storm water and non-storm water discharges.

Water Quality Objective – The limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area [California Water Code Section 13050(h)).

Water Quality Standards – Consist of beneficial uses, water quality objectives to protect those uses, an anti-degradation policy, and policies for implementation. Water quality standards are found in Regional Water Quality Control Plans and statewide water quality control plans. The USEPA has also adopted water quality criteria (the same as objectives) for California in the National Toxics Rule and California Toxics Rule.

Waters of the State – Any surface water or groundwater, including saline waters, within the boundaries of the State (California Water Code Section 13050(e)). Waters of the State includes waters of the United States.

Waters of the United States – Waters of the United States can be broadly defined as navigable surface waters and tributaries thereto. Groundwater is not considered to be Waters of the United States. As defined in 40 CFR § 122.2, the Waters of the U.S. are defined as: (a) All waters, which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (b) All interstate waters, including interstate "wetlands;" (c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation or destruction of which would affect or could affect interstate or foreign commerce including any such waters: (1) Which are or could be used by interstate or foreign travelers for recreational or other purposes; (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (3) Which are used or could be used for industrial purposes by industries in interstate commerce; (d) All impoundments of waters otherwise defined as waters of the United States under this definition: (e) Tributaries of waters identified in paragraphs (a) through (d) of this definition; (f) The territorial seas; and (g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the EPA.

Watershed – That geographical area which drains to a specified point on a water course, usually a confluence of streams or rivers; a drainage area, catchment, or river basin.

Wet Season – The period of October 1st through May 31st of each year, except where specifically defined otherwise in an approved TMDL Implementation Plan.

Appendix A

Table A-1: Applicability of TMDL requirements to Co-permittees[1]

	San Diego Creek and Newport Bay Watershed TMDLs						San Gabriel River TMDL
Co-permittee	Nutrient TMDL	Fecal Coliform TMDL	Organochlorine Compounds TMDL	Diazinon & Chlorpyrifos TMDL	Toxics TMDL	Sediment TMDL	Coyote Creek Metals TMDL
County of Orange	X	X	X	X	X	X	X
Orange County Flood Control District	X	X	X	X	X	X	X
City of Anaheim							X
City of Brea							X
City of Buena Park							X
City of Costa Mesa	X	X	X	X	X	X	
City of Cypress							X
City of Fountain Valley							
City of Fullerton							X
City of Garden Grove							X
City of Irvine	X	X	X	X	X	X	
City of Laguna Hills	X		X	X	X		
City of Laguna Woods	X		X	X	X		
City of La Habra							X
City of La Palma							X
City of Lake Forest	X	X	X	X	X	X	
City of Los Alamitos							X
City of Newport Beach	X	X	X	X	X	X	
City of Orange	X	X	X	X	X		
City of Placentia							X
City of Santa Ana	X	X	X	X	X	X	
City of Seal Beach							X
City of Stanton							X
City of Tustin	X	X	X	X	X	X	
City of Yorba Linda							X[2]

[1] Table A-1 excludes the cities of Fountain Valley, Garden Grove, Huntington Beach, Villa Park, and Westminster; these Co-permittees do not discharge to waters for which there is an adopted TMDL.
[2] Only if the City of Yorba Linda discharges into Coyote Creek. See the Technical Report for further information.

Appendix B

Water Quality-Based Effluent Limits for Nutrients in Newport Bay

The following water quality-based effluent limits ("WQBELs") apply to discharges of urban runoff from MS4s owned or controlled by those Co-permitees discharging into Newport Bay. The WQBELs in this Appendix are based on the waste load allocations ("WLAs") in the Nutrient TMDL. Compliance with the WQBELs in this Appendix will be determined according to methods described in Section XVIII of Order No. R8-2015-0001.

The Nutrient TMDL has been approved by Santa Ana Regional Water Quality Control Board, the State Water Resources Control Board, the Office of Administrative Law ("OAL") and USEPA. The Nutrient TMDL was adopted by the Santa Ana Regional Water Quality Control Board in Resolution No. 98-9 (amended by Resolution No. 98-100). The TMDL was approved by the Office of Administrative Law on February 10, 1999 and April 16, 1999. The compliance deadlines that were adopted as part of this TMDL have passed and the following WQBELs are effective on the effective date of this Order.

I. Final WQBELs

The responsible Co-permittees must comply with the methods described in Section XVIII of Order No. R8-2015-0001 to demonstrate compliance with the following final WQBELs:

A. Reach 1, San Diego Creek

Table B-1: Final Nutrient WQBELs for Reach 1 of San Diego Creek

Total Nitrogen[1] – Summer[2] (pounds/season)	Total Nitrogen[1] – Winter[3, 4, 5] (pounds/season)	Total Phosphorous – Annual (pounds/year)
16,628	55,442	2,960

Table B-1 Notes:

1. Total Nitrogen = NO_3 + NH_3 + organic N
2. Summer season: April through September
3. Winter season: October through March
4. The WQBEL for winter Total Nitrogen applies between October 1 and March 31 when the mean daily flow rate in San Diego Creek at Campus Drive is less than 50 cubic feet per second ("cfs") and

when the mean daily flow rate in San Diego Creek at Campus Drive is above 50 cfs but not as the result of precipitation.

5. Assumes 67 non-storm days.

B. Reach 2, San Diego Creek: 5.5 pounds per day Total Nitrogen

1. This WQBEL for Total Nitrogen applies when the mean daily flow rate in San Diego Creek at Culver Drive is below 25-cfs and when the mean daily flow rate in San Diego Creek at Culver Drive is above 25-cfs but not as the result of precipitation.

Appendix C

Water Quality-Based Effluent Limits for Fecal Coliform in Newport Bay

The following water quality-based effluent limits ("WQBELs") apply to discharges of urban runoff from MS4s owned or controlled by those Co-permitees discharging into Newport Bay. The WQBELs in this Appendix are based on the waste load allocations in the Fecal Coliform TMDL. Compliance with the WQBELs in this Appendix will be determined according to methods described in Section XVIII of Order No. R8-2015-0001.

The Fecal Coliform TMDL has been approved by Santa Ana Regional Water Quality Control Board, the State Water Resources Control Board, the Office of Administrative Law ("OAL") and USEPA. The Fecal Coliform TMDL was adopted by the Santa Ana Regional Water Quality Control Board in Resolution No. 99-10 The TMDL was approved by OAL on December 24, 1999 and February 28, 2000. Unless indicated otherwise below, the compliance deadlines that were adopted as part of this TMDL have passed and the following WQBELs are effective on the effective date of this Order.

I. Final WQBELs

A. The responsible Co-permittees must comply with the methods described in Section XVIII of Order No. R8-2015-0001 to demonstrate compliance with the following final WQBEL to protect the water-contact recreation (REC-1) beneficial use:

Table C-1: Final WQBEL to protect REC-1

WQBEL to protect REC-1	Compliance Date
5-sample/30-days geometric mean less than 200 organisms/100mL and not more than 10% of the samples excee 400 organisms/100mL for any 30-day period[1].	As soon as possible but no later than December 31, 2014.

Table C-1 Notes:

1. The geometric mean shall be calculated based on a minimum of 5 representative samples of urban runoff taken over a 30-day period.

B. The responsible Co-permittees must comply with the methods described in Section XVIII of Order No. R8-2015-0001 to demonstrate compliance

with the following final WQBEL to protect the shell fish harvesting (SHEL) beneficial use:

Table C-2: Final WQBEL to protect SHEL

WQBEL to protect REC-1	Compliance Date
Monthly median less than 14 MPN/100mL and not more than 10% of the samples exceed 43 MPN/100mL	As soon as possible but no later than December 31, 2019.

C. The responsible Co-permittees must provide an updated TMDL report for both the final WQBELs to protect REC-1 and SHEL no later than 60-days from the effective date of this Order. The TMDL report must:
   1. Integrate and evaluate the results of the studies performed as part of Tasks 1 through 7 of the Fecal Coliform TMDL implementation plan (Table 5-9g of the Basin Plan);
   2. Include recommendations for revisions to the TMDL if appropriate; and
   3. Include recommendations for interim WQBELs and related compliance schedules.

Appendix D

Water Quality-Based Effluent Limits for Sediment in Upper Newport Bay

The following water quality-based effluent limits ("WQBELs") apply to discharges of urban runoff from MS4s owned or controlled by those Co-permitees discharging into Upper Newport Bay. The WQBELs in this Appendix are based on the requirements in the Sediment TMDL, exclusive of the load allocations. Compliance with the WQBELs in this Appendix will be determined according to methods described in Section XVIII of Order No. R8-2015-0001.

The Sediment TMDL has been approved by Santa Ana Regional Water Quality Control Board, the State Water Resources Control Board, the Office of Administrative Law ("OAL") and USEPA. The Sediment TMDL was adopted by the Santa Ana Regional Water Quality Control Board in Resolution No. 98-101. The TMDL was approved by OAL on February 2, 1999 and April 16, 1999. The compliance deadlines that were adopted as part of this TMDL have passed and the following WQBELs are effective on the effective date of this Order.

I. Final WQBELs

The responsible Co-permittees must comply with the methods described in Section XVIII of Order No. R8-2015-0001 to demonstrate compliance with the following final WQBELs:

A. Discharges of urban runoff must not transport more than 2,500 tons of sediment per year, calculated as a 10-year running average, into Newport Bay from urban areas.

B. Discharges of urban runoff must not transport more than 2,500 tons of sediment per year, calculated as a 10-year running average, into San Diego Creek and its tributaries.

C. Sediment in discharges of urban runoff must not alter the distribution of habitat types in the 700-acre Upper Newport Bay Ecological Reserve, in Table D-1 below or as revised by the Department of Fish and Wildlife, by more than 1%.

Table D-1: Baseline Distribution of Habitat Types in the Upper Newport Bay Ecological Reserve

Habitat Type	Acres	Permissible Change (acres)
Marine aquatic	210	2.1
Mudflat	214	2.1
Salt marsh	277	2.8
Riparian	31	3.1

D. The depths of the Unit 1 and 2 Sediment Basins (a.k.a. Unit I/III and Unit II) must be maintained at a minimum of 7-feet below mean sea level.

E. Bathymetric and vegetation surveys must be performed no less than once every three years, or as agreed to by the Executive Officer, in a manner to determine compliance with the above requirements for sediment.
    1. Bathymetric and vegetation surveys must be performed within one year following any monitoring period in which monitoring at San Diego Creek at Jamboree Boulevard and Campus Drive (Site ID: SDMF05) shows that more than 250,000 tons of sediment were discharged into Newport Bay.
    2. Bathymetric and vegetation surveys must be conducted by July 1st of each year that they are performed, and must be submitted by December 31 of the same year.

F. All in-channel and foothill sediment-control basins tributary to Newport Bay must have an available sediment capacity that is 50% or more of each facilities' design capacity prior to November 15th of each year.

Appendix E

Water Quality-Based Effluent Limits for Organochlorine Compounds in Newport Bay and San Diego Creek

The following water quality-based effluent limits ("WQBELs") apply to discharges of urban runoff from MS4s owned or controlled by those Co-permitees discharging into Newport Bay and San Diego Creek as indicated. The WQBELs in this Appendix are based on the waste load allocations ("WLAs") in the Organochlorine Compound TMDL. Compliance with the WQBELs in this Appendix will be determined according to methods described in Section XVIII of Order No. R8-2015-0001. The compliance deadlines for these WQBELs have not yet passed.

The Organochlorine Compound TMDL that the following WQBELs are based on has been approved by Santa Ana Regional Water Quality Control Board, the State Water Resources Control Board, the Office of Administrative Law ("OAL") and USEPA. The Organochlorine Compound TMDL was adopted by the Santa Ana Regional Water Quality Control Board in Resolution No. R8-2011-0037 (modifying Resolution No. R8-2007-0024). The TMDL was approved by OAL on July 26, 2013 and by USEPA on November 12, 2013. Chlordane, dieldrin, DDT and PCBs are part of the earlier USEPA-promulgated TMDL whose WLAs were superseded by the Regional Board's TMDL. As a result, the pollutant-water body WLAs established by USEPA's TMDL do not appear below.

I. The responsible Co-permittees must comply with the methods described in Section XVIII of Order No. R8-2015-0001 to demonstrate compliance with the final WQBELs in Table E-1. These WQBELs must be met as soon as possible but not later than December 31, 2020:

Table E-1: WQBELs by Receiving Water for Organochlorine Compounds

	Waste Load Allocation (g/year)			
Receiving Water	Total DDT	Chlordane	Total PCB	Toxaphene
San Diego Creek	128.3	--	--	1.9
Upper Newport Bay	51.8	30.1	29.8	n/a
Lower Newport Bay	19.1	11.0	78.1	--

Appendix F

Water Quality-Based Effluent Limits for the Diazinon & Chlorpyrifos TMDL for Upper Newport Bay and San Diego Creek

The following water quality-based effluent limits ("WQBELs") apply to discharges of urban runoff from MS4s owned or controlled by those Co-permitees discharging into Upper Newport Bay or San Diego Creek as indicated. The WQBELs in this Appendix are based on the waste load allocations in the Diazinon & Chlorpyrifos TMDL. Compliance with the WQBELs in this Appendix will be determined according to methods described in Section XVIII or Order No. R8-2015-0001.

The Diazinon & Chlorpyrifos TMDL has been approved by Santa Ana Regional Water Quality Control Board, the State Water Resources Control Board, the Office of Administrative Law ("OAL") and USEPA. The Diazinon & Chlorpyrifos TMDL was adopted by the Santa Ana Regional Water Quality Control Board in Resolution No. R8-2003-0039. The TMDL was approved by OAL on January 5, 2004 and February 13, 2004. The compliance deadline that was adopted as part of this TMDL has passed and the following WQBELs are effective on the effective date of this Order.

I. The responsible Co-permittees must comply with the methods described in Section XVIII of Order No. R8-2015-0001 to demonstrate compliance with the final WQBELs in Table F-1:

Table F-1: WQBELs for Chlorpyrifos and Diazinon in Upper Newport Bay and San Diego Creek

	Chlorpyrifos (ng/L)		Diazinon (ng/L)	
Receiving Water	Acute Concentration (24-hour average)	Chronic Concentration (4-consequtive day average)	Acute Concentration (24-hour average)	Chronic Concentration (4-consequtive day average)
Upper Newport Bay	18	8.1	--	--
San Diego Creek	18	12.6	72	45

Appendix G

Water Quality-Based Effluent Limits for Toxic Pollutants (Metals and Selenium) into San Diego Creek and Newport Bay

The following water quality-based effluent limits ("WQBELs") apply to discharges of urban runoff from MS4s owned or controlled by those Co-permitees discharging into San Diego Creek and Newport Bay as indicated.

The WQBELs in this Appendix are based on the waste load allocations in the Toxic Pollutants (Metals and Selenium) TMDL. The TMDL was promulgated by USEPA on June 17, 2002. Compliance with the WQBELs in this Appendix will be determined according to methods developed pursuant to Subsection II.B. of Monitoring and Reporting Program R8-2015-0001. Compliance deadlines for the WBELs in this Appendix were not established; these WQBELs are effective on the effective date of this Order.

I. The responsible Co-permittees must comply with the methods described in Section XVIII of Order No. R8-2015-0001 to demonstrate compliance with the final WQBELs in the following Tables G-1, G-2, G-3, and G-4:

Table G-1: Concentration-based WQBELs for Metals in San Diego Creek at Campus Drive

	Base Flow (flow < 20-cfs; hardness = 400 mg/L)		Small Flows (21 ≤ flow ≤ 181-cfs; hardness = 322 mg/L)		Medium Flows (182 ≤ flow ≤ 815-cfs; hardness = 236 mg/L)		Large Flows (flow >815- cfs; hardness = 197 mg/L)
	Acute (µg/L)	Chronic (µg/L)	Acute (µg/L)	Chronic (µg/L)	Acute (µg/L)	Chronic (mg/L)	Acute (µg/L)
Cadmium, dissolved	19.1	6.2	5.3	15.1	4.2	10.8	8.9
Copper, dissolved	50	29.3	40	24.3	30.2	18.7	25.5
Lead, dissolved	281	10.9	224	8.8	162	6.3	134
Zinc, dissolved	379	382	316	318	243	224	208

Table G-2: WQBELs for Discharges of Metals into Newport Bay

	Acute Concentrations (24-hour average) (µg/L)	Chronic Concentrations (4 consecutive day/96-hour average) (µg/L)	Mass-based Loads (pounds/year)
Cadmium, dissolved[1]	42	9.3	9,589
Copper, dissolved	4.8	3.1	3,043
Lead, dissolved	210	8.1	17,638
Zinc, dissolved	90	81	174,057

Notes for Table G-2:
1. Values for dissolved cadmium apply only to discharges to Upper Newport Bay

Table G-3: WQBELs for Discharges into the Rhine Channel

Mercury (kg/year)	Chromium (kg/year)
0.0171	5.66

Table G-4: WQBELs for Discharges of Selenium in San Diego Creek at Campus Drive

	Base Flows Flow < 20-cfs	Small Flows (21 ≤ flow ≤ 18- cfs)	Medium Flows 182 ≤ flow ≤ 814-cfs)	Large Flows (flow > 814-cfs)	Annual Total
Maximum Permissible Annual Load (pounds/year)	0.4	1.0	1.0	5.3	7.6

Appendix H

Water Quality-Based Effluent Limits for Coyote Creek

The following water quality-based effluent limitations ("WQBELs") apply to discharges of urban runoff from MS4's owned or controlled by those Co-permitees discharging into Coyote Creek. These WQBELs are based on the waste load allocations and requirements in the San Gabriel River Metals TMDL promulgated by the USEPA on March 26, 2007. Compliance with the WQBELs in this Appendix will be determined according to methods developed pursuant to Subsection II.B. of Monitoring and Reporting Program R8-2015-0001. Compliance deadlines for the WBELs in this Appendix were not established; unless noted otherwise, these WQBELs are effective on the effective date of this Order.

I. The responsible Co-permittees must comply with the methods described in Section XVIII of Order No. R8-2015-0001 to demonstrate compliance with the final WQBELs in the following Tables:

Table H-1: WQBELS for Discharges in Coyote Creek

	Copper, total recoverable (kg/day)	Lead, total recoverable (kg/day)	Zinc, total recoverable (kg/day)
Dry Weather[1]	0.941	--	--
Wet Weather[2]	24.71 µg/L x daily storm volume in liters	96.99 µg/L x daily storm volume in liters	144.57 µg/L x daily storm volume in liters

Noted for Table H-1:

1. These WLA are calculated based on the median flow at the U.S. Army Corps of Engineers' stream gauge station F-354-R of 19-cfs multiplied by the target concentration of 20 µg/L, minus direct air deposition of 0.002 kg/day.
2. Wet weather WQBELs apply when the maximum daily flow in the creek is equal or greater than 156-cfs, as measured F-354-R below Spring Street in the City of Long Beach.

II. Specific Monitoring Requirements

A. Runoff samples and flow volumes must be taken at the Los Angeles County Department of Public Work's storm water mass emission station at Coyote Creek (Monitoring Station S13)[1].

B. The daily storm volume to be sampled must be generated by a rain event that produces a peak flow that is equal to or greater than 156-cfs.

C. Responsible Co-permittees will develop a plan for sampling, analysis, and reporting whether or not discharges are exceeding the Waste Load Allocations in this Appendix according to Subsection II.B.2. of Monitoring and Reporting Program R8-2015-0001.

[1] Coyote Creek Monitoring Station S13 is located at the U.S. Army Corps of Engineers stream gauge station F-354-R below Spring Street in Long Beach.

Attachment A

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SANTA ANA REGION

3737 Main Street, Suite 500, Riverside, CA 92501-3348
(951) 782-4130 • Fax (951) 781-6288
http://www.waterboards.ca.gov/santaana

MONITORING AND REPORTING PROGRAM NO. R8-2015-0001

for

Order No. R8-2015-0001
NPDES Permit No. CAS618030

Orange County Flood Control District, the County of Orange
And
The Incorporated Cities therein within the Santa Ana Region

Area-wide Urban Storm Water Runoff

January XX, 2015

Revision No.	Date Requested	Approval Date

Table of Contents

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I. General

A. The requirements of this Monitoring and Reporting Program ("MRP"), as presented or later amended, may be met through the Co-permittees' participation in state-wide, national, regional or local monitoring programs, subject to the discretion of the Executive Officer.
B. The Executive Officer is authorized to review and approve proposed changes to this MRP. The Executive Officer will provide a minimum of 30-days for public review prior to approving any proposed changes.
C. To avoid duplication of effort, monitoring work performed by parties other than the Co-permittees may be substituted for work described in the MRP provided that the work meets the requirements of the MRP and Order No. R8-2015-0001.
D. The Co-permittees may supplement monitoring data that is required to be collected by this MRP and subsequent amendments with other valid data sources for the purpose of improving any related analysis.
E. Except for Priority Toxic Pollutants identified in the California Toxics Rule, all sample collection, handling, storage, and analysis must be completed in conformance with 40 CFR Part 136; with adopted guidance developed by the State Water Resources Control Board pursuant to California Water Code Section 13383.5; or with other methods satisfactory to the Executive Officer.
F. Unless otherwise specified differently, the Minimum Levels ("MLs") published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries if California (State Implementation Plan or "SIP") must be used for the analyses of all samples.
G. The term "acute", as used in Order No R8-2015-0001 and the MRP, shall have the same meaning as "criterion maximum concentration" or "CMC" (24-hour average concentration) unless specified otherwise.
H. The term "chronic", as used in Order No R8-2015-0001 and the MRP, shall have the same meaning as "criterion continuous concentration" or "CCC" (4-day or 96-hour average concentration) unless specified otherwise.
I. Each Co-permittee is responsible for the accuracy and completeness of the monitoring program(s) and related products for the watershed(s) to which the Co-permittee discharges. However, the Principal Permittee may develop and implement those programs and submit related work products on behalf of the Co-permittees.
J. All reports submitted to the Regional Board pursuant to the requirements of Order No. R8-2015-0001 must include a statement identifying the provision(s) for which the report is intended to comply with.
K. Unless paper copies are expressly requested by Regional Board staff, all reports and submittals must be provided in an electronic format consistent with written guidance provided by the Executive Officer.

II. Water Quality Monitoring

A. Goals

The Co-permittees must develop and implement an effective water quality monitoring program to achieve the following goals:

1. To develop useful information in support an effective program to control the discharge of pollutants in urban runoff.
2. To characterize the condition of water quality in receiving waters with respect to water quality standards; identify trends; and identify pollutants found in urban runoff that may adversely affect the beneficial uses of the receiving waters.
3. To characterize pollutant loads or concentrations in discharges from the MS4s relative to applicable waste load allocations and identify and quantify significant water quality problems related to urban runoff.
4. To identify and quantify other sources of pollutants to the maximum extent possible (e.g. atmospheric deposition, legacy pollutants, etc.) that may adversely affect the beneficial uses of the receiving waters.
5. To identify the sources of, and to prohibit illicit discharges.
6. To identify those waters, which without additional action to control pollution from urban runoff, cannot reasonably be expected to attain or maintain applicable water quality standards necessary to sustain the beneficial uses designated in the Basin Plan.
7. To objectively evaluate the effectiveness of BMPs implemented according to the Co-permittees' related programs, including, to the extent possible, quantifying the reasonably achievable reductions of pollutants in discharges or the receiving waters that are attributable to the BMP(s).
8. To evaluate and describe the costs and benefits of BMPs, implemented according to the Co-permittees' related programs, to the public and stakeholders.

B. Water Quality Monitoring Plan Development

1. The Co-permittees must prepare a draft Water Quality Monitoring Plan according to the goals, requirements, and specifications described in this Section (Section II.), State Board Resolution No. 2012-0012, and Order No. R8-2015-0001. To the extent practical, the Plan should be comprised of a single document, however, it may be composed of different components subject to the Co-permittees' discretion.
    a. The initial draft Plan must be submitted for approval to the Executive Officer within 6 months of the adoption of Order No. R8-2015-0001.
    b. The Executive Officer will provide a minimum public review period of 30-days prior to approving the Plan.

2. The Water Quality Monitoring Plan must be designed to objectively evaluate the effectiveness of the best management practices being implemented in the watersheds to meet the respective water quality standards or waste load allocations.
3. The Water Quality Monitoring Plan must describe processes and a schedule for determining and reporting compliance with each of theWater Quality-Based Effluent Limits ("WQBELs") and requirements in Appendices B through H of Order No. R8-2015-0001 and for identifying and reporting exceedances of applicable water quality standards. The Plan must include cycles of monitoring, analysis, and reporting for all of the WLAs and that addresses applicable water quality standards.
    a. A complete cycle must be as short as practicable, comply with applicable TMDL deadlines and assessment periods found in Chapter 5 of the Basin Plan, or otherwise must not exceed once every 5 years.
    b. The schedule for determining compliance should consider the availability of data and a reasonable period after which BMPs may affect water quality.
    c. Any required data collection and analyses must comply with those specified in the relevant TMDL, including averaging and assessment periods, found in Chapter 5 of the Basin Plan
4. The Water Quality Monitoring Plan must also include, at a minimum, descriptions of the locations of ID/IC, receiving, and outfall monitoring locations; an explanation for the locations' selection; the sampling frequencies; parameters to be sampled; descriptions of sampling methods; and the data analysis and reporting schedule (see Subsection K below).
5. The Water Quality Monitoring Plan must be written in an instructive manner for the benefit of persons responsible for its implementation.
6. The Water Quality Monitoring Plan must include a quality assurance program plan ("QAPP") for data which is collected to determine compliance with water quality standards or waste load allocations.
    a. The QAPP must be prepared by qualified persons in conformance with the State's SWAMP Quality Assurance Program Plan[1], as amended or revised, and with USEPA's *Guidance for Quality Assurance Project Plans*[2] and *Requirements for Quality Assurance Project Plans*[3] as appropriate.
    b. Data collected according to the QAPP, including laboratory and quality control results, must be delivered using California Environmental Data Exchange Network ("CEDEN") data templates[4].

[1] Available at: http://www.waterboards.ca.gov/water_issues/programs/swamp/tools.shtml#qa
[2] USEPA, *Guidance for Quality Assurance Project Plans*, EPA QA/G-5, December 2002.
[3] USEPA, *Requirements for Quality Assurance Project Plans*, EPA QA/R-5, March 2001.
[4] CEDEN data templates and documentation are available at : http://ceden.org

c. The QAPP must include quality control and sample handling guidelines against which collected data must be verified; where the guidelines are not met, the affected data must be identified as such using appropriate verification codes.

7. Until the initial draft Water Quality Monitoring Plan is approved, the Co-permittees must continue monitoring as described in the 2013-2014 Annual Progress Report. Changes to the monitoring are prohibited except with the approval of the Executive Officer.
8. The Co-permittees must evaluate the Water Quality Monitoring Plan and propose subsequent changes at least annually. Proposed changes must be submitted by August 1 of each year following the approval of the initial Water Quality Monitoring Plan. The Co-permittees must submit subsequent proposed changes to the Plan for approval by the Executive Officer[5]. If no changes are proposed, the Executive Officer must be notified so in writing.
9. Except for inconsequential grammatical or technical corrections, the Water Quality Monitoring Plan may be amended by the Co-permittees only with the approval of the Executive Officer.
10. The Co-permittees must fully implement the Water Quality Monitoring Plan and any subsequent changes as approved by the Executive Officer.
11. The Executive Officer will allow a minimum of 30-days for public review and comment before approving a Water Quality Monitoring Plan or any proposed changes.
12. The approved Water Quality Monitoring Plan, as amended, must be posted for public access at ocwatersheds.com or using other media acceptable to the Executive Officer. The posted Plan must be full, true, and accurate.

C. General Water Quality Monitoring Requirements

1. The sampling method and practice must minimize bias.
3. Water quality parameters that are tested using valid field instruments are not required to be analyzed by a laboratory.
4. The Co-permittees must employ sample collection methods that support regional comparisons of data, unless site conditions make alternate methods necessary.
5. For each monitoring location and event, the Co-permittees must record observed conditions or circumstances that may influence monitoring results or affect conclusions made from the monitoring data.
6. Wet-weather sampling events may not be consecutive and must be separated by a minimum of two (2) days of dry weather (no precipitation).
7. Locations and frequencies of monitoring performed to determine compliance with the waste load allocations in Appendices B through H of

[5] The Co-permittees are not prohibited from proposing changes earlier or more frequently than required particularly where approval is needed to coincide with upcoming monitoring efforts.

Order No. R8-2015-0001 must be consistent with those specified in the relevant TMDL.

D. Outfall Monitoring Requirements

The water quality monitoring program must include representative monitoring of urban runoff from MS4 outfalls under storm and dry-weather conditions.

1. The Co-permittees must identify representative outfall monitoring locations in the permit area.
2. Each outfall monitoring location must be sampled every two years on an alternating basis; some sites may be sampled every odd year while the remainder will be sampled every even year. The nature, number and distribution of samples are described below in this Section.
3. Stream gauges, or equally-effective methods, must be deployed during sampling events for the purpose of estimating mass loading of pollutants at each of the monitoring locations and for calculating flow-weighted event mean concentrations.
4. The Co-permittees must sample urban runoff produced by three separate storm events ("wet-weather sample") per season at each outfall monitoring location. The Executive Officer may allow exceptions to sampling three storm events when climatic conditions create good cause.
    a. The Co-permittees must make a reasonable effort so that one of the three sampled storm events is of the first storm water runoff of each season.
        i. A sample for this event must be collected from each outfall monitoring location during the applicable even or odd monitoring year. Each sample must represent the "first flush" of the storm and consist of a composite of discrete samples.
        ii. A second sample for this event must be collected after the storm's first hour; this sample must consist of a composite of discrete samples collected every two (2) hours during a 96-hour period or until flow is insufficient to allow sampling.
        iii. Except for the "first flush" samples, discrete samples must be composited into a single sample.
    b. For storm events occurring after the first storm event of the season, a minimum of three (3) composite samples must be collected at each outfall monitoring location during the applicable even or odd monitoring year.
        i. Each sample must consist of a composite of discrete samples collected every two hours during a 24-hour period or until flow is insufficient to allow sampling.
        ii. The 24-hour period must begin two hours after "first flush" sampling is initiated.

c. The Co-permittees must provide the date and duration of the storm event(s) sampled, rainfall estimates of the storm event which generated the sampled discharge, and the duration between the storm event sampled and the end of the previous measurable storm event.

5. The Co-permittees must sample outfalls biannually (2 times per year) during sampling years under dry-weather conditions ("dry-weather sample") at each outfall monitoring location during the applicable even or odd monitoring year. Each sample must consist of a composite of discrete samples collected hourly during a 24-hour period.
6. All wet-weather and dry-weather samples must be tested for the parameters indicated in Table 1 below.
7. In addition to the parameters indicated in Table 1, samples must be tested in the manner as follows:
    a. Diazinon, chlorpyrifos, malathion, and dimethoate must be tested for in dry-weather samples that must be taken monthly from outfall monitoring locations discharging into Newport Bay.
    b. A Priority Pollutant scan must be completed on wet-weather samples taken of runoff from the first storm of the season each year.
    c. Glyphosate must be tested for in dry-weather samples taken from monitoring sites that are outfalls dominated by urban runoff, as opposed to rising groundwater.
    d. Additional parameters that are known or suspected to contribute to the impairment of the beneficial uses of the receiving waters must also be tested for at the direction of the Executive Officer.
    e. The list of parameters in Table 1 are subject to change, subject to the approval of the Exective Officer and a demonstration of good cause by the Co-permitees.

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Table 1: Initial Outfall Monitoring Parameters

Parameter		Wet-weather samples	Dry-weather samples	Sediment samples
Nutrients	Nitrate plus nitrite	X	X	
	Total ammonia	X	X	
	Total Kjeldahl nitrogen	X	X	
	Total phosphate	X	X	
	Orthophosphate	X	X	
Dissolved organic carbon		X		
Total organic carbon		X	X	X
Total suspended solids		X	X	
Volatile suspended solids		X	X	
Chloride		X	X	X
Sulfate		X	X	X
Turbidity		X	X	
pH		X	X	X
Oil and grease			X	
Temperature		X	X	
Dissolved oxygen		X	X	
Electrical conductivity		X	X	
Hardness		X	X	
Particle size distribution				X
Neonicotinoids		X	X	X
Total and dissolved heavy metals	Cadmium	X	X	X
	Chromium	X	X	X
	Copper	X	X	X
	Lead	X	X	X
	Mercury	X	X	X
	Nickel	X	X	X
	Selenium	X	X	X
	Silver	X	X	X
	Zinc	X	X	X
Organo-phosphate pesticides	Chlorpyrifos	X		
	Diazinon	X		

	Dimethoate	X		
	Malathion	X		
Bacterial indicators	Total coliform	X	X	
	Fecal coliform	X	X	
	Enterococcus	X	X	

E. Receiving Waters Monitoring Requirements

The Water Quality Monitoring Program must include monitoring in the receiving waters to which the outfalls, that are monitored according to Section II.C. (above), discharge.

1. Each receiving water monitoring location must be sampled every two years on an alternating basis; some sites may be sampled every odd year while the remainder will be sampled every even year. The nature, number and distribution of samples are described below in this Section.
2. The Co-permittees must sample sediment under dry-weather conditions ("sediment sample") quarterly (4 times per year) during sampling years at receiving water monitoring locations to be specified in the Water Quality Monitoring Plan.
3. All sediment samples must be tested for the parameters indicated in Table 2 above.
4. In addition to the parameters indicated in Table 2, samples must be tested in the manner as follows:
    a. Sediment samples taken from Newport Bay must be tested for Total DDT, Dieldrin, Chlordane, PCBs, and Toxaphene.
    b. Additional parameters that are known or suspected to contribute to the impairment of the beneficial uses of the receiving waters must also be tested for at the direction of the Executive Officer.
5. Samples taken for receiving water monitoring must be tested for the parameters shown in Table 2 below and in the following manner:
    a. Measurements of specific conductance, pH, temperature, and dissolved oxygen must be taken of the water column's profile at one-meter increments, from the water surface to the bottom of each monitoring location.
    b. Water samples that are tested for nutrients must be collected near the surface of the water at the monitoring location.
    c. Water samples that are tested for metals, pesticides, total and dissolved organic carbon, and toxicity must consist of a composite of samples collected at the monitoring location in a manner that represents the average concentrations in the water column.

d. The list of parameters in Table 2 are subject to change, subject to the approval of the Exective Officer and a demonstration of good cause by the Co-permitees.

6. Wet-weather, dry-weather, and sediment samples taken from Upper Newport Bay must also be tested for selenium.
7. Sediment samples taken from representative receiving water monitoring locations must also be tested once each year for benthic infauna using methods in the Region 8 Storm Water Ambient Monitoring Program ("SWAMP") Field Operations Manual.
8. Sediment samples taken from monitoring locations in Upper Newport Bay must also be tested for organochlorine pesticides and PCBs.
9. Additional parameters that are known to contribute to the impairment of the beneficial uses of the receiving waters must also be tested for at the direction of the Executive Officer.

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Table 2: Initial Parameters for receiving water monitoring

Parameter		Wet-weather samples	Dry-weather samples	Sediment samples
Nutrients	Nitrate plus nitrite	X	X	
	Total ammonia	X	X	
	Total Kjeldahl nitrogen	X	X	
	Total phosphate	X	X	
	Orthophosphate	X	X	
Dissolved organic carbon			X	
Total organic carbon		X	X	X
Total suspended solids		X	X	
Volatile suspended solids		X	X	
Turbidity		X	X	
pH		X	X	X
Oil and grease			X	
Temperature		X	X	
Dissolved oxygen		X	X	
Electrical conductivity		X	X	
Hardness		X	X	
Particle size distribution				X
Total and dissolved heavy metals	Cadmium	X	X	X
	Chromium	X	X	X
	Copper	X	X	X
	Lead	X	X	X
	Mercury	X	X	X
	Nickel	X	X	X
	Silver	X	X	X
	Zinc	X	X	X
Organo-phosphate pesticides	Chlorpyrifos		X	X
	Diazinon		X	X
Bacterial indicators	Total *coliform*	X	X	
	Fecal *coliform*	X	X	
	Enterococcus	X	X	
Glyphosate		X	X	

F. Toxicity Testing

The water quality monitoring program must include toxicity testing, analyzed using USEPA's Test of Significant Toxicity approach[6].

1. Toxicity testing must be performed twice per season on *wet-weather samples* taken from representative outfall monitoring locations during the applicable even or odd monitoring year, using *Ceriodaphnia*, sea urchin fertilization, and mysid survival and growth as follows:
    a. Toxicity testing must be performed on *wet-weather samples* representing the "first-flush" of the first storm of the season (See Provision II.D.4.a.i. above).
    b. Toxicity testing must also be performed on *wet-weather samples* taken from the second and third sampling events that represent the 24-hour period following the "first-flush" (See Provision II.D.4.b. above).
2. Toxicity testing must be performed twice per season on *wet-weather samples* taken from receiving water monitoring locations during the applicable even or odd monitoring year, using sea urchin fertilization and mysid survival and growth.
3. Toxicity testing must be performed on *dry-weather samples* using *Ceriodaphnia*, *Selanastrum*, and *Hyalella azteca* as follows:
    a. Twice each year on samples taken from monitoring locations during the applicable even or odd monitoring year in Carbon Creek Coyote Creek East Garden Grove-Wintersburg Channel, Bolsa Chica Channel, and Fullerton Creek.
    b. Four times per year, on a quarterly basis during the even or odd monitorin year, on samples taken from monitoring locations in Peters Canyon Wash, San Diego Creek at Campus Drive and Harvard Avenue, and Santa Ana Delhi Channel.
4. Toxicity testing must be performed quarterly (four times per year) during the even or odd monitoring year on representative *dry-weather* samples in Newport Bay using sea urchin fertilization and/or mysid survival and growth.
5. Toxicity tests must be performed once annually on *sediment samples* collected from applicable even- and odd-year receiving water monitoring sites. The Toxicity tests must be performed using a 10-day amphipod (*Eohaustorius estuaries*) survival test in solid-phase sediment and a 48-hour bivalve (*Mytilus galloprovincialis*) embryo development test at the sediment-water interface.
6. If Toxicity tests of *sediment samples* collected in two consecutive monitoring years (even or odd years) indicate zero percent survival of the test organisms within the first hour, Toxicity Identification Evaluations must

[6] USEPA. 2010. *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document*. EPA 833-R-10-003. US Environmental Protection Agency, Office of Wastewater Management, Washington D.C.

be performed on samples taken from those same locations during the third consecutive monitoring year of sampling.

a. Toxicity Identification Evaluations must be performed in substantial conformance with published and generally-accepted methods[7].

G. Benthic Invertebrate Taxonomy

1. The water quality monitoring program for harbors and estuaries must include annual identification of the taxonomy of benthic invertebrate communities. Taxonomy must be identified in those sediment samples taken from monitoring locations in waters of the U.S. during their scheduled even or odd sample years consistent with the receiving water monitoring requirements.

H. Illicit Discharges and Illicit Connections

The Water Quality Monitoring Plan must include monitoring to detect illicit discharges and illicit connections.

1. The Co-permittees must monitor a minimum of 30 monitoring stations annually during the dry season (May 1 through September 30).
2. Monitoring to detect illicit discharges and illicit connections must occur at the locations and frequencies specified in the Water Quality Monitoring Plan. Monitoring locations and frequencies are subject to change according to Provision II.B.6. above.
3. For each monitoring station, the Co-permittees must characterize the base line hyrology of the dry-weather discharges and the water quality parameters of the discharge. Based on this information, the Co-permittees must employ statistical process control methods to establish flow and water quality parameter thresholds that indicate when an illicit discharge may have occurred or when an illicit connection may exist. The Co-permittees must also use odor, color, clarity, unusual wildlife morbidity or mortality, sheen, staining, corrosion, unnatural deposits, and other subjective indicators to identify suspected illicit discharges or illicit connections
4. The Co-permittee that is the local jurisdiction must initiate (or cause to be initiated) an investigation to identify the known or most likely source(s) of the suspected illicit discharge or illicit connection (source investigation) where indicators developed pursuant to Provision II.H.3. above are found.
5. When dry-weather discharges are found at the monitoring locations, the discharge must be tested for the parameters specified in Table 3 below using the test method type(s) indicated.
6. A source investigation must occur in substantial conformance with a common set of written techniques and procedures developed by the Co-

[7] E.g. U.S. EPA. 2007. Sediment Toxicity Identification Evaluation (TIE) Phases I, II, and III Guidance Document EPA/600/R-07/080, Office of Research and Development. Washington, DC. Available at: http://www.epa.gov/nheerl/publications/files/Sediment TIE Guidance Document.pdf

permittees as part of the written program describe in Provision VII.D. of Order No. R8-2015-0001.

a. Except as provided for in Section XVII, indications of a potential illicit discharge or connection must be investigated within three (3) business days of the Co-permittee (including the Principal Permittee) becoming aware of it.
b. A source investigation may only be regarded as concluded after the cause(s) of the illicit discharge has been identified or additional monitoring fails to detect a subsequent exceedance of the same parameter(s) after 180 days. In the interim, the Co-permittee that is the local jurisdiction must put forth a good faith effort to identify the source(s) of a suspected illicit discharge or illicit connection.

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Table 3: Parameters for Illicit Discharge and Illicit Connection Discharge Monitoring

Parameter			Test Method Type	
			Field	Laboratory
Ammonia			X	
Nitrate			X	
Soluble phosphorus			X	
Total organic carbon (“TOC”)				X
pH			X	
Oil and grease (if oil sheen is present) or Total petroleum hydrocarbons				X
Temperature			X	
Dissolved oxygen			X	
Electrical conductivity			X	
Hardness			X	
Dissolved Heavy Metals	Arsenic			X
	Cadmium			X
	Hexavalent chromium		X	
	Total chromium			X
	Copper		X	X
	Lead			X
	Mercury			X
	Nickel			X
	Selenium			X
	Silver			X
	Zinc			X
Organophosphate Pesticides		Diazinon		X
		Chlorpyrifos		X
		Malathion		X
		Dimethoate		X
Bacterial Indicators		Total coliform		X
		Fecal coliform		X
		Enterococcus		X
MBAS			X	

I. Bacterial Indicators

The Water Quality Monitoring Plan must include an effective monitoring program for bacterial indicators.

1. The Co-permittees must sample discharges from the outfalls/tributaries and ocean water in the surf zone 25-yards up-coast and 25-yards down-coast from those discharges on a weekly basis.
    a. Samples must be measured for total coliform, fecal coliform, and *Enterococcus*.
    b. At the time of sample collection, the Co-permittees must estimate the flow rate of the discharge from the respective outfall/tributary and measure and record the temperature of the discharge and of the surf zone down-coast from the outfall/tributary.
    c. If no hydrologic connection exists between the outfall and the surf zone, only a down-coast sample is needed.
2. The Co-permittees must sample dry-weather discharges at representative monitoring locations.
    a. Samples must be measured for total coliform, fecal coliform, and *Enterococcus*.
    b. Sample events must be coordinated with the Orange County Health Care Agency and the Orange County Sanitation District or their successors in order to augment their monitoring program and improve the collective data's ability to resolve trends, comparisons, and correlations within and between the sites.

J. Bioassessment Monitoring

1. The Co-permittees must conduct bioassessment monitoring in conformance with the Surface Water Ambient Monitoring Program ("SWAMP").
2. Bioassessment monitoring must be completed at the monitoring locations specified by the most recent Stormwater Monitoring Coalition ("SMC") monitoring plan. The monitoring locations and parameters may be adjusted during the monitoring year according to recommendations from the SMC so that they are consistent with the SMC monitoring plan.
3. Co-permittees must perform a minimum of one Causal Assessment during the term of Order No. R8-2015-0001 to identify the likely causes of the biological condition at the monitoring locations.
4. Causal Assessments must be conducted according to the USEPA Stressor Identification Guidance Document (2000) or an equivalent guidance acceptable to the Executive Officer.
5. The bioassessments must include monitoring of urban runoff for the parameters shown in Table 4 below.

6. Toxicity tests which produce a zero percent survival of the test organisms within the first hour must be evaluated using Toxicity Identification Evaluations.

Table 4: Bioassessment water quality test parameters

Nutrients	Nitrate plus nitrite	Hardness	
	Total ammonia	Total and dissolved heavy metals	Arsenic
	Total Kjeldahl nitrogen		Cadmium
	Total phosphorus		Chromium
	Orthophosphate		Copper
Total organic carbon			Lead
Total suspended solids			Mercury
Chloride			Nickel
Sulfate			Selenium
Turbidity			Silver
pH			Zinc
Oil and grease (if sheen is present)		Organophosphate pesticides	Diazinon
Temperature			Chlorpyrifos
Dissolved oxygen			Malathion
Electrical conductivity			Dimethoate

K. Data Analyses

1. The Water Quality Monitoring Plan must include a schedule of statistically-valid analyses that will be performed on collected data.
2. The schedule of analyses must include a description of the statistical analyses that will be performed, the purpose of each analysis, the data sets and sub-sets that will be analyzed, and the time periods or thresholds at which each analysis will be performed.
3. The schedule of analyses must satisfy schedules specified in this MRP, established in relevant adopted TMDLs, and this Order.
4. The Water Quality Monitoring Plan must include the supporting rationale for the schedule of analyses.
5. The applicable schedule of analyses and the results of the performed analyses must be reported in the Annual Progress Report.

L. Special Studies

1. The water quality monitoring program must include the performance of special studies. The special studies must be carried out for those purposes in Section II.A. above, where other elements of the monitoring program are insufficient.
2. The Co-permittees must provide documentation of any special studies to be performed in support of their storm water program. The documentation must be provided annually via a reporting mechanism acceptable to the Executive Officer (e.g. as a stand-alone report, or as part of the Annual Progress Report or other annually-required report). The documentation must include a schedule of proposed actions, a description work products to be completed, and the achievement of milestones along with any changes or updates for any special studies big carried out. This information must be included in the Annual Progress Report each year.

III. Program Effectiveness Assessments and Reporting

A. All reports and plans required by this Order must be signed by a duly authorized representative for the Principal Permittee and submitted to the Executive Officer of the Regional Board under penalty of perjury.
B. The Co-permittees must submit all information and materials necessary to comply with, or demonstrate compliance with, the requirements of this Order to the Principal Permittee in a timely manner. All submittals by the Co-permittees must be signed by a duly authorized representative for the respective Co-permittee under penalty of perjury.
C. Data transmittals to the Regional Board must be in the form developed by the Stormwater Monitoring Coalition ("SMC") and approved by the State Water Resources Control Board in the document entitled "Standardized Data Exchange Formats" for the purpose of providing a standard format for all data transfers and allow data to be universally shared and evaluated as part of various programs.
D. The Co-permittees must submit an Annual Progress Report to the Executive Officer of the Regional Board and to the Regional Administrator of the USEPA – Region 9 no later than November 15th of each year. The Executive Officer may grant an extension of up to 90-days with cause upon the receipt of a written request from the Principal Permittee. The reporting period must address actions taken to comply with the requirements of Order No. R8-2015-0001 and this MRP through June 1 of the reporting year. The Annual Progress Report must include the following:
    1. A schedule of all actions required by Order No. R8-2015-0001 during the reporting period, any outstanding actions required by Order No. R8-2015-0001 and Order No. R8-2009-0030, and the status of efforts to carry out the scheduled actions and satisfy the related requirements.
    2. The results of each Co-permittees' program effectiveness assessment and the results of the Principal Permittee's overall evaluation of those results.

a. The results of water quality monitoring; the results of scheduled analyses of the water quality monitoring data; and any related conclusions reached by the Co-permittees.
b. The status of special studies carried out according to the previous reporting period's work plan and the work plan for the upcoming reporting period (See Section II.K. above)
c. The status of efforts to reduce and/or eliminate the discharge of trash and debris (See Subsection VII.D. of Order No. R8-2015-0001).
d. The status of efforts to detect and mitigate SSOs (See Subsection VII.E. of Order No. R8-2015-0001).
e. The unified fiscal analysis (See Section XX of Order No. R8-2015-0001).

IV. Reporting Schedule Summary

Table 5, below, summarizes information that must be reported to the Executive Officer and the items' deadlines. Deliverables are in the order in which they appear in Order No. R8-2015-0001. The table is provided for the convenience of the reader and should not be used as a substitute for reviewing the contents of Order No. R8-2015-0001, this MRP, or the Technical Report.

A. With the exception of deliverables with capitalized titles, Order No. R8-2015-0001, this MRP, and this summary do not establish formal nomenclature. Deliverables with no formal nomenclature may be identified in a manner suitable to the Co-permittees, but they must be identified by a written statement of purpose, declaring which Provision(s) they are intended to comply with.

B. Deliverables that are submitted with the Annual Progress Report do not need to consist of separate documents; they may be incorporated into the Annual Progress Report. But they must be readily-identifiable, denoted elements (e.g. separate chapters) and include a statement of purpose as described above.

C. The Co-permittees must submit deliverables in an electronic format. To preserve their authenticity, all deliverables submitted in an electronic format must not be readily-alterable. All deliverables must be in a format that is viewable using widely-available software.

Table 5: Reporting Schedule Summary

Deliverable	Source Provision(s)	Deadline
Draft plan	IV.C.1.	Varies, but generally triggered by water quality monitoring results and analyses. Due within 6 months of the Co-permittees becoming aware of an exceedance of water quality standards. If requested in writing by the Executive Officer, due as specified in the written request.
Legal authority assessment report	VI.B.	Reported as needed as part of Annual Progress Report.
Trash and debris BMP report	VII.E.1.	Reported as part of Annual Progress Report.
Trash and debris technology evaluation report	VII.E.2.	Reported as part of Annual Progress Report.
BMP retrofit study updates	XII.A.8.	12 months from date of adoption.
Structural treatment control BMP waiver notice	XII.L.	30-days prior to Co-permittee's issuance of the waiver.
Draft watershed maps	XII.N.3.	6 months from date of adoption.
General audience survey	XIII.E.1.b.	60 months from the date of adoption.
Initial imminent threat notice	XVII.A.1.	24 hours of Co-permittees becoming aware.
Imminent threat report	XVII.A.2.	5 business days after initial imminent threat notice.
Known/suspected WDR violations report	XVII.C.	30-days following the end of each calendar quarter: January 30th, April 30th, July 30th, and October 30th of each year.
Program Effectiveness Assessment	XIX.D.	Reported as part of the Annual Progress Report
Unified fiscal analysis	XX.A.	Reported as part of the Annual Progress Report
Report of Waste Discharge	XXIII.A.	180-days before expiration of this Order.
Water Quality Monitoring Plan	XXIV.I.,MRP II.B.1. and MRP II.B.6.	6 months from date of adoption; proposed revisions due August 1, each year
Annual Progress Report	XXIV.I. and MRP III.D.	Annually by November 15th of each year.

Ordered by:

Kurt V. Berchtold
Executive Officer

Date

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SANTA ANA REGION

3737 Main Street, Suite 500, Riverside, CA 92501-3348
(951) 782-4130 Fax (951) 781-6288
http://www.waterboards.ca.gov/santaana

DRAFT TECHNICAL REPORT

FOR

ORDER NO. ~~R8-2014-0002~~R8-2015-0001
NPDES PERMIT NO. CAS618030

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM ("NPDES") PERMIT
AND
WASTE DISCHARGE REQUIREMENTS

For

The County of Orange, Orange County Flood Control District
And
The Incorporated Cities of Orange County within the Santa Ana Region

Area-wide Urban Storm Water Runoff

~~September XX, 2014~~January XX, 2015

I. PURPOSE

The purpose of this Technical Report is to describe the principal facts, the methodology, and the significant legal and policy matters considered by Santa Ana Regional Water Quality Control Board staff ("Regional Board staff") in preparing Order No. ~~R8-2014-0002~~R8-2015-0001 ("Order"). This Technical Report also serves as a fact sheet and contains some subheadings and content which generally follow the information described in 40 CFR Parts 124.8 and 124.56.

II. CONTACT INFORMATION

Order No. ~~R8-2014-0002~~R8-2015-0001 and other related documents are available at the Santa Ana Regional Water Quality Control Board's ("Regional Board") web site at:

http://www.waterboards.ca.gov/santaana/water_issues/programs/stormwater/oc_permit.shtml

The documents referenced in this Technical Report and in the Order are also available for public review at the Regional Board office at the address below. These and other public records are available for inspection during regular business hours from 8:00 am to 5:00 pm Monday through Friday, except for State Holidays.

The Regional Board office address is:

3737 Main Street, Suite 500
Riverside CA 92501-3348

Persons interested in reviewing or obtaining copies of public records are encouraged to do so by appointment. An appointment can be made by e-mail, facsimile, telephone, or in person. Requests by mail should be made to the attention of "File Review Request" at the Regional Board office address shown above. Contact information for other means of communication is as follows:

Phone: (951) 782-4499
Facsimile: (951) 781-6288
E-mail: FileReview8@waterboards.ca.gov

Appointments are not mandatory, but they will help Regional Board staff fulfill requests efficiently and prevent delays while records are being located, retrieved, and reviewed, if necessary.

The following are the contact information for Regional Board staff involved in the preparation of Order No. ~~R8-2014-0002~~R8-2015-0001:

Adam Fischer, MESM (principal author) Environmental Scientist adam.fischer@waterboards.ca.gov (951) 320-6363	Michelle Beckwith Senior Environmental Scientist Coastal Section Chief michelle.beckwith@waterboards.ca.gov (951) 782-4433
Hope Smythe Environmental Program Manager Division Chief Hope.smythe@waterboards.ca.gov (951) 782-4493	Joanne Schneider (TMDLs) Environmental Program Manager Division Chief Joanne.schneider@waterboards.ca.gov

III. BACKGROUND

In 1987, the Clean Water Act was amended to include Section 402(p) which established a framework for regulating municipal and industrial storm water discharges under the National Pollutant Elimination Discharge System ("NPDES"). Section 402(p) requires owners and operators of municipal separate storm sewer systems ("MS4s") to have NPDES permits for discharges of storm water to waters of the U.S. On November 16, 1990, the United States Environmental Protection Agency ("USEPA") amended its NPDES permit regulations to include requirements for storm water discharges. These regulations are codified in the Code of Federal Regulations, Title 40, Parts 122, 123, and 124 (40CFR Parts 122, 123, and 124). Section 402(p) and 40 CFR Parts 122, 123, and 124. As detailed in this Technical Report, these regulations, along with other statutes, plans, and policies, form the basis for the requirements in Order No. ~~R8-2014-0002~~R8-2015-0001.

On July 13, 1990, the Regional Board adopted Order No. 90-71 (NPDES Permit No. CA 8000180). This was the first version of NPDES Permit No. CAS618030, implementing USEPA's new NPDES permit regulations for discharges from MS4s. Since then, the Regional Board has adopted three other versions of NPDES Permit No. CAS618030: Order No. 96-31, Order No. R8-2002-0010, and

Order No. R8-2009-0030. Order No. ~~R8-2014-0002~~R8-2015-0001 is a fifth version ("fifth-term") of NPDES Permit No. CAS618030.

IV. PERMITTED ENTITIES

The Co-permittees whose discharges of urban runoff to waters of the U.S. are authorized by this Order are as follows:

County of Orange
Orange County Flood Control District
City of Anaheim
City of Brea
City of Costa Mesa
City of Cypress
City of Fountain Valley
City of Fullerton
City of Garden Grove
City of Huntington Beach
City of Irvine
City of La Habra
City of La Palma
City of Laguna Hills
City of Laguna Woods
City of Lake Forest
City of Los Alamitos
City of Newport Beach
City of Orange
City of Placentia
City of Santa Ana
City of Seal Beach
City of Stanton
City of Tustin
City of Villa Park
City of Westminster
City of Yorba Linda

The County of Orange includes a total of 34 cities, including the Co-permittees listed above. The remaining unlisted cities lie entirely within the San Diego Region. Because the boundaries of the Santa Ana Region are largely defined by watershed boundaries and often cross political boundaries, three of the listed Co-permittees discharge into both the Santa Ana Region and the San Diego Region. These cities are Laguna Hills, Laguna Woods, and Lake Forest.

All of the above Co-permittees fall into one of two categories. They are either a medium or large municipality that respectively services a population of greater than 100,000 or 250,000 people, or they are a small municipality that is interrelated to a medium or large municipality. Section 402(p) of the Clean Water Act requires that both of these categories of dischargers obtain an NPDES permit.

All of the above Co-permittees in this Order have individual and shared responsibilities to comply with the requirements of this Order. The County of Orange continues to be the Principal Permittee and, as such, has certain other responsibilities in addition to those as a Co-permittee. In order to emphasize these overlapping responsibilities, this Order refers to all of the Co-permittees

collectively as "Co-permittees", including the Principal Permittee. When a requirement referencesing the Principal Permittee alone, a that requirement of this Order is unique to the responsibility of the County of Orange.

V. PERMITTED DISCHARGES

Order No. R8-2014-0002R8-2015-0001 regulates the discharge of urban runoff into waters of the U.S. from MS4s operated by the Co-permittees listed in Section IV above. The term "urban runoff" is not defined in the Code of Federal Regulations or in the Federal Register. For the purposes of the Order, urban runoff is defined as the combination of storm water runoff and authorized non-storm water runoff from residential, commercial, industrial, and construction areas within the permitted area. "Urban runoff" excludes unauthorized non-storm water runoff. Discharges of urban runoff often contain wastes, as defined in California Water Code, and pollutants, as defined in the Clean Water Act. Wastes may, and pollutants will by definition, adversely affect the quality of the receiving waters.

This Order authorizes the discharge of urban runoff from the Co-permittees' MS4s. This includes authorization for certain non-storm water discharges. Authorized non-storm water discharges are subject to both the requirements herein and the requirements of the "De Minimus" NPDES Permit No. CAG99801.

This Order does not authorize the Co-permittees' non-storm water discharges that are subject to NPDES Permit No. CAG918002, for discharges to surface waters of certain groundwater at sites within the San Diego Creek/Newport Bay watersheds. Authorization for such discharges must be obtained through the process described in NPDES Permit No. CAG918002. The purpose of excluding discharges subject to NPDES Permit No. CAG918002 is to avoid regulatory overlap that could potentially create cross-purposes and confusion.

In summary, MS4s are defined in 40CFR122.26(b)(8) as "a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains)…designed or used for collecting or conveying storm water". Due to the broad inclusion of the definition, portions of MS4s in the permit area will include open channels that are waters of the U.S. In these cases, the channels are considered receiving waters whose beneficial uses must be protected.

Clean Water Act Section 502 defines a "discharge of a pollutant" and the term "discharge of pollutants" as "any addition of any pollutant to navigable waters from any point source" and "any addition of any pollutant to waters of the contiguous zone or the ocean from any point source other than a vessel or floating craft". The term "discharge", as used in this Order, means the discharge of a pollutant. Discharges regulated by this Order occur through "outfalls" which are a point source at the point where a MS4 discharges to waters of the U.S. An outfall does not include open conveyances connecting two municipal separate storm sewers. An outfall does not include pipes, tunnels, or other conveyances which connect segments of the same stream or other waters of the U.S. and are used to convey waters of the U.S. (40CFR122.26(b)(9))

VI. APPLICABLE STATUTES, REGULATIONS, PLANS, AND POLICIES

A. Legal Authorities – Federal Clean Water Act and California Water Code

Order No. ~~R8-2014-0002~~R8-2015-0001 is issued pursuant to Section 402 of the Clean Water Act and implementing regulations adopted by the USEPA, and pursuant to Chapter 5.5, Division 7 of the California Water Code (commencing with Section 13370).

The objective of the Clean Water Act is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." To carry out this objective, the Clean Water Act requires permit programs to regulate the discharge of pollutants and dredge or fill material to the navigable waters of the U.S. and to regulate the use and disposal of sewage sludge. Section 402 of the Clean Water Act provides the legal authority to issue NPDES permits for the discharge of pollutants to waters of the U.S. NPDES permits may be issued by states which have been authorized to implement certain provisions of the Clean Water Act. The USEPA authorized the state of California to implement the NPDES permit program on May 14, 1973.

The Porter-Cologne Water Quality Control Act (California Water Code section 13000 *et seq.*) established the State Water Resources Control Board and the nine regional water quality control boards. The boards are the principal state agencies with primary responsibility for the coordination and control of water quality. The Santa Ana Regional Water Quality Control Board has the primary

responsibility for the coordination and control of water quality in the Santa Ana Region.

The regional water quality control boards implement the Clean Water Act through Chapter 5.5 of the California Water Code, commencing with Section 13370. Section 13377, in part, provides the regional water quality control boards with the authority to issue waste discharge requirements to ensure compliance with all applicable provisions of the Clean Water Act.

Clean Water Act Section 402(p) requires the USEPA, or authorized states, to issue NPDES permits for storm water discharges from municipal separate storm sewer systems ("MS4s") to water of the U.S. Clean Water Act Section 402(p)(3)(B) allows such NPDES permits to be issued on a system-wide or jurisdiction-wide basis. Section 402(p)(3)(B)(ii) requires that these NPDES permits "effectively prohibit non-storm water discharges" into the MS4s. Section 402(p)(3)(B)(iii) requires these NPDES permits to "require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants."

B. Federal and California Endangered Species Acts

This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is prohibited, or becomes prohibited in the future under either the California Endangered Species Act (Fish and Game Code Sections 2050 to 2115.5) or the Federal Endangered Species Act (16 United States Code Sections 1531 to 1544). This Order requires compliance with requirements to protect the beneficial uses of waters of the U.S. The Co-permittees are responsible for meeting the requirements of the applicable Endangered Species Acts.

C. California Environmental Quality Act

The action to adopt an NPDES Permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act ("CEQA") (Public Resources Code Section 21100 *et seq.*) pursuant to CWC Section 13389. (*County of Los Angeles v. Cal. Water Boards* (2006) 143 Cal. App. 4th 985.)

D. State and Federal Regulations, Plans and Policies

1. Water Quality Control Plan for the Santa Ana River Basin

The Clean Water Act requires the regional boards to establish water quality standards for each water body in their region. The requirements of this Order are designed to attain and maintain water quality standards. Water quality standards include beneficial uses, water quality objectives and criteria that are established at levels that protect beneficial uses, and a policy to prevent degrading of waters ("anti-degradation policy").

On January 24, 1995, the Santa Ana Regional Water Quality Control Board adopted the *Water Quality Control Plan for the Santa Ana River Basin* ("Basin Plan"). The Santa Ana Regional Water Quality Control Board has amended the Basin Plan on multiple occasions since 1995. The Basin Plan ~~designated~~ designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters in the Santa Ana Region. The Basin Plan identifies the following existing and potential beneficial uses for surface waters in the Santa Ana Region:

- Municipal and domestic supply
- Agricultural supply
- Industrial service and process supply
- Groundwater recharge
- Navigation
- Hydropower generation
- Water contact recreation
- Non-contact water recreation
- Commercial and sport fishing
- Warm freshwater and limited warm freshwater habitats
- Cold freshwater habitat
- Preservation of biological habitats of special significance
- Wildlife habitat
- Preservation of rare, threatened or endangered species
- Marine habitat
- Shellfish harvesting
- Spawning, reproduction and development of aquatic habitats
- Estuarine habitat

2. Water Quality Control Plan for Ocean Waters of California

In 1972, the State Water Resources Control Board ("State Board") adopted the *Water Quality Control Plan for Ocean Waters of California* ("Ocean Plan"). The State Board adopted the most-recent amended Ocean Plan on September 15, 2009. The Office of Administrative Law approved it on March 10, 2010 and USEPA approved it on October 8, 2010.

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The Ocean Plan is applicable in its entirety to ocean waters of the State. In order to protect beneficial uses, the Ocean Plan establishes water quality objectives and a program of implementation. Pursuant to California Water Code Sections 13263 and 13377, the requirements of this Order implement the Ocean Plan.

The Ocean Plan identifies the beneficial uses of ocean waters of the State as summarized below:

- Industrial water supply
- Water contact and non-contact recreation
- Navigation
- Commercial and sport fishing
- Mariculture
- Preservation and enhancement of designated Areas of Special Biological Significance
- Rare and endangered species
- Marine habitat
- Fish spawning and shellfish harvesting

The Santa Ana Region includes two Areas of Special Biological Significance ("ASBS"), the Robert B. Badham and Irvine Coast ASBS'. In the Ocean Plan, these are known as ASBS 32 and ASBS 33 respectively. Locally, these ASBS' are known as 'Newport Coast' and 'Crystal Cove', respectively. Both of these areas were designated as ASBS' by the State Board on April 18, 1974.

The Ocean Plan prohibits the discharge of waste to designated Areas of Biological Significance unless an exception to Ocean Plan requirements is issued by the State Board. On March 20, 2012, the State Board approved Resolution No. 2012-0012, which includes exceptions to the Ocean Plan prohibition for certain discharges to various ASBS'. Resolution No. 2012-0012~~This~~ includes exceptions for discharges from the City of Newport Beach to Newport Coast and

Crystal Cove and from The Irvine Company, the California Department of Parks and Recreation and the California Department of Transportation to Crystal Cove.

Specific terms, prohibitions, and special conditions were adopted in Attachment "B" to Resolution No. 2012-0012 to provide protections for ASBS'. Resolution No. 2012-0012 grants *exceptions* for the City of Newport Beach and others, but does not authorize discharges to ASBS'. This Order grants the actual *authorization* to discharge to ASBS' only to the City of Newport Beach. The other dischargers identified in the Resolution are not Co-permittees under this Order. The protections in Attachment "B" to Resolution No. 2012-0012 have been incorporated into this Order as if fully set forth herein and are applicable to discharges from the City of Newport Beach.

3. Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality

On September 16, 2008, the State Board adopted the *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality* ("Sediment Quality Control Plan"). The Sediment Quality Control Plan became effective on August 25, 2009. The Sediment Quality Control Plan establishes: 1) narrative sediment quality objectives to protect benthic communities from exposure to contaminants in sediment and to protect human health; and 2) a program of implementation using a 'multiple lines of evidence' approach to interpret the narrative sediment quality objectives. The requirements of this Order implement the Sediment Quality Control Plan.

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4. Anti-degradation Policy

Federal regulations (40CFR131.12) require that the state water quality standards include an anti-degradation policy consistent with the Federal Anti-degradation Policy. The State Board established California's anti-degradation policy in State Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining the Quality of the Waters of the State". State Board Resolution No. 68-16 incorporates the Federal Anti-degradation Policy where the federal policy applies under federal law.

The Santa Ana Regional Water Quality Control Board's Basin Plan implements and incorporates by reference both the State and Federal Anti-degradation Policies. State Board Resolution No. 68-16 and 40 CFR131.12 require that the

Santa Ana Regional Water Quality Control Board maintain high quality waters of the State ~~until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Santa Ana Regional Water Quality Control Board's policies. State Board Resolution No. 68-16 requires that discharges of waste be regulated to meet best practicable treatment or control to assure that pollution or nuisance will not occur and that the highest water quality, consistent with the maximum benefit to the people of the State, will be maintained.~~unless degradation is justified based on specific findings.

The Regional Board must ensure that "existing in-stream uses and the level of water quality necessary to protect the existing uses" are maintained and protected. If the baseline quality of a water body, for a given constituent exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected through the requirements of the Order unles the Regional Board makes findings that (1) any lowering of the water quality is necessary to accommodate important economic or social developmet in the area in which the waters are located; (2) water quality adequate to protect existing uses fully is assured; and 3) the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for non-point source control are achieved.

The Regional Board must also comply with any requirements of State Water Board Resolution No. 68-16 beyond those imposed through incorporation of the federal antidegradation policy. In particular, the Regional Board must find that not only present, but also anticipated future uses of water are protected. The Regional Board must also ensure best practicable treatment and control of the discharges. The baseline quality that is considered in making the appropriate findings is the best quality of the water since 1968, the year of the adoption of State Board Resolution No. 68-16, or a lower level if that lower level was allowed through a permitting action that was consistent with the federal and state anti-degradation policies.

The discharges authorized by this Order are consistent with the anti-degradation provisions of 40CFR131.12 and State Board Resolution No. 68-16 as set out in the Findings below:

a. Many of the waters within the area covered by this Order are impaired for multiple pollutants discharged through MS4s and are not high quality waters with regard to these pollutants. In most cases, there is insufficient data to determine whether these water bodies were impaired as early as 1968, but the limited available data shows impairment in certain water bodies dating back for more than two decades. Many such water bodies are listed on the State's Clean Water Act Section 303(d) List. Either the Regional Board or USEPA has established TMDLs to address some of the impairments.

b. This Order ensures that water quality necessary to protect beneficial uses is maintained and protected. This Order requires the Co-permittees to comply with permit provisions to implement the WLAs set forth in the TMDLs to restore the beneficial uses of the impaired water bodies consistent with the assumptions and requirements of the TMDLs. This Order further requires compliance with receiving water limitations to meet water quality standards in the receiving water either by showing immediate compliance or by implementing compliance plans that include an implementation schedule. This Order includes requirements to document and effectively implement best management practices; achieve water quality-based effluent limitations, and effectively prohibit non-storm water discharges into the MS4.

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To the extent that some of the water bodies in the permit area are high-quality waters with regard to some constituents, the Regional Board finds as follows:

a. Allowing limited degradation of high-quality water bodies through MS4 discharges is necessary to accommodate important economic or social development in the area and is consistent with the maximum benefit to the people of the State. Some discharge of storm water is essential for maintaining in-stream flows that support beneficial uses, flood control, and public safety as well as to accommodate development in the area. This Order ensures that any limited degradation does not affect existing and anticipated future uses of the water and does not result in water quality less than established standards. This Order requires compliance with receiving water limitations that act as a floor to any limited degradation.

This Order requires the highest statutory and regulatory requirements and requires that the Co-permittees meet best practicable treatment or control. This Order prohibits all non-storm water discharges, with a few specified exceptions, into the MS4 to the receiving waters. As required by 40 CFR 122.44(a), the Co-permittees must comply with the "maximum extent practicable" technology-based standard set forth in Clean Water Act section 402(p) and implement minimum control measures as part of their storm water

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programs. Recognizing that best practicable treatment and control may evolve over time, this Order includes new and more specific requirements as compared to Order No. R8-2009-0030. This Order includes options to implement compliance plans that must specify BMPs that must be implemented in accordance with an approved time schedule. ~~As required by 40CFR122.44(a), the Co-permittees must comply with the "maximum extent practicable" standard set forth in Clean Water Act Section 402(p) for discharges of pollutants in urban runoff from MS4s.~~

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~~Many of the waters within the area covered by this Order are impaired and listed on the State's Clean Water Act Section 303(d) List. The Santa Ana Regional Water Quality Control Board has established TMDLs to address the impairments. This Order requires Co-permittees to implement WLAs set forth in TMDLs. This Order requires Co-permittees to implement effective processes and programs, and effectively prohibit non-storm water discharges into the MS4. Water-quality based effluent limits ("WQBELs") are developed as part of plans implemented by the Co-permittees to achieve WLAs. This Order does not authorize an increase in the amount of wastes discharged.~~

5. Anti-backsliding Requirements

Clean Water Act Sections 402(o) and 303(d)(4) and 40CFR122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. ~~All effluent limitations and other conditions in this Order are at least as stringent as the effluent limitations in the previous versions of the NPDES permit; therefore, this permit is consistent with the federal anti-backsliding requirements.~~

While this Order allows the implementation of compliance plans to constitute compliance with receiving water limitations under certain circumstances, the availability of that alternative and the corresponding additional time to come into compliance with receiving water limitations does not violate anti-backsliding provisions. The receiving water limitations provisions of this Order are imposed under section 402(p)(3)(B) of the Clean Water Act, rather than based on best professional judgment, or are based on section 301(b)(1)(C) or sections 303(d) or (e). Accordingly, they are not subject to the anti-backsliding requirements of section 402(o).

Although the non-applicability is less clear with respect to the regulatory anti-backsliding provisions in 40 CFR 122.44(l), the regulatory history suggests that USEPA's intent was to establish the anti-backsliding regulations with respect to evolving technology standards for traditional sources[1]. It is unnecessary to resolve the ultimate applicability of the regulatory backsliding provisions because the provisions relating to the compliance plans qualify for an exception to backsliding. This exception is based on new information obtained through the process of developing and implementing watershed TMDLs since the adoption of the previous MS4 Permit. This information has caused the Regional Board to recognize the importance of allowing time to fund, plan, design, construct, and operate and maintain watershed-based BMPs. Furthermore, the Regional Board recognizes the potential benefits of storm water runoff to augment water supplies. Thus, even if the receiving water limitations are subject to anti-backsliding provisions, the Order's requirements have been revised based on new information that would support an exception to the provisions. (33 USC 1342(o)(2)(B)(i); 40 CFR 122.44(l)(1); 40 CFR 122.44(l)(2)(i)(B)(1))

6. Clean Water Act Section 303(d) List

Clean Water Act Section 303(d)(1) requires each state to identify specific water bodies within its boundaries where water quality standards are not being met or are not expected to be met after technology-based effluent limitations on point sources of pollutants have been complied with. Water bodies that do not meet water quality standards are considered impaired and are placed on the state's "303(d) List". For each listed water body, the state or USEPA is required to establish a TMDL ~~of~~ for each pollutant that is impairing the water quality standards in that water body. Periodically, the USEPA approves the state's 303(d) List.

A TMDL is the sum of the allowable pollutant loads of a single pollutant from all contributing point sources (waste load allocations), non-point sources (load allocations), the contribution from background sources, and a margin of safety (40 CFR 130.2(i)). MS4 discharges are considered point source discharges and are assigned waste load allocations. A TMDL is a tool for implementing water quality standards and is based on the relationship between pollution sources and in-stream water quality conditions. The TMDL establishes the allowable pollutant loads from various sources to a water body and thereby provides the basis to establish water quality-based controls. By implementing these controls,

[1] See, e.g. 440 Fed. Reg. 32854, 32864 (June 7, 1979).

~~dischargers~~ the Co-permittees should provide the pollutant load reduction needed for a water body to meet water quality standards.

Most recently, the USEPA approved the state of California's 2010 303(d) List of impaired water bodies on October 11, 2011. The 2010 303(d) List includes certain receiving waters in the Santa Ana Region. Since 2002, USEPA and the Santa Ana Regional Water Quality Control Board have established TMDLs to address water quality impairments. These TMDLs establish waste load allocations ("WLAs") for discharges from MS4s.

Clean Water Act Section 402(p)(3)(B)(iii) requires the Santa Ana Regional Water Quality Control Board to require Co-permittees to employ "management practices, control techniques and system, design, and engineering methods and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." Clean Water Act Section 402(a)(1) also requires states to issue permits with conditions necessary to carry out the provisions of the Clean Water Act. Federal regulations also require that NPDES permits contain WQBELs consistent with the assumptions and requirements of all available WLAs (40CFR~~40CFR~~122.44(d)(1)(vii)(B)). California Water Code requires that NPDES permits include limitations necessary to implement water quality control plans. Therefore, this Order includes WQBELs and other provisions to implement the TMDL WLAs for discharges from MS4s.

7. Other Regulations, Plans, and Policies

This Order implements all other applicable federal regulations and State regulations, plans and policies, including 40CFR131.38 (Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California), also known as the California Toxics Rule or "CTR"; the *State Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, also known as the State Implementation Policy of "SIP".

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E. Unfunded Mandates

Article XIII B, Section 6(a) of the California Constitution provides that whenever "any state agency mandates a new program or higher level of service on any local government, the state shall provide a subvention of funds to reimburse that

local government for the costs of the program or increased level of service." The requirements of this Order do not constitute state mandates that are subject to a subvention of funds for several reasons, including, but not limited to, the following.

First, the requirements of this Order do not constitute a new program or a higher level of service as compared to the requirements contained in the previous Fourth Term Permits. The overarching requirement to impose controls to reduce the pollutants in discharges from MS4s is dictated by the Clean Water Act and is not new to this permit cycle (33 USC section 1342(p)(3)(B)). The inclusion of new and advanced measures as the MS4 programs evolve and mature over time is anticipated under the Clean Water Act (55 CFR 47990, 48052 (Nov. 16, 1990)) and, to the extent requirements in this Order are interpreted as new advanced measures, they do not constitute a new program or higher level of service.

Second, and more broadly, mandates that are imposed by federal law are exempt from the requirement that the local agency's expenditures be reimbursed (Cal. Const., art. XIII B, section 9, subd. (b)). This Order implements federally-mandated requirements under the Clean Water Act and its requirements are therefore not subject to subvention of funds. This includes federal requirements to effectively prohibit non-storm water discharges, to reduce the discharge of pollutants in storm water to the MEP, and to include such other provisions as the Administrator or the State determines appropriate for the control of such pollutants (33 USC section 1342(p)(3)(B)). Federal cases have held these provisions require the development of permits and permit provisions on a case-by-case basis to satisfy federal requirements. (*Natural Resources Defense Council, Inc., v. USEPA* (9th Cir. 1992) 966 F.2d 1292, 1308, fn. 17.)

The authority exercised under this Order is not reserved state authority under the CWA's savings clause (cf. *Burbank v. State Water Resources Control Bd.* (2005) 35 Cal.4th 613, 627-628 [relying on 33 USC section 1370. The savings clause allows a state to develop requirements which are not "less stringent" than federal requirements]). Instead, the authority under this Order is part of a federal mandate to develop pollutant reduction requirements for municipal separate storm sewer systems. To this extent, it is entirely federal authority that forms the legal basis to establish the permit provisions. (See *City of Rancho Cucamonga v. Regional Water Quality Control Board, Santa Ana Region* (2006) 135 Cal.App.4th 1377, 1389; *Building Industry Ass'n of San Diego Co. v. State Water Resources Control Bd*. (2004) 124 Cal.App.4th 866, 882-883.)

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

The requirements of the Order, taken as a whole rather than individually, are necessary to reduce the discharge of pollutants to the MEP and to protect water quality. The Santa Ana Regional Water Quality Control Board finds that the requirements of the Order are practicable, do not exceed federal law, and thus do not constitute an unfunded mandate. These findings are the expert conclusions of the principal state agency charged with implementing the NPDES program in California (CWC sections 13001, 13370).

It should also be noted that the provisions in this Order to effectively prohibit non-storm water discharges are also mandated by the CWA (33 USC section 1342(p)(3)(B)(ii)). Likewise, the provisions of this Order to implement TMDLs are federal mandates. The Clean Water Act requires TMDLs to be developed for water bodies that do not meet federal water quality standards (33 USC section 1313(d)). Once the USEPA or a state establishes or adopts a TMDL, federal law requires that permits must contain effluent limitations consistent with the assumptions and requirements of any applicable waste load allocation in a TMDL (40 CFR 122.44(d)(1)(vii)(B)).

Third, the Co-permittees' obligations under this Order are similar to, and in many respects less stringent than, the obligations of non-municipal dischargers who are issued NPDES permits for storm water discharges. With a few inapplicable exceptions, the Clean Water Act regulates the discharge of pollutants from point sources (33 USC section 1342) and the Porter-Cologne Water Quality Control Act regulates the discharge of waste (CWC section 13263), both without regard to the source of the pollutant or waste. As a result, the "costs incurred by local agencies" to protect water quality reflect an overarching regulatory scheme that places similar requirements on governmental and non-governmental dischargers.

(See *County of Los Angeles v. State of California* (1987) 43 Cal.3d 46, 57-58 [finding comprehensive workers' compensation scheme did not create a cost for local agencies that was subject to state subvention].)

The Clean Water Act and the Porter-Cologne Water Quality Control Act largely regulate storm water with an even hand, but to the extent there is any relaxation of this even-handed regulation, it is in favor of the local agencies. Generally, the Clean Water Act requires point-source dischargers, including dischargers of storm water associated with industrial or construction activity, to comply strictly with water quality standards (33 USC section 1311(b)(1)(C); *Defenders of Wildlife v. Browner* (9th Cir. 1999) 191 F.3d 1159, 1164-1165 [noting that industrial discharges must strictly comply with water quality standards]). As discussed in prior State Water Board decisions, certain provisions of this Order do not require strict compliance with water quality standards (State Water Board Order No. WQ 2001-0015, p. 7). Those provisions of this Order regulate the discharge of waste in municipal storm water under the Clean Water Act's MEP standard, ~~not~~ as opposed to the BAT/BCT standard that applies to other types of discharges. These provisions, therefore, regulate the discharge of waste in municipal storm water more leniently than the discharge of waste from non-governmental sources.

Fourth, the Co-permittees have requested permit coverage in lieu of compliance with the complete prohibition against the discharge of pollutants contained in Clean Water Act section 301(a) (33 USC section 1311(a)). To the extent that the Co-permittees have voluntarily availed themselves of the permit, the program is not a state mandate. (Accord, *County of San Diego v. State of California* (1997) 15 Cal.4th 68, 107-108.)

Fifth, the local agency Co-permittees' responsibility for preventing discharges of waste that can create conditions of pollution or nuisance from conveyances that are within their ownership or control under state law predates the enactment of Article XIIIB, Section (6) of the California Constitution.

Finally, even if any of the permit provisions could be considered unfunded mandates, under Government Code section 17556, subdivision (d), a state mandate is not subject to reimbursement if the local agency has the authority to charge a fee. The Co-permittees have the authority to levy service charges, fees, or assessments sufficient to pay for compliance with this Order, subject to certain voting requirements contained in the California Constitution. (See Cal. Const., Art. XIII D, section 6, subd. (c); see also *Howard Jarvis Taxpayers Ass'n v. City*

of Salinas (2002) 98 Cal.App.4th 1351, 1358-1359.) Numerous activities contribute to the pollutant loading in the MS4. Local agencies can levy service charges, fees, or assessments on these activities, independent of real property ownership. (See, e.g., *Apartment Ass'n of Los Angeles County, Inc., v. City of Los Angeles* (2001) 24 Cal.4th 830, 842 [upholding inspection fees associated with renting property].) The authority and ability of a local agency to defray the cost of a program without raising taxes indicates that a program does not entail a cost subject to subvention. (*Clovis Unified School Dist. V. Chiang* (2010) 188 Cal.App.4th 794, 812, citing Connell v. Sup. Ct. (1997) 59 Cal.App.4th 382, 401; *County of Fresno v. State of California* (1991) 53 Cal. 3d. 482, 487-488.)

VII. REGULATORY BASIS FOR PERMIT REQUIREMENTS

Order No. ~~R8-2014-0002~~R8-2015-0001 is based on Section 402(p) of the Clean Water Act; 40CFR Parts 122, 123, and 124; and the Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code, Section 13000 *et seq*.). This Order is also based on the *Water Quality Control Plan for the Santa Ana River Basin* ("Basin Plan"); all applicable provisions of state-wide water quality control plans and policies adopted by the State Water Resources Control Board ("State Board"); the California Toxics Rule ("CTR"); and the CTR Implementation Plan.

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The Basin Plan was revised and adopted by the Regional Board and it became effective on January 24, 1995. Since then, the Basin Plan has been amended to incorporate requirements related to Total Maximum Daily Loads ("TMDLs", discussed later in this Section). The Basin Plan contains water quality objectives and beneficial uses for water bodies in the Santa Ana Region. Under the Clean Water Act, both beneficial uses and the water quality objectives to protect them are collectively referred to as "water quality standards". The Basin Plan also incorporates by reference all State Board water quality control plans and policies, including the 1990 *Water Quality Control Plan for Ocean Waters*, known as the "Ocean Plan".

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VIII. ~~METHOD FOR~~CONSIDERATIONS IN THE DEVELOPMENT OF ORDER NO. ~~R8-2014-0002~~R8-2015-0001

A. Results of Audits

During the term of Order No. R8-2009-0030, Regional Board staff performed 154 audits of 12 of the Co-permittees. The audits were performed on one or more elements of the Co-permittees' storm water programs and included reviews of the target Co-permittee's Program Effectiveness Assessments ("PEAs"). Audits were largely carried out using process mapping techniques in addition to comparisons of actual program outcomes with permit requirements.

Regional Board staff review has found that the "iterative process" has been hampered by the disuse of performance metrics. In most cases, the Co-permittees tracked and reported outcomes of program activities in their PEAs without any performance metrics to provide context. This renders the information of ~~little~~ limited use. For example, Co-permittees commonly report on the number of curb-miles swept as part of street-sweeping programs. This reporting approach does not allow evaluation of the data by comparing it to the target number of curb-miles that were supposed to be swept or inter-annual comparisons.

Regional Board staff highlighted this issue with an audit performed on the City of Santa Ana's Program Management, Public Education, and Existing Development elements of their storm water program in 2010. This audit focused on Section C of the City's 2008-2009 PEA, which contains the outcomes from these program elements. Because the format used by the City was one used by the Co-permittees, the conclusions of that audit also generally apply to the other Co-permittee's PEAs. In Section C, the City tracked and reported 21 objective outcomes from implementing their program. Of those, 19 outcomes were reported without comparison to a performance metric, even when a performance metric was prescribed in the Permit. Consequently, City staff was collecting data on 19 outcomes but was not using the information in a constructive manner in their PEA~~,~~. In some cases, ~~not even~~the data was not used to overtly evaluate compliance ~~in an overt way~~with performance metrics in the Permit.

Fundamentally, the permit describes ~~systems of actions~~ activities that the Co-permittees must carry out to comply with the permit, but more importantly, to reduce pollutants in urban runoff. The permit describes these ~~systems~~ activities with different levels of detail. As a result, the Co-permittees often must better define these ~~systems~~ activities in a practical way in their program planning documents, such as the Drainage Area Management Plan or Local Implementation Plans, to describe how they will comply.

~~There is a presumption that carrying out the actions prescribed in the permit and related planning documents will improve water quality.~~The actions prescribed in the permit and related planning documents are required with a presumption that their execution will improve water quality. However, the degree of effectiveness, or correlation between specific actions and improvements in water quality, is not known. For example, the current state of knowledge does not allow an incremental improvement in water quality ~~cannot~~ to be attributed to a particular public education campaign. This dilemma is the basis for accepting the "iterative process" to reducing pollutants to ultimately achieve water quality objectives. The "iterative process" allows for a large degree of experimentation by the Co-permittees and Regional Board staff to discover the most effective combination of actions. On the basis of objective information, the "iterative process" allows Co-permittees to amend their program planning documents to improve their programs. The "iterative process" also informs the permit process, allowing the Regional Board to also make improvements in the permit ~~through~~ as part of subsequent re-authorizations.

The "iterative process" is described best in the Receiving Water Limitations language in the Order. This language was generally originated by the USEPA and communicated by the State Water Resources Control Board ("State Board") in Order WQ 99-05. The State Board's language has been modified in this Order but its purposes have not been altered. The "iterative process" is also referenced in the findings of the past two versions of NPDES Permit No. CAS618030.

No time schedule is prescribed in the Receiving Water Limitations language over which to execute the "iterative process". The key step to trigger the process is a "determination…that a discharge is causing or contributing to the exceedance of an applicable water quality standard" described in Subsection IV.C. of the Order. Because of the variance in storm water quality and the infrequency of storm events, the time period may be on the order of years to make the determination and to initiate the "iterative process" described by Order WQ 99-05. In fact, the "iterative process" in Order WQ 99-05 has never been initiated before in the Santa Ana Region in spite of the Co-permittees' collection of substantial water quality data. This is largely attributed to a poorly-defined trigger to initiate the "iterative process".

The "iterative process" as a whole relies on some form of feedback to evaluate program performance and identify the need for improvements if necessary. Ideally, this feedback would occur through direct measurements of changes in effluent concentrations and receiving water quality. In this case, numeric water

quality standards would serve as performance metrics where a causal relationship has been established with specific storm water program activities. However, the causal relationship between water quality and program activities is often not established.

Feedback can also be obtained by monitoring outcomes from individual or groups of program activities and comparing them to performance metrics which have less direct, but logical relationships to changes in effluent concentrations or receiving water quality. An example of this would be changes in public behavior which reduce pollutants in storm water runoff. Although it may be difficult to correlate changes in receiving water quality with a public education program, it may be easier to establish correlations between the program and reported changes in behavior.

-The Co-permittees have spent significant resources to implement their storm water programs and to track and report program outcomes. The ~~Co-permittees track and report program outcomes~~is partly~~,~~ fulfill~~ing part of~~s the iterative process. But ~~do~~ the Co-permittees have not consistently placed much of the data in context by comparing it to objective metrics to evaluate performance. The result is that there has been no comprehensive effort to assess the effectiveness of the Co-permittees' program activities.

Requirements for reports on program effectiveness first appeared in the fourth-term permit, Order No. R8-2009-0030, as Program Effectiveness Assessments ("PEAs"). However, the requirements stopped short of mandating that the Assessments rely on the use of objective performance metrics or standards for various program elements. Although discussed, the use of objective performance metrics or standards was phrased as a recommendation in the fourth-term permit.

There is a definite need for the Co-permittees to use indicators of the performance of their programs' activities. Water quality data can be collected to assess the *overall* performance of the Co-permittees' storm water programs. But sufficient water quality data ~~cannot~~ may not always be ~~used~~ available to evaluate the effectiveness of *specific* program activities or even of combinations of program activities. ~~Sufficient~~ A large amount of water quality data ~~would~~ may have to be collected over extended periods of time to ~~directly correlate specific~~establish correlations between program activities ~~with~~ and incremental improvements in water quality. During this time, the different Co-permittees may adopt new activities, change levels of effort for activities, and/or abandoned

others. This continual evolution of the Co-permittees' program activities during a monitoring period can confound the effort to ~~correlate program activities with changes in water quality~~establish correlations. Other types of performance metrics are needed.

Performance metrics include water quality standards and measurable and verifiable permit requirements; but these do not comprehensively address all of the Co-permittees' program activities. Additional performance metrics need to be established by the Co-permittees to carry out a comprehensive assessment of program activities. For example, some cities have established agronomic fertilizer rates as a performance metric for applying fertilizer to turf grass in public parks and properties. This metric is related to a goal of reducing wasted fertilizer and the transport of the waste to receiving waters. In this example, the performance metric has a clear relationship to a goal that, if achieved, is reasonably likely to improve receiving water quality. The performance metric also provides more useful and frequent feedback to the Co-permittees.

The structure and language of the past permit ~~can be~~has been improved in this Order to promote the "iterative process". Interviews with Co-permittees' staff as part of audits, inspections, and other encounters revealed that their focus is on permit compliance. This appears to have caused the Co-permittees to comply with the letter of the permit with less emphasis on the intended "iterative process". Where the permit provides specific direction, the Co-permittees generally make an effort to comply using available resources. Since the past permits did not detail how to assess program effectiveness in a meaningful way, the~~re has~~ result has been insufficient incentive for Co-permittees to fully apply the iterative process. The requirements of this Order attempt to address this apparent disconnect between "compliance" and "program performance" by better defining the "iterative process" and mandating its practice.

The past practice of incorporating by reference best management practices in the Drainage Area Management Plan and the Local Implementation Plan also does not appear to promote the "iterative process". Past versions of NPDES Permit No. 618030 relied on the development of the Drainage Area Management Plan ("DAMP") by the Co-permittees[2]. The DAMP and its companion plans and programs describe the storm water management controls that the Co-permittees would carry out in order to comply with the permit. The permit then required that the Co-permittees implement the DAMP. The more recent fourth-term permit

[2] For purposes of discussion, DAMP and LIP generally refer to companion plans and programs such as the 2011 Model Water Quality Management Plan and the Technical Guidance Document.

expanded this requirement to include Local Implementation Plans developed by each Co-permittee for their respective jurisdiction.

The ~~past~~ strategy of 'incorporating by reference' best management practices in the Drainage Area Management Plan and the Local Implementation Plan effectively made many of the practices described in those Plans mandatory. Failure to ~~execute the commitment or its elements~~perform commitments in those Plans could cause the Co-permittees to be out of compliance with the permit and subject them to civil liability.

The ability of the Regional Board to enforce the DAMP or LIPs depends on how objectively the program activities are described or whether or not the activities can be measured or verified. Of the DAMP and the LIPs, only the DAMP's content was controlled by a process for approval by the Executive Officer. The content of the LIPs was not controlled through approval by the Executive Officer. The result was a logical effort by at least a few Co-permittees to amend their Local Implementation Plans to remove any objective enforceable requirements and subsequent potential liabilities. Best management practices typically became "opportunities" that the Co-permittee might or might not follow through on. Without any commitment for their implementation or any way to measure and verify the performance of those commitments, missed "opportunities" are not enforceable.

The fear of being subject to enforcement may discourage the Co-permittees from documenting innovations that could potentially improve the Co-permittees storm water programs and the permit. Evidently, ~~in the absence of oversight~~left to their discretion, the relationship motivates the Co-permittees to eliminate any concrete commitments that might cause them to be out of compliance.

This is not to assert that the Co-permittees have not made innovations in their storm water programs or carried out best management practices to reduce pollutants in urban runoff. During many of the audits, Regional Board staff discovered that many Co-permittees were essentially running at least some part of their storm water programs off-the-books ~~storm water programs~~. Innovations and best management practices were occurring, but they were not described in the Drainage Area Management Plan or the Local Implementation Plan or their Program Effectiveness Assessments. By keeping these efforts out of the DAMP or LIPs, the Co-permittees prevent them from becoming permit requirements and thus liabilities. But, by not including these efforts in the Program Effectiveness Assessments, the Co-permittees have not comprehensively evaluated the

effectiveness of their programs to improve. The result is that the *documented* elements of the storm water program have become stagnant even as innovations have occurred undocumented.

In summary, the Co-permittees have not taken full advantage of the "iterative process" to improve their storm water programs. The 'incorporation by reference' relationship between the permit and the DAMP and LIPs is likely a significant factor that discourages the Co-permittees from making changes to the plans that might become enforcement liabilities. Where allowed, the Co-permittees have managed potential enforcement liabilities by eliminating objective commitments from the plans. Where innovative strategies are employed, they are generally not documented in the plans or evaluated as part of Program Effectiveness Assessments.

It is likely that other factors, such as organization size (the Co-permittees collectively) and related span of control, disproportionate influence among larger and smaller cities, and differing levels of interest among Co-permittees also significantly affect the management of the storm water program. But these are matters that are not easily addressed by this Order.

Therefore, this Order refocuses the Co-permittees' efforts on the "iterative process" to improve their storm water programs and ultimately achieve water quality objectives. To do so, it is necessary to establish a working model of what the "iterative process" is. The "iterative process" is not defined specifically by USEPA, the State Water Resources Control Board, or the Regional Water Quality control Board. In business, the "iterative process" is an objective process improvement technique for arriving at a decision or objective by repeating rounds of analysis or a system of actions. The process involves subsequent evaluation and improvement with each cycle. Performed well, the "iterative process" is a cost control method that can save the Co-permittees money. ~~The process involves subsequent evaluation and improvement with each cycle.~~

In business, t~~T~~he purpose of the "iterative process" is ultimately to arrive at some decision or desired outcome. The "iterative process" is typically applied in circumstances where there is great uncertainty; where costs of errors are high; or where a full commitment of resources to achieve a risky outcome is undesirable. This process is known by many other names such as a "Plan-Do-Check-Act Cycle" ("PDCA Cycle"), Deming Cycle, and Shewart Cycle.

Objective process improvement techniques have been in practice in business and, later government for over half a century and have been gradually finding their way into storm water regulation. The techniques were introduced into widespread use in Japan in the 1950's by W. Edwards Deming and are generally regarded as being instrumental in transforming the post-war Japanese economy. USEPA prescribes objective process improvement techniques ("measurable goals") in their Storm Water Phase II Rule, promulgated in 1999, for small MS4s. In 2008, USEPA published *Evaluating the Effectiveness of Municipal Stormwater Programs*, describing the "iterative process" as a process improvement technique.

Co-permittees under the NPDES program have also begun developing process improvement techniques. With the participation of the Co-permittees, the California Stormwater Quality Association published the Draft *Municipal Stormwater Program Effectiveness Assessment Guide* in 2007 ("Draft 2007 Guide")[3]. This document ~~attempts to~~ describes an objective process for developing a system of measuring the performance of the Co-permittees' storm water programs. Although the Draft 2007 Guide was referenced in the fourth-term permit in regards to performing Program Effectiveness Assessments, the process was not fully put into practice by the Co-permittees. Gradual efforts were made, but the process has not been fully implemented.

In storm water regulation, the "iterative process" serves multiple purposes. First, it allows the Co-permittees, regulatory staff, and the public to assess compliance with the requirements of this Order. It tracks progress towards meeting water quality objectives. It justifies the Co-permittees' commitment of resources, including the cessation of ineffective program activities. It provides feedback to storm water program managers, in part, to identify the most effective program activities. Last, it may establish correlations between reductions in pollutant loads into receiving waters and program activities.

To refocus the Co-permittees, this Order partly de-couples the DAMP and LIP from the permit requirements. Planning documents are still required, but their purpose is principally to maintain transparency of the Co-permittees' storm water programs. To do so, the planning documents must fully and accurately reflect the Co-permittees' storm water programs.

This Order continues virtually all of the objective requirements of the fourth-term permit, such as commercial and industrial inspections. But this Order also

[3] Available for a fee at www.casqa.org

requires that the Co-permittees have certain effective processes (or mechanisms) instead of prescribing specific objective outcomes. To complement all processes and objective requirements, the Co-permittees must also develop and apply objective performance measures to assess the programs' effectiveness.

Program activities and their related performance measures will necessarily include the objective requirements of the permit, such as requisite numbers of inspections. But not all of the Co-permittees' program activities are mandated directly by a permit requirement. Under the fourth-term permit, these program activities are described in the DAMP or LIP. They were therefore mandated by way of being incorporated by reference in the permit.

Now, program activities that are only described in the DAMP or LIP have been incorporated into this Order. However, program activities have been generally synthesized rather than ~~stated~~ copied over directly. The Order describes these program activities more generally as required programs, processes, or mechanisms. These mandated programs, processes, or mechanisms are intended to accomplish the same purposes as the specific program activities described in the DAMP or LIP. The purpose of u~~U~~sing general descriptions, instead of mandating specific program activities in the DAMP or LIP, is ~~intended~~ to allow the Co-permittees greater flexibility to add or discontinue ~~certain~~ specific program activities or to modify their level of effort.

This flexibility is tempered in ~~three~~ four ways. First, the Co-permittees must continue to meet the objective requirements of this Order where prescribed. Second, the Co-permittees must perform program activities that satisfy the general goals prescribed by this Order. Third, program changes must be guided by the iterative process. Last, the Co-permittees must ~~meet the MEP standard required by~~satisfy the requirements of this Order and the Clean Water Act.

~~The~~ Although some modifications may be needed, the Co-permittees' storm water program is initially generally-presumed to ~~meet the MEP standard required by~~satisfy the requirements of this Order and the Clean Water Act without the need for wholesale changes. Therefore, unless specified otherwise in this Order, it must be generally continued unless the Co-permittees can provide objective evidence that the program must be modified. This evidence is provided by the performance of Program Effectiveness Assessments. Co-permittees may modify program activities, but the program as a whole must work to achieve the general goals prescribed by this Order. Those general goals appear in this Order along

with expressed requirements to have effective mechanisms or processes to achieve those goals. "Effectiveness" must be measured using the objective requirements prescribed by this Order or, where not prescribed, developed by the Co-permittees.

Consequently, there will be two kinds of objective performance metrics: those described in the language of this Order and those developed by the Co-permittees. Failure to achieve the objective requirements of this Order will be regarded as violations of this Order. However, failure to achieve objective performance metrics developed by the Co-permittees is not a violation of this Order.

In the absence of objective requirements prescribed in the Order for specific program activities, program activities will be evaluated: 1) by determining which prescribed general goal(s) that an activity is intended to achieve; 2) if there is (are) one or more objective performance metrics being used to assess the performance of the activity; ~~and~~ 3) if the performance metric(s) is (are) valid; and 4) if the affected Co-permittees are responsive to information on the effectiveness of the program or the validity of the performance metric. A program activity that lacks any of these evaluative elements will be in violation of this Order.

B. The "Iterative Process"

Essentially, this Order requires more explicitly that the Co-permittees engage in an "iterative process" for their program activities. This process is outlined in the conceptual model below (Figure 1). The process shown is adapted from W. Edwards Deming's PDCA Cycle. The conceptual model provides a working basis for the "iterative process". The general provisions in Section I of the Order have been designed to enforce each of the steps of the "iterative process" as shown. The "iterative process" is further reinforced by other provisions throughout the Order.

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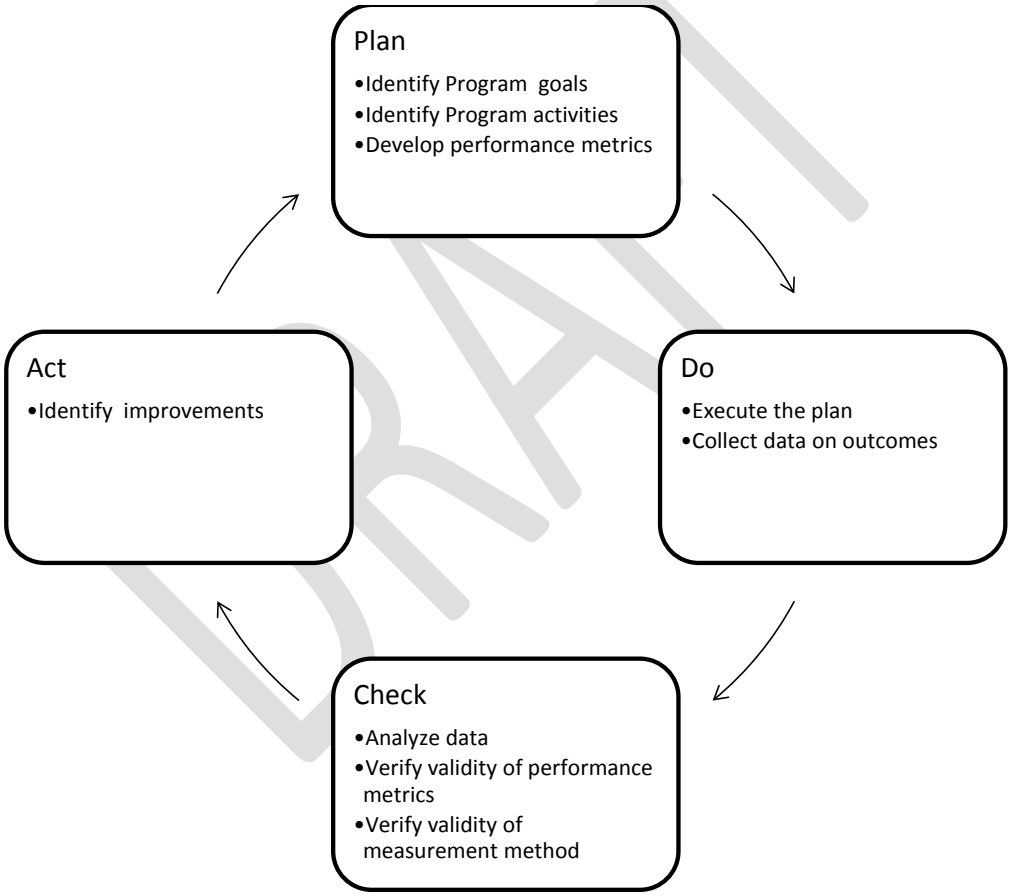
Figure 1: Conceptual Model of the "Iterative Process"



The "iterative process" ~~applies to~~can inform both the Co-permittees' development and execution of their storm water programs and ~~to~~ influence the development of future reauthorizations of NPDES Permit No. CAS618030. The "iterative process" can be used at multiple time scales, from days to decades. There is an ~~reasonable~~ expectation that the program activities prescribed in the permit and developed by the Co-permittees will ultimately improve receiving water quality and that the choice and method of measuring program outcomes are valid. However, deficiencies~~errors~~ may be discovered as programs are evaluated and performance metrics and their methods of measurement are developed and scrutinized. ~~and a~~Consequently, adaptive measures may be necessary to improve the effectiveness of the program activities or to improve the methods of measuring effectiveness.

Within this Order, the "iterative process" cycle is driven by several mechanisms. First, Section IV's receiving water limitations language necessarily requires the Co-permittees to use receiving water quality monitoring data to evaluate if water quality standards are being met. Receiving water quality monitoring data is generated through the Monitoring and Reporting Program and the data is analyzed based on a schedule developed by the Co-permittees but subject to the approval of the Executive Officer.

The "iterative process" is also driven by ~~waste load allocations~~water quality-based effluent limitations developed as part of TMDLs. The water quality-based effluent limitations are described in ~~Section XVII~~Appendices B through ~~H~~I of this Order. The methods for complying with the water quality-based effluent limitations are described in Section XVIII of this Order. Many water quality-based effluent limits are waste load allocations that may be ~~include~~ numeric effluent limits, where TMDL compliance dates have passed~~., or~~ They may alternately be ~~numeric action levels~~interim goals, where compliance dates have not passed. Both are kinds of water quality-based effluent limits and are shown in Appendices B through H. Waste load allocations and their related requirements are the vehicle for meeting water quality standards for those waters listed pursuant to Clean Water Act Section 303(d).

The "iterative process" is lastly driven by the Co-permittees' performance of annual Program Effectiveness Assessments described in Section XIX of this Order. The Co-permittees ~~must~~ are required to use measurable and verifiable (objective) performance standards or metrics to evaluate the effectiveness of their BMPs. These performance standards are found within this Order as desired measurable and verifiable program outcomes. ~~b~~But other performance

standards~~s~~ will need to be developed by the Co-permittees to evaluate BMPs that are not specifically prescribed directly by this Order but which are performed to achieve permit goals.

~~–~~The performance standards that are not ~~found~~ specified in this Order are not enforceable on the Co-permittees; in these cases, the "iterative process" itself is enforced by this Order, rather than the outcome. Unlike water quality standards and waste load allocations, these performance standards are not direct measures of BMPs' effects on receiving water quality. But they are important to measure the effectiveness of BMPs in achieving goals, such as those related to public education and personnel training, whose purpose is to indirectly improve water quality.

This Order has also been written with the purpose of limiting the number of planning documents necessary to implement the storm water programs. With the exception of the ~~TMDLs~~compliance plans in Sections IV and XVIII, this Order does not require new planning documents. ~~In simple terms, t~~The Co-permittees' best management practices are applied at three spatial scales; at the permit-area scale, at the watershed scale, and at the local jurisdiction scale. All of these scales are collectively addressed in the DAMP, LIPs, and the TMDL-related planning documents. Any changes to the storm water programs can be represented in any of these documents without the need to develop additional, separate plans. This Order also does not mandate any particular spatial scale for the Co-permittees' planning documents; instead the circumstances will dictate.

The Co-permittees must continue to use the planning documents already prepared to the extent that the plans fully document their program activities, including best management practices. It will be necessary to review and amend those planning documents to add activities not already documented, to develop performance metrics and methods for measuring those metrics, to consolidate and possibly abandon some plans, and to generally update the Co-permittees' storm water programs to comply with this Order. The Co-permittees can re-write their planning documents if they choose to. But this is a matter for the Co-permittees' editorial discretion and is not required by this Order.

C. Regional and Sub-regional Structural Treatment Control BMPs

The Provisions of Section XII of this Order take a more neutral position with respect to the use of on-site or off-site structural treatment control BMPs. An off-site facility generally will serve more than one project or property owner and are

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generally regional or sub-regional facilities. Instead, preference is given to LID BMPs with less regard to their location. This represents a significant shift from Order No. R8-2009-0030, which required a demonstration that on-site facilities were infeasible before allowing the use of an off-site facility. The requirements for locating source control and site design BMPs on-site remain the same under any circumstance.

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This shift has been made in consideration of the benefits of centralizing structural treatment control BMPs. In comparison with de-centralized structural treatment control BMPs, centralized facilities consolidate the responsibility for their operation and maintenance into a single entity such as a property owner's or homeowner's association, a community facilities district, or public agency. This allows for the facility to be professionally managed and maintained which may allow the facility to perform more reliably with less risk of premature failure. Centralized facilities also consolidate the costs of construction, operation and maintenance and may result in efficiencies of scale. Centralized facilities may also be at a scale that they provide other community benefits, such as open space.

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Alternately, difficulties in developing regional and sub-regional structural treatment control BMPs largely stem from the needt for significant up-front capital investment for planning, design, and construction. The return on that investment may be unreliable depending on the circumstances in the facility's drainage or service area. In master-planned communities, regional and sub-regional facilities have been successful partly because planners were largely able to control the organization of funding mechanisms and the return on the investment could be realized through the sale of parts of the service area as completed or partly-completed development projects. The regional or sub-regional facility, along with other planned or existing infrastructure or improvements, increased the value of the project or its parts whose sale provided the return on the investment in the facility.

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In a built-out, urbanized drainage area, the development of a potential regional or sub-regional structural treatment control BMP is likely to require the cooperation of multiple property or project owners with fundamentally different economic interests. The parties are likely to value the investment in the facility at significantly different magnitudes. As the result, they are not equally motivated to fund the planning, design, or construction of the facility or to cooperate to form funding mechanisms for the facility's maintenance.

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These circumstances greatly complicate efforts to develop regional or sub-regional structural treatment control BMPs in already-urbanized areas. A Co-permittee or another public entity may need to organize and coordinate the facility. The Co-permittee may face serious challenges to gain support from the different individuals to fund the necessary up-front planning, design and construction, and to organize long-term funding mechanisms for operation and

maintenance. The challenges may be insurmountable and on-site facilities may be the only practical solution.

D. Alternatives and *In Lieu* Programs

The previous Permit allowed for the Co-permittees to organize urban runoff funds to pay for "urban water quality improvement projects within the same watershed that is funded by contributions from developers granted waivers" in Provision XII.E.2. No urban runoff fund was ever reported established for "urban water quality improvement projects" and no waivers were known to have been issued during the previous Permit's term. If a waiver was issued under the previous Permit, Co-permittees were not required to develop funds and collect monies. Because obtaining a waiver poses little relative cost versus a contribution to a fund, it is not surprising that the Co-permittees chose not to impose the financial burden of a runoff fund on the development community. Nonetheless, at the urging of USEPA, this Order continues to allow the Co-permittees to exact funds from projects which are granted waivers.

The previous Permit also allowed the Co-permittees to "establish a water quality credit system for alternatives to infiltration, harvesting and reuse, evapotranspiration, and other LID BMPs and hydromodification requirements" in Provision XII.E.4. However, the Provision further describes projects that would be eligible for credit. The projects listed there are generally regarded as low-impact development, suggesting that the purpose of the credit system was to encourage these types of development.

In response, the Co-permittees proposed a credit system in the 2011 Model Water Quality Management Plan and Technical Guidance Document. This credit system provided discounts on the design capture volume that needed to be treated for certain types of projects generally regarded as LID. The Executive Officer approved this credit system on the basis that LID includes land use strategies to reduce water quality impacts and that the credit would provide an incentive to practice LID. However, this program does not appear to have been effective.

Development patterns are influenced by the preferences of residents, physical and institutional infrastructure constraints, regional distribution of housing needs, compatibility with other land uses in the vicinity, seismic and geotechnical issues, and many other factors. To be effective, the discounts on the design capture volume would have to influence a project proponent to change a non-LID project to a LID project or to essentially propose a project that otherwise would not have

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been proposed in the face of constraining factors. To do so, the savings realized from the discount on the design capture volume would have to exceed the costs of overcoming any of the factors on a property that limit LID. In some cases, this may be costly, involve changing zoning, overcoming local opposition to certain forms of development, mitigating traffic impacts, or providing funding for more police and fire services.

The Co-permittees have not reported and Regional Board staff is unaware of any evidence that those discounts have been effective at motivating the Co-permittees or the development community to alter development patterns in Orange County or to produce more LID projects than would have been produced without the discounts. Because of this, the discounts have been an unnecessary compromise on the protection of water quality. Therefore, this Order no longer allows the Co-permittees to provide discounts on the design capture volume. This Order does not require the Co-permittees to take back any discounts granted before the effective date of the Order.

This Order authorizes the Co-permittees to establish a water quality credit system but in a different form than the previous Permit. This Order essentially allows a project proponent to construct a LID BMP that treats runoff from a drainage area that is greater than the area of the project. The proponent is then allowed to trade the excess treatment capacity with other projects, subject to certain conditions. The 'excess' capacity is a "credit" that serves as a unit of trade between projects in the same drainage area of the same receiving water (water of the U.S.). This Order does not dictate the manner of the transaction between projects. The projects may have different owners, or they may be the same owner. But the structural treatment control that produces the credit must be a LID BMP.

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~~C.~~E. Plain Language

California Government Code Section 6219(a) states that "Each department, commission, office, or other administrative agency of state government shall write each document that it produces in plain, straightforward language, avoiding technical terms as much as possible, and using a coherent and easily readable style." This requirement is more commonly known as the State's "plain language requirement". Order No. ~~R8-2014-0002~~R8-2015-0001 and this Technical Report have been prepared with careful consideration of the plain language requirement.

There are a variety of indicators for measuring the 'readability' of a document. These indicators include the Flesch Kincaid Reading Ease, Flesch Kincaid Grade Level, and the Gunning Fog Score. These first two indicators are widely available in common word-processing software and were applied to the Order and Technical Report. The results indicate that a person that has achieved a college junior level of education should be able to readily understand these documents. Given the technical and legal subject matter, the readability of the Order and this Technical Report is appropriate and satisfies the State plain language requirement.

~~D.~~F. Internet References

This Order includes numerous references to web pages in order to save paper and simplify the presentation of the permit and related documents. In an electronic format, the permit and related documents may contain live links to web sites. These links and web site addresses may become broken or outdated during the term of this Order. Consequently, these references have been provided for the convenience of the reader. Regional Board staff will make every effort to update broken or outdated internet references in electronic versions of this Order posted at the Regional Board's web site. Readers who become aware of broken or outdated reference or links are asked to contact Regional Board staff in the Contact Information (Section II) above to assist in this effort.

IX. PUBLIC PROCESS AND NOTIFICATION

On October 3, 2013, the County of Orange ("County"), acting on behalf of the Co-permittees, submitted the Report of Waste Discharge ("ROWD") for the fifth-term NPDES Permit No. CAS618030 ("Permit"). At the recommendation of Regional Board staff, the ROWD emphasized changes that the Co-permittees were requesting in the new permit. The requested changes included changes to the requirements of NDPES Permit No. CAS618030 and to the accompanying Monitoring and Reporting Program.

On October 30, 2013, Regional Board staff sent the County of Orange a Notice of Incomplete Report of Waste Discharge ("Incomplete Notice"). The Incomplete Notice consisted of a cover letter and a table of responses to each of the requested changes described in the Co-permittees' ROWD. The responses largely were requests for additional information to justify the requested changes, requests for more detailed recommendations, and requests for descriptions of

how the changes would improve the Co-permittees' storm water program and how the improvement would be measured. In the Incomplete Notice, Regional Board staff requested that the County respond by November 30, 2013.

On October 30, 2013, County staff requested an extension of time to respond to the Incomplete Notice. The request was granted orally and confirmed in a letter dated November 7, 2013. The new deadline was December 18, 2013.

The November 7, 2013 letter included a request to meet and confer on the County's anticipated response. County staff was advised that their requested changes to the Monitoring and Reporting Program could be addressed after the adoption of the fifth-term Permit. In that event, Regional Board staff could withdraw requests for information in the Incomplete Notice related to changes to the Monitoring and Reporting Program. This way, efforts to change the fifth-term Permit could proceed separately from efforts to change the Monitoring and Reporting Program.

On December 11, 2013, Regional Board staff met with County staff and other representatives of the Co-permittees. During that meeting Regional Board staff agreed to limit the scope of the October 30, 2013 Incomplete Notice to exclude matters related to the Monitoring and Reporting Program. County staff also outlined their anticipated response to the Incomplete Notice. Subsequent to that meeting, Regional Board staff amended the Incomplete Notice to limit the scope accordingly in a letter dated December 12, 2013.

On April ~~X~~28, 2014, Administrative Draft Order No. R8-2014-0002 was released to the Co-permittees for review. Comments were received which resulted in changes to the draft document before its public release. On May 2, 2014 Draft Order No. R8-2014-0002 was released for public comment. Complete public notice was not provided until May 7, 2014. Consequently, the public comment period was extended until June 20, 2014.

As part of the comment period for Draft Order No. R8-2014-0002, Regional Board staff held a Public Workshop on May 19, 2014 at the Orange County Water District offices in Fountain Valley. A second workshop was held during a scheduled Board Meeting on June 13, 2014 at the same location. During these workshops, oral comments were heard and questions were answered. Attendees were given an opportunity to submit written comments.

As an outgrowth of the May 19, 2014 Public Workshop, Regional Board staff met with County staff and the principal authors of the 2011 Model WQMP and Technical Guidance Document on July 23, 2014. The focus of this meeting was to address unintended changes to the requirements of Section XII. Teleconferences were also held with USEPA staff on July 16, 2014 and with both USEPA staff and staff of the San Diego Regional Water Quality Control Board on July 23, 2014. Other communications with the public occurred. These include a meeting held with Orange County Coastkeeper on June 5, 2014; a teleconference with The Irvine Company representatives on May 27, 2014; and a teleconference with representatives of The Disney Resort on July 1, 2014.

On December 18, 2014, Draft Order No. R8-2014-0002 was re-released to the public for comment as Draft Order No. R8-2015-0001 in anticipation of adoption in early 2015.

X. ECONOMIC CONSIDERATIONS

California Water Code Section 13241 requires the Santa Ana Regional Water Quality Control Board to consider certain factors, including economic considerations, in the adoption of water quality objectives. California Water Code Section 13263 requires the Santa Ana Regional Water Quality Control Board to take into consideration the provisions of California Water Code Section 13241 in adopting waste discharge requirements.

In *City of Burbank v. State Water Resources Control Bd.* (2005) 35 Cal. 4th 613, the California Supreme Court considered whether regional boards must comply with California Water Code Section 13241 when issuing waste discharge requirements under California Water Code Section 13263(a) by taking into account the costs a Co-permittee will incur in complying with the permit's requirements. The Court concluded that whether it is necessary to consider such cost information depends on whether those restrictions meet or exceed the requirements of the federal Clean Water Act. The Court ruled that regional boards may not consider the factors in California Water Code Section 13241, including economics, to justify imposing pollutant restrictions that are less stringent than applicable federal law requires.

California Water Code Section 13377 specifies that discharge permits issued by regional boards must meet the federal standards set by federal law. In effect, Section 13377 forbids a regional board from considering any economic hardship on the part of the permit holder if doing so would result in the dilution of the

requirements set by Congress in the Clean Water Act. Similarly, Section 13263 cannot authorize what federal law forbids and cannot authorize a regional board to use compliance costs to justify pollutant restrictions that do not comply with the Clean Water Act. However, when conditions or provisions in an NPDES permit are more stringent than federal law requires, California Water Code Section 13263 requires that the regional board consider the factors described in California Water Code Section 13241 as they apply to those specific conditions or provisions.

As described in Section VI.E. above, the Regional Board finds that the conditions and provisions of this Order are not more stringent than the minimum federal requirements. Clean Water Act sections 402(p)(3)(B)(ii) and (iii) require MS4 permits to include requirements to effectively prohibit non-storm water discharges into the MS4s; to require controls to reduce the discharge of pollutants in in storm water to the maximum extent practicable; and such other provisions as the USEPA or the State determines appropriate.

The requirements in this Order may be more specific and detailed than those in the federal regulations under 40CFR122.26 or in USEPA guidance, but they are not more stringent. The requirements have been designed to be consistent with and within the federal statutory requirements in Clean Water Act sections 402(p)(3)(B)(ii) and (iii) and the related federal regulations and guidance. Consistent with federal law, all of the conditions and provisions in this Order could have been included in a permit adopted by USEPA in lieu of a permit issued by the State through the regional boards.

The inclusion of numeric Water Quality-Based Effluent Limits in this Order (e.g. WLAs and related TMDL requirements) does not cause this Order to be more stringent than federal law. Federal law authorizes both narrative and numeric effluent limitations to meet state water quality standards. Both are equally allowable and the inclusion of either or both best management practice-based or wWater qQuality-bBased eEffluent Limits does not make an NPDES permit more stringent. Therefore, the Regional Board is not required to consider the factors set forth in California Water Code Section 13241.

Similarly, the Regional Board is not required to consider the factors in California Water Code Section 13241 to adopt permit requirements for the effective prohibition on the discharge of non-storm water discharges into the MS4; or for controls to reduce the discharge of pollutants in storm water to the MEP; or other

provisions that the Regional Board has determined appropriate. These general requirements are mandated by federal law.

This Order includes monitoring and reporting requirements that are designed to demonstrate that the Co-permittees are complying with the municipal storm water requirements of the Clean Water Act. Clean Water Act Section 308(a) and ~~40 CFR~~40CFR122.41(h), (j) through (l); 122.44(i); and 122.48 require that NPDES permits specify monitoring and reporting requirements. Monitoring and reporting requirements are also required by 40CFR122.26(d)(1)(iv)(D); 122.26(d)(1)(v)(B); 122.26(d)(2)(i)(F); 122.26(d)(2)(iii)(D); 122.26(d)(2)(iv)(B)(2); and 122.42(c). The Regional Board is also authorized by California Water Code Section 13383 to establish monitoring, reporting, and recordkeeping requirements that implement federal and state laws and regulations through NPDES permits.

Notwithstanding the above, the Regional Board has taken into account economic considerations. In doing so, however, it is not necessary for the Regional Board to perform a Cost-Benefit analysis or other formal economic analyses. Because of the lack of comprehensive or sufficiently-reliable economic data on both costs and benefits, performing a formal economic analysis is not practical at this time. However, the Regional Board will consider what limited economic information is available.

The USEPA, the State Water Resources Control Board, and the regional boards have attempted to evaluate the costs and benefits of municipal storm water programs. The resulting studies show a large variability in reported costs and that there is difficulty in obtaining reliable cost information.

In 1999, the USEPA summarized the conclusions of multiple studies performed to determine the cost of storm water management programs as part of its Phase II expansion of the NPDES storm water program[4]. The USEPA determined that the range of benefits from its Phase II expansion exceeds the range of regulatory costs. As part of their analysis, the USEPA reported that, based on appropriate cost data provided by 26 MS4 operators subject to Phase I, the average annual program costs were $9.08 per household (1998 dollars)[5]. The USEPA also reported that the average annual Phase II program costs were $9.16 per

[4] Federal Register/Vol. 64 No. 235/Wednesday, December 8, 1999/Rules and Regulations. P. 68791-68792.
[5] USEPA's cost estimates should be regarded as gross indicators of compliance costs, not actual compliance costs. See Government Accountability Office, May 2007. Further Implementation and Better Cost Data Needed to Determine Impact of EPA's Storm Water Program on Communities. GAO-07-479.

household (1998 dollars), comparable to the per-household costs of the Phase I program.

In 2003, staff of the Los Angeles Regional Water Quality Control Board performed a study of Phase I MS4 program costs[6]. Self-reported cost data provided in the MS4 operators' annual reports was used. The average annual cost in Los Angeles County was estimated to be $12.50 per household (2002 dollars)

In 2005, the State Water Resources Control Board commissioned a study by the California State University, Sacramento to assess costs of the Phase I MS4 program throughout the state[7]. The annual cost ranged from $18 to $46 per household (2005 dollars). The Fresno-Clovis Metropolitan Area represented the lower end of the range and the city of Encinitas represented the upper end.

For comparison purposes, the per-household cost information above has been adjusted for inflation using the average Consumer Price Index. All values were adjusted to 2013 dollars. The results are ~~shown~~ summarized in Table TR-1 below.

Table TR-1: Comparison of estimates of Annual ~~-~~MS4 program costs (per household)

Study	Reported Value(s)	Inflation-Adjusted Value (2013 dollars)
USEPA, 1999	$9.08 (Phase I) $9.16 (Phase II)	$12.98 (Phase I) $13.10 (Phase II)
Los Angeles Regional Water Quality Control Board, 2003	$12.50	$16.19
State Water Resources Control Board, 2005	$18 to $46	$21.48 to $54.90

[6] Los Angeles Water Quality Control Board, 2005. Review and Analysis of Budget Data Submitted by the Permitees for Fiscal Years 2000-2003. P. 2.
[7] State Water Resources Control Board, 2005. NPDES Stormwater Cost Survey. P. ii.

A proper economic analysis of the cost of the Phase I program would involve a comparison of the MS4 operators' costs with and without the Phase I program. The result would be the marginal cost. Many of the reported Phase I program costs are not attributed solely to the program. In many cases, program elements such as street sweeping and litter control in general, are services that have been performed by the MS4 operators long before they were required by any Clean Water Act permit.

Therefore, the actual costs of the Phase I program for a Co-permittee is some portion of the reported costs. The State Water Resources Control Board's 2005 study, discussed earlier, estimated that 38% of the reported program costs could be fully attributed to the MS4 permits. The remainder was attributed to the costs of pre-existing services provided by the Co-permittees[8]. Similarly, in their 2000 Annual Progress Report, the County of Orange reported that 20% of the program costs could be fully attributed to the MS4 permit[9, 10].

California Water Code Section 13241 includes the need to consider "economic considerations" under certain circumstances. Economic considerations include both the costs of compliance and also the economic benefit of protecting the beneficial uses of waters of the state. There is some information available to estimate the costs of MS4 permits. However, this is often not the same for estimating the benefits of protecting beneficial uses. Some beneficial uses, such as Industrial Process Supply for example, may have their value more readily monetized because there is a well-established market for the resource.

For other beneficial uses, monetizing their value is much more difficult largely because the benefits are intangible. Certain techniques, such as Willingness to Pay and Travel Cost Analysis, have been employed by the USEPA at a national scale and in local studies in the Santa Ana Region, to value such things as beach recreation (a proxy for Water Contact and Non-Water Contact Recreation beneficial uses). But these techniques are more costly, typically requiring surveys of users or potential users. As the result, they are infrequently employed. However, two studies are useful in this report.

As part of their Phase II expansion of the NPDES program, the USEPA estimated that willingness to pay ~~to~~ for improvements in freshwater quality for fishing and boating is approximately $158 to $210 per household (1998

[8] *Ibid*, P. 58.
[9] County of Orange, 2000, 2000 Annual Progress Report, P. 60.
[10] More recent data from the County of Orange is not available because the County no longer reports it.

dollars)[11]. Another study, conducted by California State University, Sacramento, reported that the annual household willingness to pay for state-wide clean water is approximately $180 per household (2005 dollars)[12].

Both of the above studies represent efforts to estimate the benefits of protecting beneficial uses. Both of these estimates considerably exceed the annual per-household costs of the MS4 programs summarized in Table TR-1 above for roughly the same years (1998 and 2005)[13].

XI. GENERAL EXPLANATION OF PERMIT REQUIREMENTS

This Order is fundamentally based, in part, on the standard described in Clean Water Act Section 402(p)(3)(B)(iii), requiring "controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design, and engineering methods, and. " ~~Section 402(p)(3)(B)(iii) also requires "~~such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." Further details on the basis of this Order are provided elsewhere in this Technical Report.

The "maximum extent practicable" ("MEP") standard is the federal technology-based standard that MS4 owners and operators must satisfy to comply with this Order. The regulatory provisions that further detail the MEP standard are found in ~~40 CFR~~40CFR Sections 122.26(d)(2)(iv) and 122.44(k)(2). Section XII of this Technical Report further explains the requirements of this Order which implement the more detailed regulatory provisions.

Section 301(b)(1)(A) of the Clean Water Act and ~~40 CFR~~40CFR Section 122.44(a) require that NPDES permits include technology-based effluent limitations.

A technology-based effluent limitation is based on the capability of a model treatment method to reduce a pollutant to a certain concentration. Technology-based effluent limitations, in this case the MEP standard, represent the minimum level of control that must be imposed in a permit issued pursuant to Clean Water Act Section 402.

[11] *Ibid*. P. 68793.
[12] State Water Resources Control Board, 2005. NPDES Storm Water Cost Survey. P. iv.
[13] It is not necessary to adjust these figures for inflation because they can be appropriately compared to costs that occur in the same years (1998 and 2005 respectively).

Neither Congress nor the USEPA has specifically defined the term "maximum extent practicable". Rather, the MEP standard is a flexible and evolving standard. Congress established the MEP standard so that administrative bodies would have "the tools to meet the fundamental goals of the Clean Water Act in the context of storm water pollution"[14]. The standard allows permit writers flexibility to tailor permits to the site-specific nature of MS4s and to require a combination of pollution controls that differ in different permits[15].

To provide clarification to the regional water quality control boards, the State Water Resources Control Board's Office of Chief Counsel issued a memorandum dated February 11, 1993 regarding the definition of "maximum extent practicable". In the memorandum, the Office of Chief Counsel interpreted the MEP standard to entail a "serious attempt to comply" and that "practical solutions may not be lightly rejected". The memorandum states, "[in] selecting BMPs which will achieve MEP, it is important to remember that municipalities will be responsible to reduce the discharge of pollutants in storm water to *the maximum extent practicable*. This means choosing effective BMPs, and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, the BMPs would not be technically feasible, or the cost would be prohibitive." The memorandum further states that, "[after] selecting a menu of BMPs, it is of course the responsibilities of the discharger to insure that all BMPs are implemented."

This Order includes requirements for the implementation of programs in accordance with ~~40 CFR~~40CFR Sections 122.26(d)(2)(iv)(A) through (D). In summary, these requirements are intended to implement:

1) control measures to reduce pollutants in runoff from commercial and residential areas;
2) programs to detect and remove illicit discharges and improper disposal into the MS4;
3) programs monitor and control pollutants from certain industrial facilities; and
4) programs to implement and maintain structural and non-structural BMPs to reduce pollutants in storm water runoff from construction sites.

[14] Building Industry Ass'n of San Diego County v. State Water Resources Control Board (2004) 124 Cal.App.4th 866, 884.
[15] In re City of Irving, Texas, Municipal Storm Sewer System, (July 16, 2001), 10 E.A.D. 111 (E.P.A.), *6.

All of these programs have been detailed in the Co-permittees' 2003 DAMP and related planning documents. The essential elements of the programs have been synthesized from those documents and incorporated into the requirements of this Order.

This Order also includes numeric design standards for storm water runoff from new development and redevelopment in support of the MEP standard. The inclusion of these numeric design standards is supported by State Water Resources Control Board Order WQ 2000-11. Order WQ 2000-11 established that numeric design standards for BMPs are not separate BMPs or water quality standards. They are a more detailed description of the "maximum extent practicable" standard.

–This Order also includes more specific requirements for carrying out the "iterative process" of periodically evaluating and modifying or adding BMPs. A working model of the "iterative process" is described in Section VIII.B. of this Technical Report. The general provisions in Section I of the Order have been designed to enforce each of the steps of the "iterative process". The "iterative process" is further reinforced by other provisions throughout the Order. These requirements support the MEP standard's evolving and flexible nature.

The Order uses the language "each Co-permittee" or "a Co-permittee" in many provisions to require performance of specific tasks, to accomplish a goal, or to have certain processes or mechanisms. This language is intended to clearly indicate the responsible party for satisfying the provision. The language is not intended to dictate the specific manner in which the provision must be satisfied. The use of "a Co-permittee" or the "Principal Permittee" in a provision does not prohibit a Co-permittee from performing actions on behalf of the Principal Permittee or vice versa to comply with the provision.

For example, each Co-permittee may adopt its own specific mechanisms to satisfy a permit requirement or the Co-permittees may collectively develop a uniform mechanism that is adopted by each of them. In the event that a required mechanism is not adopted, this language makes it clear that the Co-permittee ~~lacking~~ who lacks the mechanism is responsible for the violation and not the Principal Permittee or the Co-permittees collectively.

The Order has been written to include virtually all of the requirements of the fourth-term permit. As explained above, the Order also incorporates key elements of the 2003 DAMP and its companion documents. In particular, the

Order incorporates elements of the 2011 Model Water Quality Management Plan and the Technical Guidance Document. However, the elements are not incorporated verbatim or incorporated by reference. Instead, the Order generally requires that the Co-permittees have effective processes or mechanisms to accomplish various purposes. In most cases, this Order does not dictate an outcome. Where specific outcomes are dictated (e.g. 10 Million "impressions"), they are typically carried over from the previous permit.

The processes and mechanisms required by this Order are based on those described or inferred from the Co-permittees' existing program. The Co-permittees' program is largely found in the 2003 DAMP and its companion documents and the LIPs. As explained earlier, Regional Board staff has found that the program, as practiced, is not always documented. In addition, Regional Board staff found through audits that certain important processes or mechanisms were absent from the Co-permittees' planning documents, were not in place, or were deficient. This Order includes requirements for processes and mechanisms that represent an attempt to more fully flesh out the Co-permittees' programs and address these issues.

The Co-permittees have various plans and programs whose development predates this Order. This Order avoids describing these plans and programs by their names. This approach avoids the appearance that the contents of those preexisting plans and programs supersede the requirements of this Order. This also prevents confusion in the event that the Co-permittees update, re-name, or re-organize the plans or programs. Instead, this Order requires that the Co-permittees have written plans and programs, and then describes their required elements. ~~This approach avoids the appearance that the contents of those preexisting plans and programs supersede the requirements of this Order~~. Although many plans and programs certainly exist, they must ultimately comply with this Order. In some cases, this may mean that those plans and programs will need to be reviewed and updated in order for the Co-permittees to comply with this Order.

The federal NPDES regulations require applicants for MS4 permits to develop a proposed management program (~~40 CFR~~40CFR Section 122.26(d)(2)(iv)). The management program must include a "comprehensive planning process" and, where necessary, "intergovernmental coordination" for the "duration of the permit". The continued requirement for written plans and programs satisfies the federal requirement for a "proposed management program".

Lastly, as explained further in Section XII below, this Order changes the requirements for New Development so that there is no preference to the use of structural treatment control BMPs either on or off-site. This Order does make it easier for a project proponent to use an off-site structural treatment control where it is available. This is accomplished principally by not requiring that on-site structural treatment control BMPs be demonstrated to be infeasible before allowing the use of an off-site facility.

XII. EXPLANATION OF SPECIFIC PERMIT REQUIREMENTS

A. Sections I and II: General Responsibilities

Sections I and II establish the basic responsibilities of all of the Co-permittees, including the Principal Permittee. These Sections are designed to require implementation of the "iterative process". This process includes planning and documentation of program activities, execution, tracking of outcomes, and evaluation through comparison with performance metrics. These requirements are included in this Order pursuant to Clean Water Act Section 402(p)(3)(B)(iii) which, in part, allows the state to include provisions appropriate for the control of pollutants.

These Sections also describe the basic responsibilities for internal and external coordination within and among the Co-permittees respectively according to 40CFR122.26(d)(2)(i)(D) and (d)(2)(iv). These Sections require maintenance of records and the submission of reports that are adequate to determine compliance. Finally, these Sections require that the Co-permittees establish and maintain adequate legal authority to carry out the responsibilities necessary to comply with this Order according to 40CFR122.26(d)(2)(i).

B. Section III: Discharge Limitations/Prohibitions

Section III emphasizes the Co-permittees' responsibility to effectively prohibit the discharge of illicit/illegal discharges into their MS4s, unless authorized by a separate NPDES permit, or not otherwise prohibited as described. Clean Water Act Section 402(p) and 40CFR122.26(2)(iv)(B)(1) form~~s~~ the basis of the requirements of this Section. MS4 permits (1) "shall include a requirement to effectively prohibit non-storm water discharges into the storm sewers" and (2) "shall require [i] controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and [ii] such other provisions as the

Administrator or the State determines appropriate for the control of such pollutants." (CWA § 402(p)(3)(B)(ii-iii)).

To satisfy these requirements, Section III expressly requires the Co-permittees to effectively prohibit discharges into the MS4 unless authorized by an NPDES permit. This section also prohibits discharges where pollutants have not been reduced to the MEP, with some exceptions. Section III includes provisions that prescribe programs to reduce allowable non-storm water discharges from both private and public property.

Discharges that are not prohibited are described in Table 2 and are exempt from the non-storm water discharge prohibition. These discharges have been continued from the previous permit with changes. Many of the discharges in Table 2 are listed in ~~40 CFR~~40CFR ~~1~~40CFR122.26(d)(2)(iv)(B)(1) as being exempt unless "such discharges or flows are identified as significant sources of pollutants" to waters of the U.S.

At the urging of USEPA, Table 2 now includes discharges authorized by USEPA pursuant to Sections 104(a) or 104(b) of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"). These discharges typically consist of short-term, high-volume discharges from groundwater extraction well development or redevelopment or from state-required testing of potable water treatment plants, and occur as part of USEPA-authorized groundwater remediation action under CERCLA.

Additionally, at the urging of USEPA, Table 2 now excludes irrigation water. This type of non-storm water discharge must now be effectively prohibited by the Co-permittees because the Regional Board has found that it is a significant source of pollutants. Irrigation water is often a vehicle for transporting other pollutants, such as metals, that are deposited in MS4s from other sources, but it is more often a source of nutrients, pathogens, and pesticides. These three pollutants are of particular concern because many of the receiving waters in the permitted area have been listed pursuant to Clean Water Act Section 303(d) as being impaired by these or closely-related pollutants.

The 2010 303(d) List of Impaired Water Bodies includes Upper and Lower Newport Bay, impaired, in part, by indicator bacteria, nutrients, pesticides, and toxicity. The List also includes Santa Ana River Reach 2, impaired in part by indicator bacteria; Anaheim Bay, impaired in part by sediment toxicity; Bolsa Chica Channel, impaired in part by unionized ammonia and indicator bacteria; Huntington Harbor, impaired in part by pathogens and sediment toxicity; and the East Garden Grove-Wintersburg Channel, impaired by unionized ammonia.

While irrigation runoff may convey these and other pollutants, irrigation runoff has been a recognized source of indicator bacteria, nutrients, and pesticides from the irrigated site.

In the San Diego Creek watershed, the Co-permittees observed that irrigation overspray and lawn drainage was the most frequent runoff-generating activity and represented the highest collective amount of runoff volume[16]. Irrigation has also been identified as playing a key role in mobilizing pollutants such as pesticides[17]. Pesticides are suspected of being responsible for most of the toxicity observed as part of the Newport Bay Watershed Toxicity Study[18]. Researchers have concluded that strategies to address pesticides in surface runoff must address both storm and irrigation runoff to successfully reduce aquatic toxicity from pesticides[19]. In the San Diego Creek watershed, dry-weather runoff from urban areas accounts for 20 to 25% of the annual total nitrogen load[20]. In other watersheds where load contributions from contaminated groundwater are lower, this proportion is likely to be higher. Urban dry-weather runoff is suspected of being a likely contributing factor to dry-weather exccedances of the Newport Bay Watershed *Fecal Coliform* TMDL[21] [22]. Additionally, the Co-permittees have observed that the occurrence of flow from nearby storm drains may contribute to the frequency of exceedances of Enterococcus standards[23]. Reducing residential irrigation runoff will reduce waste loads to receiving waters through reductions in discharge volumes. In addition, practices to reduce irrigation runoff may reduce concentrations of some wastes in dry weather runoff[24].

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[16] Orange County Resources Development and Management Department, Watershed & Coastal Resources Division, Urban Nutrient Source Characterization, Final Report, SWRCB Agreement No. 02-165-258-0-Task 5.8, April 28, 2006.
[17] Haver, Darren L. and Fox, Angelia, March 2008. Mitigating Pesticide Runoff in Urbanized Environments, Final Report, SWRCB Agreement No. 04-013-558-0.
[18] Bailey, Howard C., *et al*., June 10, 1993. Newport Bay Watershed Toxicity Study, University of California, Davis, Dept. of Medicine, School of Veterinary Medicine, Interagency Agreement No. 1-146-258-0.
[19] Haver, Darren L. and Fox, Angelia, March 2008. Mitigating Pesticide Runoff in Urbanized Environments, Final Report, SWRCB Agreement No. 04-013-558-0.
[20] Irvine Ranch Water District and Municipal Water District of Orange County, "The Residential Runoff Reduction Study", July 2004.
[21] Ibid.
[22] Grant, Stanley G., *et al*. July 26m, 2009. Newport Bay Fecal Indicator Bacteria Source Identification Project, Henry Samueli School of Engineering, University of California – Irvine and Orange County Public Health, SWRCB Agreement No. 04-198-558-2.
[23] Orange County Public Works Department, OC Stormwater Program, 2011-2012 Unified Annual Progress Report, Section C-11.0, December 6, 2012.
[24] Irvine Ranch Water District and Municipal Water District of Orange County, "The Residential Runoff Reduction Study", July 2004.

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The Co-permittees' effective prohibition on irrigation runoff incidentally supports the Governor's Proclamation No. 1-17-2014, declaring a State of Emergency due to severe drought conditions and the Governor's related April 25, 2014 Executive Order. The effective prohibition will also incidentally support State Water Resources Control Board Resolution No. 2014-0038 and subsequent emergency water conservation regulations in California Code of Regulations, title 23, Sections 863, 864, and 865. The removal of irrigation water from the types of non-storm water discharges that do not have to be effectively prohibited by the Co-permittees is consistent with similar actions taken by the San Diego and Los Angeles Regional Water Quality Control Boards.

This Order authorizes the Co-permittees to discharge certain non-storm water subject to limitations and prohibitions. ~~"~~*De Minimi~~s~~s*~~"~~ discharges are authorized by this Order, subject to the requirements of NPDES Permit No. CAG998001. ~~The requirements include the need to submit a report of waste discharge in any allowable format, including submittal of a Notice of Intent form. However, the Co-permittees are encouraged to submit these reports of waste discharge in a uniform electronic format.~~

Additional non-storm water discharges that are not authorized by separate NPDES permits or exempted in Table 2 are authorized by this Order. These include discharges from swimming pools and diversions from waters of the U.S. This Section also includes various limitations and prohibitions which are permitted by ~~40 CFR~~40CFR Section 122.44. ~~40 CFR~~40CFR Section 122.44 allows the use of discharge prohibitions, technology-based effluent limitations, and water quality-based effluent limitations. All of the limitations and prohibitions in this Order are continued from the previous Permit and are derived from the Basin Plan or existing NPDES permits.

C. Section IV: Receiving Water Limitations

Section IV has been modified to more closely align with the State Water Resources Control Board's precedential orders described in Section VII of this Technical Report. The language of this Section was modified particularly to align with language found in Order No. 99-05.

Receiving water limitations are included in all NPDES permits issued pursuant to CWA section 402. Section 402(p)(3)(B)(iii) of the CWA authorizes the inclusion of "such other provisions as the Administrator or the State determines appropriate for the control of [] pollutants." This requirement gives USEPA or the State permitting authority discretion to determine what permit conditions are necessary

to control pollutants. In its Phase I Storm Water Regulations, Final Rule, USEPA elaborated on these requirements, stating that, "permits for discharges from municipal separate storm sewer systems must require controls to reduce the discharge of pollutants to the maximum extent practicable, and where necessary water quality-based controls" (see 55 Fed. Reg. 47990, 47994 (Nov. 16, 1990)). USEPA reiterated in its Phase II Stormwater Regulations, Final Rule, that MS4 "permit conditions must provide for attainment of applicable water quality standards (including designated uses), allocations of pollutant loads established by a TMDL, and timing requirements for implementation of a TMDL."[25] USEPA Region IX has also affirmed the agency's position that MS4 discharges must meet water quality standards in a series of comment letters on MS4 permits issued by various California regional water boards[26].

California Water Code section 13377 requires that NPDES permits include limitations necessary to implement water quality control plans. Both the State Water Board and Regional Water Board have previously concluded that discharges from the MS4 contain pollutants that have the reasonable potential to cause or contribute to excursion above water quality standards. As such, inclusion of receiving water limitations is appropriate to control MS4 discharges.

The inclusion of receiving water limitations is also consistent with the Ninth Circuit Court of Appeal's ruling in *Defenders of Wildlife v. Browner* (191 F.3d 1159, 1166 (1999)). This ruling shows that the permitting authority has discretion regarding the nature and timing of requirements that it includes as MS4 permit conditions to attain water quality standards.

The Ninth Circuit Court of Appeals recently explained that, "[w]ater quality standards are used as a supplementary basis for effluent limitations [guidelines] so that numerous dischargers, despite their individual compliance with technology based effluent limitations, can be regulated to prevent water quality from falling below acceptable levels" (*NRDC v. County of Los Angeles* (2011) 673 F.3d 880, 886). Receiving water limitations are necessary to protect the beneficial uses of the receiving waters and are included in this Order to ensure that individual and collective discharges from the MS4 do not cause or contribute to exceedances of water quality standards.

The receiving water limitations in this Order consist of all applicable numeric or narrative water quality objectives or criteria, or limitations to implement the

[25] See, e.g., Phase II Stormwater Regulations, Final Rule, 64 Fed. Reg. 68722, 68737.
[26] See, e.g., letter from Alexis Strauss, Acting Director, Water Division, USEPA Region IX, to Walt Pettit, Executive Director, State Water Board, re: SWRCB/OCC File A-1041 for Orange County, dated January 21, 1998.

applicable water quality objectives or criteria for receiving waters contained in Chapter 4 of the Basin Plan, or in water quality control plans or policies adopted by the State Water Resources Control Board ("State Board"). These include Resolution No. 68-16. Or in federal regulations, these water quality objectives or criteria include, but are not limited to, ~~40 CFR~~40CFR ~~sections~~ 131.12 and 131.38. The water quality objectives in the Basin Plan and other State Board plans and policies have been approved by USEPA. Combined with the designated beneficial uses, the water quality objectives constitute the water quality standards required under federal law.

The receiving water limitations language in this Order is based on precedential State Board Orders WQ 98-01 and WQ 99-05. This Order includes three main provisions related to receiving water limitations. First, consistent with CWA Section 402(p)(B)(3)(iii) and ~~40 CFR~~40CFR section 122.44(d)(1), it includes a provision stating that discharges from the MS4 that cause or contribute to an exceedance of receiving water limitations are prohibited. This is also in accord with the State Water Board's finding in Order WQ 98-01 ("The [State Board] agrees that the NPDES permit must prohibit discharges that "cause" or "contribute" to violations of water quality standards."). Second, it includes a provision stating that discharges from the MS4 of stormwater or non-stormwater, for which a Permittee is responsible, shall not cause or contribute to a condition of nuisance[27].

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Third, it includes a provision that states that Permittees shall achieve these two prohibitions "through timely implementation of control measures and other actions to reduce pollutants in the discharges in accordance with the storm water management program and its components and other requirements of this Order including any modifications." This third provision elucidates the process by which Permittees are expected to achieve the first two provisions and then outlines the "iterative process" whereby certain actions are required when exceedances of receiving water limitations occur and discharges from the MS4 are implicated.

To implement this "iterative process", Section IV of this Order requires the development of a plan revising the storm water management program and its components to include additional BMPs, an implementation schedule and additional monitoring to address the exceedances; and implementing the revised storm water management program. The plan must also include a 'reasonable

[27] Wat. Code, § 13377 ("the state board or the regional boards shall . . . issue waste discharge requirements and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the [CWA], thereto, together with any more stringent effluent standards or limitations necessary to implement waste quality control plans, or for the protection of beneficial uses, or to prevent nuisance").

assurance' that proposed actions will achieve water quality standards as soon as possible. An analysis that provides 'reasonable assurance' is not expected to provide absolute assurance, but nevertheless, a high level of assurance. A reasonable assurance is expected to be supported by evidence that provides a reasonable basis to conclude that the Co-permittees' actions will achieve final WQBELs and that the evidence does not support alternative, conflicting conclusions. Staff at the Los Angeles Regional Water Quality Control Board have developed several resources for preparing a reasonable assurance analysis[28].

~~-~~In addition, t~~T~~his protocol for implementing the "iterative process" ~~also~~ includes assessing the effectiveness of BMPs based in part on monitoring results; and, based on the results of the assessment, taking additional actions such as implementing additional BMPs and/or modifying BMPs to improve their effectiveness. This protocol must be repeated until water quality standards are met. This protocol is consistent with USEPA's expectations for MS4 permits[29].

The "iterative process", as described above and in the Order is driven by a cycle of monitoring, analysis, and reporting that is required in Subsection II.B.3. of the Monitoring and Reporting Program. The timing of cycles for each pollutant are not expected to be uniform but are not permitted to exceed once every 5 years. If at the conclusion of a cycle, water quality standards continue to not be met, the "iterative process" must be repeated. This will include updating the reasonable assurance analysis and changes to the responsible Co-permittees' storm water programs.

D. Section V: Implementation Agreement

Section V requires that the Co-permittees have inter-agency and inter-Co-permittee agreements that are necessary to satisfy the requirements of the Order. Various agreements have been reported to exist to carry out certain programs, such as the ~~SSO~~ Sanitary Sewer Overflow program. Some agreements may need to be reviewed and updated in order to comply with the Order. Section V is supported by ~~40 CFR~~40CFR Section 122.26(d)(2)(i) which recognizes that a "series of contracts" may be necessary to comply with an MS4

[28] E.g. Los Angeles Regional Water Quality Control Board, "Guidelines for Conducting Reasonable Assurance Analysis in a Watershed Management Program, Including an Enhanced Watershed Management Program", March 25, 2014.

[29] See, e.g., USEPA 2014~~02~~ memorandum, "Revisions to the November 22, 2002 Memorandum 'Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs.'"

permit; and by ~~40 CFR~~40CFR Section 122.26(d)(2)(i)(D), which requires "interagency agreements among coapplicants" for MS4 permit coverage.

E. Section VI: Legal Authority/Enforcement

Section VI largely continues requirements that the Co-permittees secure and maintain the legal authority to control the discharge of pollutants according to the requirements of this Order. In summary, ~~40 CFR~~40CFR ~~1~~122.26(d)(2)(i) requires applicants for MS4 discharges to demonstrate adequate legal authority that enables them to: control the contribution of pollutants from industrial activity; prohibit illicit discharges; control spills, dumping, or disposal of materials other than storm water; control the contribution of pollutants between MS4s through interagency agreements; require compliance with ordinances, permits, contracts, or orders; and carry out inspection, surveillance, and monitoring procedures necessary to determine compliance. Section VI is intended to support the requirements of ~~40 CFR~~40CFR ~~1~~122.26(d)(2)(i).

This Order describes requirements but does not grant the Co-permittees any authorities that may be necessary to comply. The Co-permittees typically secure this authority through their municipal ordinances. All of the Co-permittees are reported to have adopted model water quality ordinances to comply with past versions of this Order. These water quality ordinances include measures to enforce compliance through inspections and sanctions if necessary.

This Order, and past versions, requires the Co-permittees to impose a series of effective, progressive ~~sanctions~~ actions to compel compliance with regulatory requirements related the control of discharges of pollutants to their MS4s. This Order adds new requirements for the Co-permittees to track and evaluate challenges to their authority. Where a valid challenge is discovered, the Co-permittees must report it along with a plan to make their authority adequate.

F. Section VII: Illicit Discharges, Illicit Connections, and Illegal Dumping; Litter, Debris and Trash Control

Section VII includes requirements intended to cause the Co-permittees to effectively prohibit illicit discharges and illicit connections ("ID/IC") ~~-~~and to detect and remove improper disposal to MS4s in accordance with ~~40 CFR~~40CFR ~~1~~40CFR122.26(d)(2)(iv)(B). Illicit discharges are defined in the Glossary of this Order. ~~and exclude d~~Dischargs that are authorized under an NPDES permit are not illicit discharges. As noted there, the definition provided in the Glossary comes from ~~40 CFR~~40CFR ~~1~~40CFR122.26(b)(2).

In its 1990 rulemaking, USEPA explained that the illicit discharge detection and elimination program requirement was intended to begin to implement the Clean Water Act's provision requiring permits to "effectively prohibit non-storm water discharges." (55 Fed.Reg. 47990, 47995.) Discharges in Table 2 of this Order are not illicit discharges. Illicit connections are not defined in this Order but are conveyances for illicit discharges.

Section VII clarifies the Co-permittees' responsibilities with respect to illegal dumping (or improper disposal), which was described briefly in the previous permit. The Co-permittees' responsibility is limited to illegally dumped material that has the potential to result in a discharge of pollutants to an MS4. This Order also clarifies that Sanitary Sewer Overflows ("SSOs") are a sub-class of illicit discharges consistent with 40CFR122.26(d)(2)(iv)(B)(4) and (7).

Section VII describes requirements for programs to address illicit discharges, illicit connections, and illegal dumping. These requirements are based on the Co-permittees' current ID/IC program, the "Countywide Area Spill Control Program", and State Water Resources Control Board Order No. 2006-0003-DWQ, "Statewide General Waste Discharge Requirements for Wastewater Collection Agencies" (Order No. 2006-0003-DWQ).

–Except for general requirements for IDICs as a whole, this Order does not create new SSO requirements for Co-permittees already subject to Order No. 2006-0003-DWQ. This Order includes requirements for the purpose of causing Co-permittees to cooperate in efforts to eliminate SSOs. SSOs are prohibited by Order No. 2006-0003-DWQ (Provision C.1.) and are a form of illicit discharge which the Co-permittees must effectively prohibit. This Order does not require that Co-permittees who do not operate wastewater collection systems take on any responsibilities or liabilities of system operators. The exact nature of the cooperative relationship between wastewater collection system operators and non-operator Co-permittees is left to the Co-permittees' discretion but it must be consistent with a genuine effort to effectively prohibit SSOs.

Section VII requires that the Co-permittees initiate source investigations based on objective and subjective dry-season monitoring results. Source investigations are triggered by subjective observations and statistical thresholds for hydrology and pollutant parameters. The thresholds are established for each monitoring station based on ongoing collections of data. According to the Co-permittees, these statistical thresholds have been developed based on control charts, which are used to identify extreme outliers in a collection of monitoring data. Extreme

outliers are monitoring results that fall outside an established number of standard deviations for the data set. These extreme values may indicate the occurrence of an illicit discharge or illicit connection. Their occurrence is a trigger for source investigations. Consequently, they function as numeric action levels.

The approach required by Section VII and practiced by the Co-permittees during the previous permit term to triggering source investigations represents an application of statistical theories for quality control[30]. ~~Applying~~ According to theories of quality control, the variation in pollutant concentrations in water quality data sets is attributed to "common causes" and "special causes". Applied to runoff quality control, special causes are identifiable, discrete events that can be corrected to improve water quality. Common causes are essentially random noise where there are no specific events that can be identified and addressed to improve water quality. Source investigations may be useful for addressing special causes, but are unlikely to be effective at addressing common causes.

In practice, control charts and similar statistical tools identify extreme outliers that may be well above water quality standards. These extreme outliers trigger source investigations that are performed to identify and eliminate their special causes. As special causes are eliminated, the variation in water quality should lessen over time. New extreme outliers can then be identified and investigated. Each successive round of investigations should eliminate more special causes, reduce variation, and improve water quality. At some point though, source investigators may not be able to identify special causes even though pollutant levels continue to exceed water quality standards. At that point, exceedances may be the result of common causes and require a different approach.

Examples where this pollutant behavior could occur are where pollutants are from ubiquitous sources, such as pathogens, nutrients, or litter. ~~In these example~~For such pollutants, source investigations would be useful to resolve discrete events, such as sewage spills, regular fertilization work by a single or group of influential dischargers such as nurseries or golf courses, or litter from scheduled festivals or other public gatherings. But source investigations would not be useful to address more random events such as pathogen, nutrient, or litter pollution caused by the collective actions of numerous independent individuals within a monitored watershed. Other more preventative BMPs, such as public education, might be more effective for common causes.

[30] E.g. Deming, W.E. (1975) On probability as a basis for action*, The American Statistician,* 29(40, p. 146-152; Wheeler, D. J. & Chambers, D. S. (1992*) Understanding Statistical Process Control,* ISBN 0-945320-13-2

The use of control charts and similar statistical tools allows the permittees to methodically use source investigations to identify and eliminate special causes of water quality standard exceedances. At the same time, the Co-permittees can avoid using source investigations on common causes, which may be more effectively addressed with more general, preventative BMPs.

Section VII also includes specific requirements for a program to reduce and/or eliminate the discharge of trash and debris to waters of the U.S. The program must include an objective evaluation of measures employed for this purpose. Those measures include 'soft measures' such as public education and litter collection, and 'hard measures' such as trash booms and structural controls. The Co-permittees are not expected to evaluate each measure individually unless doing so would be practical and would provide useful information.

Section VII includes new requirements that effectively require that the Co-permittees formally evaluate new technologies for the control of trash and debris. The Principal Permittee is also now required to demonstrate that the Co-permittees are formally evaluating new technologies. An evaluation is not necessarily required to be objective. Subjective factors, such as public safety and a structural control's ease of accessibility and maintenance, may also be considered, consistent with the MEP standard. The Principal Permittee must demonstrate that formal evaluations are occurring, and report them in the Annual Progress Report. This requirement is intended to cause the Co-permittees to actively consider new technologies, share information on those technologies, and in some situations, to provide a means for feedback to vendors to improve products. This requirement is not intended to cause the Co-permittees to develop formal standards or processes by which vendors must demonstrate the efficacy of their products; the Co-permittees may rely on other objective third-party sources of information ~~for this purpose.~~or use the relevant results of established programs elsewhere if available.

Subsection VII.E. also requires program-level oversight of the trash and debris control program by the Executive Officer. Control measures must be objectively evaluated. Permanently discontinued or substituted measures are subject to approval by the Executive Officer. These requirements do not govern the day-to-day operation of the program.

G. Sections VIII, IX, and X: Municipal Inspections of Construction, Industrial, and Commercial Sites

Sections VIII, IX, and X continue ~~earlier~~ previous Permits' requirements for inspections of construction, industrial and commercial sites within each Co-permittees' jurisdiction with some modifications. The requirements of these Sections are supported by ~~40 CFR~~40CFR Sections 40CFR Section 122.26(d)(2)(iv)(A) ~~122.26(d)(2)(iv)(D)~~, 122.26(d)(2)(iv)(C), and 122.26(d)(2)(iv)(D)~~122.26(d)(2)(iv)(A)~~, which generally require programs to implement control measures for pollutants in runoff from construction, industrial, and commercial sites respectively. Certain other relevant control measures for these sites (e.g. public education) are described in other Sections of this Order.

The scope of what constitutes a construction site has not been changed in Section VIII. However, Co-permittees are now only required to inspect construction sites whose actual or expected duration exceeds two weeks. This modification has been made recognizing that many construction projects may begin and conclude without being subject to a rain event and before Co-permittees' staff can inspect them. This modification is intended to allow Co-permittees to prioritize projects that have a longer duration. The Co-permittees must necessarily track all construction sites in order to identify projects whose duration exceeds two weeks and consequently require inspection.

Sections IX and X both require that the Co-permittees maintain inventories of industrial and commercial sites. This, and past, versions of NPDES Permit No. CAS618030 do not provide narrative definitions to distinguish between "industrial" and "commercial" businesses. However, there is a need to provide some guidance to the Co-permittees on how to classify businesses in their jurisdictions.

Some common definitions describe "industrial" as referring to a business involved in the manufacture of goods whereas "commercial" is a term referring to a business whose sole motivation is gaining profit. In this sense, "industrial" is a sub-category of "commercial" sites. Other common definitions cast "industrial" and "commercial" as similarly overlapping categories: "industrial" businesses engage in manufacturing goods (for sale) while "commercial" businesses engage in the sale or trade of goods. For the purposes of this Order, these common definitions are workable and there is no need for the creation of regulatory definitions in this Order.

In keeping with common definitions of "industrial" and "commercial" businesses, the list of activities that guide the Co-permittees' development of their commercial business inventory has been modified. The list has been placed in alphabetical order. "Transportation, storage, or transfer of pre-production plastic pellets, powders, or grindings" has been replaced with "Transportation services for

passengers, parcels, or freight". This category excludes business that manufacture products from plastic pellets, powders, or grindings and properly places them in the Co-permittees' industrial inventory. The new category will also include transportation services for passengers and a wide variety of goods, including plastics.

Mobile businesses have been excluded from the industrial and commercial business inventories. Instead, these businesses are addressed through the Co-permittees' illicit discharge/illicit connection and public education programs. The reason for their exclusion is because it is impractical to impose a regular inspection program on the Co-permittees for businesses whose locations are irregular. Public golf courses, swimming pools, and special event venues are typically part of parks and, if not, are within the meaning of "fixed facilities" subject to Section XIV. However, for the sake of clarity and to ensure that all scenarios are addressed, these facilities have been added to the inventory of commercial sites.

This Order continues requirements for industrial and commercial facilities to be classified into three categories: "high-priority", "medium-priority", and "low-priority". For both industrial and commercial sites, "high-priority" sites must be inspected once per year; "medium-priority" sites must be inspected once every two years; and "low-priority" sites must be inspected once per permit term (5 years). This Order continues the previous permit's criteria for distributing the Co-permittees' inventory of sites among these categories with some modifications.

The previous permit provided criteria for categorizing some industrial sites in the "high-priority" category but otherwise left the Co-permittees' significant discretion. The Co-permittees developed further guidance in the 2003 DAMP. The permit criteria and the 2003 DAMP guidance determined the distribution of industrial sites among the priority categories; this subsequently determined the industrial inspection burden each Co-permittee bears.

For commercial sites, the previous permit prescribed a minimum priority distribution: 10% were to be "high-priority; 20% were to be "medium-priority"; and the remainder was, by default, "low-priority". Additional criteria was described that would cause some sites to be moved into higher priority categories. This prescriptiveness was triggered by the findings of audits during the third-term permit where certain Co-permittees were found to be exercising their discretion to minimize their inspection burden in violation of the MEP standard. The basis of the prescribed distribution was the "best professional judgment" of Regional Board staff who were also experienced site inspectors.

In their Report of Waste Discharge, the Co-permittees have requested changes to the priority distributions for both industrial and commercial sites. The principal basis of this request was analyses of self-reported inspection outcomes. The Co-permittees' analyses conclude that their inspections are "demonstrating consistent high levels of compliance from year to year".

For construction sites, the Co-permittees reported in their Report of Waste Discharge that the percentage of inspections resulting in their staff finding a violation has been consistently less than 10%. For industrial and commercial sites, "consistent high levels of compliance" means 78% to 89% compliance on an annual basis since 2008-2009. The Co-permittees give some credit to their inspection programs, but also credit new requirements in the Construction General Permit, adopted during the previous permit term, and published guidance from CASQA.

The Co-permittees have implicitly established site "compliance" as a performance indicator for their inspection programs. This performance indicator is flawed. First, ~~I~~inspections cannot detect "compliance" with great certainty; they can only detect "noncompliance" with certainty. Assuming that an inspector could determine that a site is in compliance ~~exaggerates~~ overstates the ~~scope of the~~ inspector's ~~observations~~ability to detect non-compliance. An inspector can know what violations are discovered; but they cannot know what violations they have not. Inspectors are unlikely to discover every instance of noncompliance in a single inspection. Inspections are observations that amount to a snapshot in time of a site's condition. Even if an inspector could conclude that a site is in absolute compliance during a single inspection, site conditions can change and that conclusion may be short-lived.

Second, the Co-permittees' reported outcomes do not represent the full range of outcomes that the Co-permittees report in their Annual Progress Reports. In their 2012-2013 Annual Progress Reports, the Co-permittee reported the number of facilities out of compliance; those with "fully-implemented BMPs", "partly-implemented BMPs", and "no BMPs". In addition, the Co-permitees reported actions taken as the result of the inspections: the number of verbal warnings, recommendations, educational letters, notices of noncompliance, administrative citations, cease-and-desist orders, and misdemeanor/infractions.

For the 2012-2013 reporting period, the Co-permittees reported 168 sites out of compliance out of 5,178 construction inspections; 78 industrial facilities out of compliance out of 2,038 inspections; and no commercial sites out of compliance out of 2,724 inspections. However, for construction sites, 322 actions were reported, including 256 verbal warnings and 47 notices of noncompliance. These

outcomes are twice the number of construction sites reported out of compliance for the same reporting period.

For industrial sites, there were 257 actions reported, including 124 education letters and 74 notices of noncompliance. These outcomes are almost three times the number of industrial sites reported out of compliance for the reporting period. For commercial sites, 391 actions were taken, including 160 education letters and 127 notices of noncompliance, although no facilities were reported to be out of compliance. For all three categories of inspections, the number of actions taken significantly outnumbers the number of sites found out of compliance.

It is possible for several actions to be taken in response to a single instance of non-compliance. However, it is also inefficient and unlikely that most or all instances of non-compliance would be met with multiple actions. It should also not be the case that numerous actions occur when no violations are reported, as is the case for commercial sites. This suggests that, while inspectors are willing to take effective action on a facility to improve water quality, there may be a reluctance to declare the precipitating circumstances to be a violation.

Inspection outcomes can be influenced by the manner in which sites are selected, in how the inspection is carried out, and how it is recorded. This influence can go either way in terms of how it affects "levels of compliance". Inspections are not completely unbiased activities and ~~inspection outcomes~~rates of compliance or non-compliance are not the best~~a poor~~ indicat~~ion~~or of the effectiveness of an inspection program.

Evidence of inspection bias can be found by looking at the variability in the rates of non-compliance between Co-permittees. In the 2012-2013 Annual Progress Report, the average rate of non-compliance for construction site inspections for all Co-permittees is 6.2%. But the variability is high, with one Co-permittee finding non-compliance in one third of their inspections. Another Co-permittee found non-compliance in almost 23% of their construction inspections. In contrast, seven Co-permittees detected no instances of non-compliance, although they each performed over 200 inspections. This level of variability suggests that there are significant differences in how Co-permittees manage their inspection programs which introduces bias in reported inspection outcomes.

There are several ways that inspections are biased. First, the site selection may be purposefully biased to increase or decrease the chance of discovering violations. For example, the criteria in the permit is intended to prioritize sites that are expected to pose a greater threat to water quality, possibly due to a greater

likelihood of having violations. Second, the manner of the inspection can introduce bias. Whether or not Co-permittees choose to provide prior notice to the site operators will increase or decrease the likelihood of discovering violations. Additionally, how the inspection is documented will also introduce bias. An inspector may choose to not record a discovered violation if it was quickly remedied during the inspection. Or, when entered into the Co-permittees database, either the discovery of the short-lived violation or the outcome of compliance may be recorded, thereby affecting the overall program outcomes.

These and other factors negatively influence the validity and reliability of the Co-permittees' stated measure of effectiveness (percent compliance/non-compliance) for their overall inspection programs. Nonetheless, this Order provides some relief for the Co-permittees' inspection burden, but not on the basis provided by the Co-permittees.

The regulatory burden that this Order places on the Co-permittees is not fully described by 'inspection frequencies' or even the total number of inspections. The regulatory burden is better described by the total expected number of inspections over the permit term *and* the level of effort needed for each inspection.

The total expected number of inspections is calculated using the inspection frequencies, the total number of facilities, and how facilities are distributed among the priority categories (high, medium, and low). The level of effort is not easily measured, but can be characterized by the type of inspection. For the sake of discussion, there are two types: "inspection from vehicle" and "personal visit". Inspections from vehicles are essentially patrols that typically take significantly less time and effort than personal visits.

The previous permit did not dictate the type of inspection directly. The type of inspection was dictated indirectly by the DAMP. The DAMP describes the inspection protocols and those protocols became mandatory through their incorporation by reference in the previous permit. The DAMP protocols indicate that all inspections were to be by personal visits.

As with the previous permit, this Order does not dictate the type of inspection. But it also does not incorporate the DAMP protocol. The result is that this Order gives the Co-permittees substantial discretion to amend their protocol and select the type of inspection that is suitable to the individual characteristics of a site.

The Co-permittees have recommended that the type of inspection be dictated by the site's priority ranking. This is inappropriate. A site's priority ranking does not necessarily indicate if the site has characteristics that make it suitable for an

inspection from a vehicle. Additionally, a ~~high-priority site with a history of past violations~~ll sites benefit~~s~~ from the deterrent and education effects o~~effect and education o~~f a personal visit, but a cursory and incomplete inspection of even a low-priority site~~any site~~ by any method has little value. Alternately, a site that invites access, is easily visible from a vehicle, and has no observed violations is generally suitable for an inspection from a vehicle. ~~A site's priority ranking does not necessarily indicate if the site has characteristics that make it suitable for an inspection from a vehicle.~~

The regulatory relief that this Order provides for both industrial and commercial site inspections is reasonable and proportional to the degree of compliance reported by the Co-permittees in the Annual Progress Reports. According to the report of waste discharge, the Co-permittees performed 25,622 commercial and 10,937 industrial site inspections over the permit term. As shown in Table TR-2 below, the previous permit required that the Co-permittees should have performed an expected 22,810 commercial and 9,486 industrial inspections[31]. The actual number of inspections performed over the past permit term exceeds the expected number.

This accomplishment indicates that the Co-permittees *collectively* have the resources to comply with the previous permit in both terms of number of inspections and level of effort. However, collective effort is not the measure used to determine compliance. Audits and reviews of individual Co-permittees and their reports show that a few have not complied either with the number of inspections, their distribution among the priority categories, or both. In cases where inspections were not correctly distributed among the priority categories, the principal cause appeared to be insufficient information management systems to direct inspection resources; not insufficient personnel or attention. This suggests that the inspection burden is problematic for some Co-permittees. However, evidence of widespread hardship on the Co-permittees has not been provided. Therefore only a moderate amount of regulatory relief is appropriate.

This Order changes the previous permit's commercial site distribution from 10% high-priority, 20% medium-priority, and 70% low-priority to one that more closely resembles a Pareto distribution or, more commonly the "80-20 rule". This distribution applies to many situations and was roughly approximated by the previous permit's distribution. A precise application of a Pareto distribution over three categories results in a 4%, 16%, and 80% distribution. This Order adjusts

[31] The term "expected number of inspections", like with any "expected" value described in this Order, is used as a measure of predicting the anticipated inspection burden. The calculation of an "expected" value is a planning tool that describes outcomes under different circumstances; it is not a technique for measuring compliance.

this distribution slightly for ease of use and requires commercial sites to be distributed as 5% high-priority, 15% medium-priority, and 80% low-priority[32]. This Order also adjusts the number of high-priority construction site inspections by requiring these sites to be inspected twice per season instead of three times. This adjustment is made after consultation with the most-experienced members of Regional Board staff and is based on best professional judgement.

To demonstrate the regulatory relief from industrial and commercial facility inspections that this Order provides, Regional Board staff compared the expected number of inspections that would be required under the requirements of this Order and Co-permittee's proposed Options 1 and 2. The related requirements were applied to the last permit term's reported industrial and commercial inventory to calculate the expected number of inspections that would have been required over the previous 5-year term. This allows a comparison of the inspection burden produced by the requirements of this Order and the Co-permittees' Options 1 and 2. This is a backwards-looking comparison and does not predict the inspection burden in the future. But it is useful to illustrate the degree of regulatory relief each scenario could provide.

The comparison is shown in Table TR-2 below in terms of numbers of inspections. The comparison does not take into consideration the reduction in level of effort caused by allowing some inspections to occur from a vehicle. This cannot be calculated without knowing which sites have the characteristics appropriate for an inspection from a vehicle. The grey columns in Table TR-2 also show the percent change relative to the expected total inspections that were necessary to comply during the previous permit.

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[32] This adjustment increases the number of expected inspections by 2% versus without the adjustment.

Table TR- 2: Comparison of the number of Expected Inspections

Site Type	Reported inspections over 5-years (2008-2013)	Expected inspections over 5-years (per previous permit's requirements)	Expected inspections over 5-years (per this Order's requirements)	Expected inspections over 5 years (Option 1[33])	Expected inspections over 5 years (Option 2[34])
Commercial	25,622	22,810	~~18,114~~19,120 (~~21~~16% decrease)	15,251 (51% decrease)	13,418 (57% decrease)
Industrial	10,937	9,486	9,486 (no change)	1,036 (89% decrease)	5,181 (45% decrease)
Total	36,559	32,296	~~27,600~~28,606 (~~15~~11% decrease)	16,287 (50% decrease)	18,599 (42% decrease)

Table TR-2 shows that, based on the annual inventory reported over the previous permit's term, Option 1 requires the least number of total expected commercial and industrial site inspections, reducing them by 50% over the previous permit. Option 1 proposes that many lower-priority sites would be inspected on an as-needed basis. Since the number of 'as-needed' inspections is not known, the total number of expected inspections over the permit term cannot be reliably estimated under Option 1. However, the *minimum* number of total expected inspections under Option 1 would be 16,287. Option 2 reduces the number of expected inspections by 42% over the previous permit. In comparison, this Order reduces the number of expected inspections by ~~15~~11% for commercial and industrial facilities and by 16% for construction sites.

Additional reductions in the regulatory burden under this Order and Options 1 and 2 are achieved by allowing the Co-permittees to perform inspections by vehicle, reducing the level of effort. Reductions in the regulatory burden caused by this improved flexibility cannot be reliably measured but are likely to be

[33] As proposed from the 2013 Report of Waste Discharge.
[34] Ibid.

significant. ~~Reductions in the total number of expected inspections are more easily measured.~~

~~Considering t~~The degree of compliance that the Co-permittees have achieved over the past permit term does not demonstrate widespread hardship that deserves the relief that either Option 1 or Option 2 would provide. This Order provides a reasonable degree of regulatory relief by decreasing the number of expected inspections by approximately ~~15~~11% for commercial and industrial facilities and by 16% for construction sites, and by allowing inspections from vehicles.

For construction sites, this Order also provides regulatory relief by limiting inspections to those construction sites that have an expected or actual duration of two weeks. As with commercial and industrial sites, this Order now also allows inspections of construction sites from vehicles where appropriate. Although difficult to measure, both of these permit modifications allow regulatory relief that is proportional to the Co-permittees' apparent ability to comply.

H. Section XI: Residential Program

~~40 CFR~~40CFR Section 122.26(d)(2)(iv)(A) requires, in part, that applicants for MS4 permits employ structural and source control measures to reduce pollutants from residential areas. The previous permit describes a separate public education and enforcement program for residential areas. The requirements largely overlapped with requirements in public education and illicit discharges/illicit connections. Residential areas will continue to be addressed in this Order through more general requirements in Public Education and elsewhere. Specific requirements have been removed in this Order so that the Co-permittees can prioritize water quality issues based on feedback gained through the iterative process. This Order reserves Section XI as a placeholder so that there is general continuity between the organization of the previous permit and this ~~one~~Order.

I. Section XII: New Development (Including Significant Redevelopment)

The requirements of Section XII are ~~intended to satisfy~~based on ~~40 CFR~~40CFR Section 122.26(d)(2)(iv)(A)(2) to reduce the discharge of pollutants from areas of new development and significant redevelopment. Section XII also includes a requirement that is intended to advance work to retrofit existing flood control facilities to remove pollutants as required by ~~40 CFR~~40CFR Section 122.26(d)(2)(iv)(A)(4). ~~40 CFR~~40CFR Section 122.26(d)(2)(iv)(A) requires, in

part, the applicants for MS4 permits provide both "structural and source control measures to reduce pollutants from runoff from commercial and residential areas".

Section XII has been expanded to incorporate synthesized elements of the 2011 Model Water Quality Management Plan and its accompanying Technical Guidance Document. Requirements regarding the sizing of structural treatment controls, LID prioritization, Hydrologic Conditions of Concern, and classification of "priority projects", which require project Water Quality Management Plans ("WQMPs"), and "non-priority projects" have been retained in this Order with modifications.

~~40 CFR~~40CFR ~~Section 122.26(d)(2)(iv)(A)(2) requires, in part, that the Co-permittees' management program include "a description of planning procedures including a comprehensive master plan to develop, implement, and enforce controls to reduce the discharge of pollutants from [MS4s] which receive discharges from areas of new development and significant redevelopment." Section XII of this Order includes requirements for the Co-permittees to address these planning requirements in part through their existing planning procedures.~~

~~The State of California has delegated land use planning authorities to the counties and incorporated cities and seldom is involved in local land use and development decisions. California Government Code Sections 65000 *et seq.* generally establishes a framework for local planning procedures, but cities and counties adopt their own unique responses to the issues that they face.~~

~~At the broadest levels, the Co-permittees develop General Plans and Specific Plans. These and other land-use planning mechanisms fit within the meaning of "planning procedures" and "comprehensive master plan[s]" used in 40 CFR~~40CFR ~~1~~40CFR122.26(d)(2)(iv)(A)(2). ~~Because each Co-permittee generally has their own land use planning authorities and related procedures, requirements pertaining to planning procedures are best addressed at the local level; the Principal Permittee may develop guidance, but cannot compel implementation by the other Co-permittees. Consequently, Section XII requires that the Co-permittees each address their planning procedures through the General Plan update process, Specific Plan process, and others as the opportunity presents itself.~~

The Co-permittees have broad authority to regulate activities within their communities. The scope of regulated activities and the manner in which they are regulated can vary among Co-permittees. The intent of Section XII in this Order and in the past Orders has been to cause the Co-permittees to exercise their

authority so that the potential water quality impacts of past and future urban development are minimized. The challenge has been how to best identify that subset of projects, from the varied universe of projects that each Co-permittee regulates, which have a significant potential to impact water quality, and to develop a process that efficiently and effectively addresses those impacts.

In order to better address the challenge of identifying appropriate projects, clarifying language has been added to Section XII.

- Subsection XII.B. makes it clear that Co-permittees must consider the whole of the project in classifying a project as a priority or non-priority project. This is not intended to cause the Co-permittees to require WQMPs or non-priority project plans for projects for which there is insufficient detail to meaningfully develop those plans (e.g. simple lot line adjustments without further development details). The intent is to cause as early consideration of BMPs as practicable and to prevent piece mealing projects.
- In Subsection XII.B.5., projects consisting of the replacement, upgrade, or installation of dry utilities, sanitary sewer, petroleum pipelines, or water supply distribution lines in existing ~~transportation~~ rights of way have been excluded from "redevelopment projects" that are priority projects. This exclusion does not apply to related surface improvements. ~~This is because~~The reason for this exclusion is because the scope of such projects is too narrow to afford opportunities to include structural treatment control BMPs. Additionally, the post-construction water quality impacts may not be related to the work completed underground.
- The language of Subsection XII.B.5. has been modified to allow a Co-permittee to permit the continued use of structural treatment controls installed as part of a previously-approved WQMP when a portion of the site is redeveloped. This allowance does not apply if the old WQMP was not properly approved or implemented.
- In Subsection XII.M., language has been included to allow Co-permittees to exclude projects that do not affect areas that are exposed to storm water, or which are not sources of urban runoff, from being considered non-priority projects.

This Order requires expansion of the electronic database for tracking sites affected by an approved WQMP in Subsection XII.C.10. A similar requirement is in the previous permit (Provision XII.F.2.) but the previous Permit specifically required tracking of structural treatment controls. Structural treatment controls installed prior to Order No. R8-2009-0030 were not required to be tracked in an

electronic database. However, structural treatment controls were being installed under Order No. R8-2002-0010, over a decade ago. The performance of these older facilities is also of interest to the storm water program and may provide practical insights to the Co-permittees and the Regional Board. Consequently, Subsection XII.C.10. requires that these older facilities be tracked as they are discovered through the Co-permittees' inspection programs or with other opportunities.

The previous permit defines categories of projects for which the Co-permittees' approval requires the preparation of a project WQMP. The Co-permittees have sought to limit this requirement to projects that are subject to "discretionary approval". This term has not been defined by the Co-permittees but is presumed to have the same meaning as "discretionary action" under CEQA. The strict application of the term under CEQA would essentially allow one Co-permittee to permit a project without a WQMP, whereas the same project in another city would require a WQMP due to local preferences and permitting idiosyncrasies[35]. Whatever the meaning, the Co-permittees' application of the term must not be used to ~~contradict the requirements of this Order or to~~ undermine the MEP standard and other requirements of this Order. As such, the term "discretionary" has been omitted with respect to new development projects in this Order.

Section ~~X~~XII of this Order requires new developments that are regulated by the Co-permittees to employ source-control, site-design and structural treatment controls to remove pollutants from urban runoff. This Order is intended to provide the Co-permittees with a method to address the water quality impacts of new development consistent with the requirements of ~~CEQA and 40 CFR~~40CFR Section 122.26(d)(2)(iv)(A). These requirements are intended to address projects that may have an impact on water quality.

Consistent with the previous Permit, n~~N~~ew development projects are classified into two types: priority and non-priority projects. Priority projects must employ source-control, site-design, and structural treatment controls. ~~N~~Certain non-priority projects must employ source-control and site-design controls, but do not have to employ structural treatment controls unless practicable. However, non-priority projects may employ source and site design BMPs that rely on the same or similar set of treatment mechanisms used by structural treatment control BMPs, such as infiltration and harvest and use. In many cases, such controls may resemble structural treatment control BMPs but be substantially deficient relative to sizing and design criteria. These deficiencies may be the only

[35] Leon, Jorge, July 7, 2000~~,~~ Post-Hearing Brief, The Cities of Bellflower, Burbank, et al. v. California Regional Water Quality Control Board et al., File Nos. A-1280; A1280(a); A-1280(b), State Water Resources Control Board.

characteristic which distinguishes source and site design BMPs from structural treatment control BMPs.

When practical, Co-permittees should pursue opportunities in good faith to have proposed source control and site design BMPs for non-priority projects modified so that they meet the relevant sizing requirements of this Order (see SectionXII.D.); substantially conform to published and generally-accepted engineering design criteria; and become acceptable structural treatment control BMPs. A non-priority project may be required to use off-site structural treatment controls if available. Priority projects are differentiated from non-priority projects by the categories shown in Subsection XII.B.5. of this Order.

For priority projects, Co-permittees must have a Water Quality Management Plan ("WQMP") prepared. The project WQMP is intended to accomplish several purposes. First, the project WQMP documents the rationale behind the selection of structural treatment controls. Second the WQMP functions as an enforcement mechanism to provide for the proper construction, operation and maintenance of structural treatment controls for both the project proponent and their successors and assigns over the life of the project. For some larger projects, the project WQMP can serve as a planning document for the design, construction, and funding of regional and sub-regional structural treatment controls. As such, it is important that subsequent WQMPs and non-priority project plans be consistent with the larger project WQMP. It is also important that project WQMPs be protected against loss or damage in a manner that is commensurate with the expected duration of the project.

This Order promotes regional and sub-regional structural treatment controls essentially by permitting their use where they have been planned for according to the requirements of this Order. This Order is largely silent on the mechanism(s) which lead to the planning and construction of regional and sub-regional structural treatment controls. Cities already have different proven mechanisms at their disposal to finance and construct other forms of infrastructure such as streets, lighting, traffic controls, and storm drains; these mechanisms may be utilized for regional and sub-regional structural treatment controls. Past versions of this Order have discussed *in lieu* fees, credits, and other mechanisms. None of these have been successfully employed to construct regional and sub-regional structural treatment controls serving multiple projects with multiple proponents or land owners. Such suggestions in past permits have ~~been unhelpful~~not been shown to be helpful and so they have been omitted in this Order.

In the absence of a planned or proposed structural treatment control facility, structural treatment controls must be on-site for a project. Regardless of the

location of the structural treatment controls, all priority projects must have source and site-design controls. Even when there is an offsite structural treatment control available for a project, that project may be required to employ certain pretreatment controls in order to protect the offsite facility from requiring an unusual level of maintenance or from experiencing premature failure. This order anticipates that the operator of the offsite facility will establish pretreatment criteria for new developments that discharge into the facility.

This order requires the Co-permittees to establish a program for the improvement of project WQMPs. The Co-permittees must have written technical guidance for the preparation of project WQMPs. The 2011 Model WQMP and its accompanying Technical Guidance Document are generally expected to serve this purpose. These documents may require some modifications in order to comply with this Order. However, since this Order no longer incorporates the documents by reference, the Co-permittees may make the necessary changes independently, without the Executive Officer's approval. In a similar way, resulting project WQMP process improvements may also be made independently. However, all changes are governed by the requirements of this Order.

1. Hierarchy for Structural Treatment Controls

This Order maintains the hierarchy for the selection of structural treatment controls for priority projects that was prescribed in the previous permit with some modifications. USEPA has urged the Regional Board to allow certain project proponents to offset untreated design capture volumes by treating off-site in existing developments that are retrofit by the proponent. This allowance would apply where the project proponent cannot provide structural treatment control BMPs on site. In order to incorporate this option, it appears in the hierarchy so that a project cannot be eligible for a waiver until this and all other options are determined to be infeasible.

In order to communicate ~~this~~ the heirarchy clearly, this Order establishes terminology for categories and subcategories of structural treatment controls. This terminology is defined in the Glossary of the Order and is explained below.

In summary, the hierarchy places greatest preference on retention LID best management practices, second~~ary~~ preference is for bio-treatment control BMPs, ~~and tertiary~~ and third preference for non-LID BMPs. A fourth preference has been added for off-site retrofits of existing development to accommodate USEPA's request.

–Retention LID BMPs and bio-treatment control BMPs are subcategories of LID BMPs. LID BMPs also include certain source control and site design BMPs that attempt to mimic the site's predevelopment hydrology by using techniques that retain runoff close to its source. ~~While this~~Although this Order does not ~~necessarily~~ require that structural treatment control LID BMPs be located on site, site design and source control LID BMPs ~~are always required t~~must~~o~~ be on site consistent with LID principles.

The effectiveness of LID BMPs ~~have~~ has been demonstrated in various studies. Dr. Richard Horner demonstrated that LID BMPs achieved significant reductions in pollutant loading and runoff volume and enhanced recharge rates compared to developments with no BMPs and those with basic treatment BMPs.[36,37] Consequently, this Order emphasizes the use of LID BMPs. Retention LID BMPs generally employ infiltration or some other loss of the design capture volume and as such, is generally a more reliable way of preventing the discharge of pollutants in storm water. Consequently, retention LID BMPs are given the greatest degree of preference in the hiearchy.

Retention LID BMPs are a subcategory of LID BMPs where the design capture volume is either infiltrated into the ground; used for irrigation, process water, or other purposes; or is evaporated or evapotranspirated. Co-permittees are responsible for demonstrating in the project WQMP that retention LID BMPs, located either on or off-site, are given priority consideration according to this Order's requirements, before considering any of the subsequent categories of structural treatment controls in the hierarchy.

The second category of structural treatment controls that must be considered are biotreatment control BMPs. As indicated by the name, biotreatment control BMPs are a subcategory of LID BMPs that principally remove pollutants through a combination of infiltration, evapotranspiration, biological uptake or transformations, or degradation. While a significant portion of the design capture volume is typically infiltrated or evapotranspirated, this is incidental and no particular portion must be treated in either manner. After passing through a biotreatment control BMP and partly evaportranspir~~at~~ing and infiltrating, the remaining portion of the design capture volume is typically discharged from the site. Where retention LID BMPs are infeasible, biotreatment control BMPs must be used ~~onsite or offsite~~ where feasible.

[36] Horner, Richard R. Investigation of the Feasibility and Benefits of Low-Impact Site Design Practices ("LID") for San Diego, University of Washington, 2006.
[37] Horner, Richard R. Investigation of the Feasibility and Benefits of Low-Impact Site Design Practices ("LID") for Ventura County, University of Washington, 2007.

This Order requires that biotreatment control BMPs be designed to treat 1.5 times the design capture volume. This requirement is based on the findings of Appendix D, *BMP Performance Guidance*, to the *Ventura County Technical Guidance Manual for Storm Water Quality Control Measures* (Manual Update 2011)[38]. In summary, the Ventura County Technical Guidance Manual found that biotreatment control BMPs that were sized to treat 1.5 times the design capture volume could provide equivalent or better reductions in loads compared to retention LID BMPs for all pollutants of concern. The Regional Board recognizes that the Ventura County study was based on local hydrologic and soil conditions. The Co-permittees ~~have been invited~~ are allowed in the Order to estimate a similar alternative factor using local conditions for biotreatment control BMPs in Orange County~~, but have not done so~~.

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Structural treatment controls that employ retention as a treatment mechanism rank the highest in the hierarchy established by this Order and the previous permit. In a well-designed and properly-operating facility, pollutants in storm water are not discharged into surface waters, making retention the most reliable treatment mechanism among those used in structural treatment controls. Since retention LID BMPs employ retention as the sole mechanism for pollutant removal, they are given the highest priority in the hierarchy. Biotreatment control BMPs employ retention on an incidental basis. B~~ut the retained portion of the design capture volume is significant and, byy~~ using the 1.5 factor, the reductions in pollutant loads may be comparable to ~~the volume~~that of retention LID BMPs. Consequently, biotreatment control BMPs are ranked second in the hierarchy.

The last category of structural treatment controls in this Order's hierarchy are non-LID BMPs. These structural treatment controls principally use filter media such as perlite, zeolite, sand, or some proprietary or non-proprietary media to physically remove pollutants in storm water. The media may develop microbial communities in biofilms that coat portions of the media. Biofilms can assist in removing pollutants through biological uptake and transformation, but these are incidental mechanisms and the biofilm may even adversely affect the hydraulic performance of the facility and harbor potential pollutants.

This Order does not require that a single structural treatment control BMP be used to treat the design capture volume for a drainage area on a priority project site. A series of structural treatment controls may be used if necessary. The selection and sizing of controls must correspond with this Order's hierarchy. For

[38] Available at: www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/ventura_ms4/VenturaTGM/Ventura%20Stormwater%20TGM%20Final%207-13-11.pdf

example, if a retention LID BMP cannot treat the entire design capture volume, the remaining portion may be treated in a biotreatment control BMP. If is infeasible for both the retention LID and biotreatment control BMP to treat the entire design capture volume, then a non-LID BMP may be employed to treat the remaining portion. Under extremely limited circumstance should a site treat the design capture volume or any portion thereof using a non-LID BMP without having demonstrated in the WQMP that the volume could not have been treated using a BMP higher up on the hierarchy. The only circumstance where this could occur is where an off-site LID BMP will be used.

Subsection XII.H. of this Order establishes a specific protocol for selecting non-LID BMPs. This protocol largely carries over from the previous permit. It requires that the Co-permittees categorize non-LID BMPs by type and then assign a performance rating of "high", "medium", and "low" to each category relevant to a variety of expected pollutants. ~~In response to~~As the result of Regional Board staff observations during audits of convenient mis~~s~~-categorizations, this Order requires that BMP categories include only those controls that employ the same principal of operation; use similar treatment mechanisms; and which can reasonably be expected to exhibit generally similar performance in the removal of pollutants. The rating must be based on the best available, objective evidence~~.~~. The evidence must include field performance test data that is specific to the BMP and that has been collected according to published and recognized protocols.

The non-LID BMP selection protocol also requires that project types be related to various pollutants which can be reasonable expected to be found in urban runoff from those project types. Co-permittees must select non-LID BMPs that provide for either a "medium" or "high" level of treatment for those projects. Numeric performance thresholds must be used to distinguish the levels of treatment. The performance ratings for Non-LID BMPs must be reviewed bi-annually so that they are supported by the best available information.

Structural treatment control BMPs are storm water infrastructure. Like other infrastructure, these facilities may pose environmental hazards such as flooding, providing habitat for disease vectors, creating nuisances such as odors or midges, adversely affecting groundwater or soil remediation efforts, or presenting physical hazards to people, nearby structures, or traffic. This Order establishes an obligation on the Co-permittees to mitigate these potential environmental hazards to an acceptable level consistent with the requirements of CEQA.

This Order also requires that structural treatment controls substantially conform to published and generally-accepted engineering design criteria or have had

their expected performance substantiated in field tests using published and recognized protocols. These requirements are related to hazard mitigation because, in many cases, engineering design criteria have been established to address potential environmental hazards. Minor deviation from published design criteria is generally acceptable and may be done to accommodate LID BMPs at a project site. However, unnecessary deviation is not acceptable.

2. Integration of Project WQMPs into the Development Application Process

This Order establishes a procedure for the integration of project WQMPs into the development application process. This procedure is derived from the 2011 Model WQMP and furthers the effort to "develop, implement, and enforce controls to reduce the discharge of pollutants from [MS4s] which receive discharges from areas of new development and significant redevelopment" down to the project-level according to ~~40 CFR~~40CFR ~~1~~40CFR122.26(d)(2)(iv)(A)(2).

This Order requires that project WQMPs be developed in two phases. In the first phase, a preliminary project WQMP must be prepared prior to a project's development application being regarded as complete according to the Permit Streamlining Act. The preliminary project WQMP must be approved before the project is approved by the Co-permittees' decision-making body.

The purpose of preparing a preliminary project WQMP prior to the development application being complete is to promote consideration of structural treatment controls as early in the development approval process as possible. Structural treatment controls often compete for space with other structural elements of a project such as building footprints, utilities, and landscaping. As such, they should be given equal consideration so that they can be integrated into a site in the most economical manner possible. The preliminary project WQMP should be sufficiently detailed to demonstrate that adequate consideration has been given to the sizing, location, type of structural treatment control and the related BMP hierarchy, such that it can be reasonably expected to be constructible and to operate as intended.

Once the development application is complete, a project is typically approved after environmental review occurs under CEQA. It is important that structural treatment controls be described in the circulated CEQA document. This circulation helps to educate the public on how the Co-permittee addresses the potential water quality impacts of the project and how the potential environmental hazards of structural treatment controls are addressed. For this purpose, the Co-permittees are encouraged to also describe their related inspection and

enforcement programs. Where applicable, the circulated document is a useful compliance monitoring tool for the Regional Board and other interested agencies such as the California Coastal Commission and the Department of Fish and Wildlife.

The second phase of WQMP development begins after project approval. During this phase, additional project details are developed, including details on source-control, site-design, and structural treatment controls. Because multiple departments can be working on developing separate aspects of a project, there is potential for inconsistencies to develop between different project plans and the preliminary project WQMP. This has the potential to affect BMP selection, the likelihood that a structural treatment control will be built, or the likelihood that it will function as intended. This Order requires that the Co-permittees enforce substantial conformance between project plans and preliminary and final project WQMPs. At the end of the second phase, a final project WQMP is approved and the project is approved to initiate construction.

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3. Non-Priority Projects

This Order identifies all other projects as “non-priority projects”. Certain non-priority projects must employ source control and site design BMPs. The approach to defining non-priority projects which require BMPs is narrower than the previous permit. ~~These non-priority projects include those that include modifications or improvements that are or affect areas that are, exposed to storm water or which may be sources of urban runoff.~~

The previous permit required source control and site design BMPs regardless of the risk of storm water pollution. Due to the broad range of projects subject to the Co-permittees’ approval, this inclusive approach ~~challenged~~ encompassed projects that would occur entirely indoors or whose scope was too narrow to offer opportunities to incorporate the required BMPs in a practicable way. As part of the preparation of the 2011 Model WQMP and Technical Guidance Document, the Co-permittees narrowed down the number of non-priority projects requiring a plan by re-defining a non-priority project. Regional board staff did not object to this because it was recognized that the term "non-priority" project was exceptionally inclusive.

Since then, Regional Board staff have realized that the Co-permittees' approach is overly-narrow and leaves out projects that could apply source control and site design BMPs, in conflict with the requirements of Clean Water Act Section

402(p)(2)(B)(iii). In order to attempt to strike a better balance, this Order establishes a goal of incorporating source control and site design BMPs into non-priority projects consistent with the Clean Water Act. Because the universe of projects requiring permits varies among the Co-permittees, the task of evaluating each Co-permittee's permitting program to determine which projects should prepare a plan is daunting. Instead, each Co-permittee will evaluate their own permitting program and must develop and report policies and procedures to identify non-priority projects that may employ source control and site design BMPs. ~~This Order requires a narrower group of non-priority projects employ source control and site design BMPs and, as with the previous permit, that the selection of those BMPs be documented in a Non-Priority Project Plan.~~

This Order does not require non-priority projects to employ structural treatment controls. But some kinds of site design BMPs bear a strong resemblance to structural treatment controls. In some cases, they could be modified in a practicable way to substantially conform to published and generally-accepted engineering design criteria. Where such opportunities occur, this Order requires that the Co-permittee pursue them.

As indicated earlier, a non-priority project may be required to use an off-site structural treatment control BMP where it is available. This may occur in situations where the non-priority project lies within a larger plan of development that was subject to a project WQMP. This may also occur where a city or other public entity has constructed or plans to construct a regional or sub-regional structural treatment control. It may be necessary for all properties within the tributary area of a regional or subregional facility to participate in funding the construction and operation of the facility to make that facility successful.

J. Section XIII: Public Education

Section XIV of the Order requires that the Co-permittees implement an effective public education program. The requirements of Section XIV are based on ~~40 CFR~~40CFR Sections 122.26(d)(2)(iv)(A)(6), (B)(6), and (D)(4). ~~P~~The public education program, as currently practiced, has been a core element of the Co-permittees' storm water program for over a decade.

Section XIV is intended to raise public awareness of pollution in urban runoff and to take action to reduce that pollution. The changes to the requirements in this Order have been largely influenced by USEPA's document "Getting in Step: A

Guide for Conducting Watershed Outreach Campaigns"[39]. Changes were also made to generally support the effective execution of public education campaigns described in the Co-permittee's report of waste discharge received on October 4, 2013.

This Order retains the objective requirement for the Co-permittees to achieve 10 Million impressions annually. This objective has been carried over in different iterations since Order No. R8-2002-0010. The subject audience has been refined. The subject audience is now termed the "general audience" which is defined as residents that are school age and up[40], and commercial and industrial establishments. The Co-permittees are required to create specific messages for sub-groups within the general audience. The Co-permittees are required to perform a statistically valid survey on the general audience to evaluate how well the purposes of the program have been achieved.

In addition, this Order now requires that the Co-permittees initiate public education campaigns that address a minimum of three high-priority pollution issues during the term of the permit. This Order does not dictate when a campaign must end. A campaign may carry over into another permit term. Other than to initiate campaigns on three issues, this Order does not specify any particular milestones or other performance metrics for those campaigns. Instead, the Co-permittees must identify goals and performance metrics. The Co-permittees must permit public input on the overall campaigns, including the goals and performance metrics.

The scale of the three issues (permit area, watershed, or city) has been left to the discretion of the Co-permittees. Each scale does not necessarily have to involve the same set of issues. In the most complex form, each city could elect to focus on a unique set of issues, resulting in over 75 different public education campaigns. In its simplest form, the Co-permittees would initiate three campaigns over the entire permit area.

This Order defines "target audiences" for addressing the three high-priority pollution issues. The target audience includes persons believed to have the greatest influence on the selected pollution issues. The Co-permittees have the discretion to select both the pollution issues and the target audiences but must

[39] USEPA. 2003. Getting in Step: A Guide for Conducting Watershed Outreach Campaigns. EPA 841-B-03-002. [http://www.epa.gov/owow/watershed/outreach/documents /getnstep.pdf [PDF - 3.27 MB - 136 pp]]. U.S. Environmental Protection Agency, Office of Water, Washington, DC

[40] The previous Permit included "100% of the residents" inadvertently capturing babies and infants.

document their rationale for their selections in a written plan for the public education program.

K. Section XIV: Municipal Facilities

Section XIV has been rewritten to incorporate key elements of Section 5 of the 2003 DAMP. This includes the development of an inspection program for fixed facilities and field activities, following Integrated Pest Management, Pesticide, and Fertilizer Guidelines, and staff training. Objective requirements found in Section XIV of the previous permit have also been largely retained. The language identifying drainage facilities subject to inspection and cleaning has been modified to be more specific in response to commenters. The programs described in Section XIV are required by ~~40 CFR~~40CFR ~~1~~40CFR122.26(d)(2)(iv)(A)(3), (A)(4) [retrofit], (A)(5) and (A)(6).

L. Section XV: Municipal Construction Projects and Activities

Section XV retains all of the requirements of the previous permit to comply with the requirements of the Construction General Permit (NPDES Permit No. CAS000002). In the absence of Section XV, the Co-permittees would still be required to comply with the Construction General Permit. The inclusion of storm water runoff from construction sites in this Order consolidates permitting efforts for construction sites and discharges of urban runoff from MS4s. The language of Section XV has been modified to minimize conflicts with the requirements of the Construction General Permit regarding the submittal of a report of waste discharge to obtain coverage, and notices to terminate coverage. Language has been added to emphasize that the post-construction BMP requirements of this Order prevail over those in the Construction General Permit.

M. Section XVI: Training Programs

Section XVI largely reorganizes the requirements of the previous permit with some modifications. The requirements of Section XVI are ~~supported by~~ based in part on ~~40 CFR~~40CFR ~~1~~40CFR122.26(d)(2)(iv) which requires, in part, that applicants for MS4 permits describe staff available to implement their storm water program and on certain required training and education programs in 40CFR122.26(d)(2)(iv)(A)(6), (B)(6), and (D)(4), .

In order for staff to be effective in implementing the Co-permittees' storm water programs, staff need to be aware of their employer's obligation to reduce the discharge of pollutants to the MEP and their duties to help fulfill that obligation. Section XVI contains requirements appropriate to ~~fulfill~~ this need. These requirements are also included in this Order according to Clean Water Act Section 402(p)(3)(B)(iii) and 40CFR122.26(d)(2)(iv) which, in part, establishes the MEP standard and allows the state to include provisions appropriate for the control of pollutants.

Section XVI describes personnel that must receive training and a minimum training curriculum for certain groups of personnel. Refresher training must be given once every two years instead of once each year; initial training for new employees must still be given within 6 months of hire. Refresher training frequencies have been reduced because existing employees have accumulated training and experience during the past few permit terms. A significant body of institutional knowledge has likely been developed to informally reinforce the storm water programs and to justify reducing the intensity of the training program.

The scope of personnel requiring training has been expanded to more generally include "staff, contractors, and vendors whose duties or responsibilities directly or indirectly affect the Co-permittees' capacity to satisfy the requirements of this Order". For some Co-permittees, this may mean that additional personnel will require training. Subsection XVI.B. establishes a minimum baseline of subject matter for training for all affected personnel and additional subject matter for certain personnel. But generally, the training "must be commensurate with the duties and responsibilities of the affected personnel".

Section XVI also now requires that the Co-permittees employ objective methods to individually evaluate trained personnel. It also now requires that training records be maintained for a minimum of three years. A registry or similar mechanism is also required largely to facilitate tracking and reporting for the Principal Permittee and to permit training records to follow staff that change employment between different Co-permittees. The training program must be reviewed and updated annually to achieve continual improvement. The Co-permittees may implement a single training program, individual programs, or some hybrid of the two. Therefore, the review and update may occur collectively, coordinated by the Principal Permittee, or be performed individually by each Co-permittee according to how the training program is implemented.

N. Section XVII: Notification Requirements

Section XVII continues the previous permit's requirements for the Co-permittees to report, within 24-hours, sites or incidents that pose an imminent threat to human health or the environment. The initial report must be followed by a written report in 5 business days. Section XVII clarifies that the written report is to be submitted 5 business days after the initial report. These requirements are based on 40CFR122.41(l)(6).

Section XVII now incorporates quarterly reporting requirements that were located in Section VI of the previous permit. This move consolidates these more-frequent reporting requirements, relative to the Annual Progress Report, and is intended to make them easier to locate for the reader.

O. Section XVIII: Total Maximum Daily Load Implementation

~~The waste load allocations (WLAs) and related requirements for adopted and approved TMDLs have been included in this Order. These WLAs and requirements are to be included in this Order according to the related implementation plans described in the Basin Plan.~~ Federal regulations require that NPDES permits contain WQBELs consistent with the assumptions and requirements of all available WLAs (~~40 CFR~~40CFR Section 122.44(d)(1)(vii)(B)). The waste load allocations ("WLAs") and related requirements for adopted and approved TMDLs have been included in this Order and are identified as WQBELS in Appendices B through H. These WQBELs are included in this Order according to the related implementation plans, where those plans are provided in the Basin Plan. In the event that implementation plans are adopted or amended during the term of this Order, the Order may be re-opened and revised accordingly. The WQBELs shown in Appendices B through H are expected to be sufficient to cause the responsible Co-permittees to meet the WLAs by the compliance dates specified in their respective TMDLs and repeated in the Appendices. The Co-permittees responsible for complying with the WQBELs are listed according to the related TMDLs in Appendix A.

Since they do not provide a complete method for determining compliance, the WQBELs shown in Appendices G through H are not intended to function as stand-alone requirements. The methods for complying with the WQBELs are described in Section XVIII of the Order.

The methods for complying with the WQBELs in Appendices B through H are generally grouped according to the status of the compliance deadlines established in the underlying TMDLs. In some cases, the compliance deadlines have passed, others are in the future, and, for some pollutants, no compliance

deadline was established in the TMDL. Appendix C is an exception to this grouping because it contains date that have passed and others that have not yet passed. Appendices B through H only show dates for WQBELs where the compliance deadlines have not yet passed—if a date is not shown, the deadline in the TMDL has passed.

For any pollutant, the responsible Co-permittees may demonstrate compliance with the related WQBELs using monitoring data. The monitoring data may include data which demonstrates that there has been no discharge from an MS4 to the receiving waters.

WQBELs for pollutants that have no compliance deadlines specified in Appendices B through H have either had a deadline established by the underlying TMDL and it has passed, or no deadlines were established by the underlying TMDL. The circumstances of the WQBELs are described in the explanatory text preceding the WQBELs in each of the Appendices. In these cases, the WQBEL is effective on the effective date of the Order. However, the methods available to the Co-permittees to comply depend on if the deadline was established and has passed or, as is the case for EPA-promulgated TMDLs, if no deadline had been established.

Appendices B through D and F contain WQBELs where their compliance deadline was established in the underlying TMDL and the deadline has passed. In these cases, the Co-permittees may comply with the related WQBEL(s) according to Subsection XVIII.B. by either: (1) making a demonstration using monitoring data as described earlier; or (2) the Co-permittees may fully implement a Time Schedule Order ("TSO") issued by the Regional Board pursuant to California Water Code Section 13300.

Appendices C and E include WQBELs where a compliance deadline was established in the underlying TMDL but the deadline has not passed. In these cases, the responsible Co-permittees may comply with those WQBELs according to Subsection XVIII.C. by either: (1) making a demonstration using monitoring data; (2) implementing an approved plan that is designed to comply with final WQBELs ("WQBEL compliance plan") by the final compliance dates in Appendices C and E; or (3) the Co-permittees may fully implement a TSO. If a WQBEL compliance plan is used, the plan itself is the final WQBEL and the lack of action by the responsible Co-permittees to implement the plan will constitute a violation of the WQBEL and a violation of this Order.

Appendices C, G, and H contain WQBELs where no compliance deadline was established in the underlying TMDL. In these cases, the responsible Co-

permittees may comply with those WQBELs according to Subsection XVIII.D. by either: (1) making a demonstration using monitoring data; or (2) implementing an approved plan that is designed to comply with final WQBELs in Appendices C, G and H ("WQBEL compliance plan"). In the latter case, the plan itself is the final WQBEL and the lack of action by the responsible Co-permittees to implement the plan will constitute a violation of the WQBEL and a violation of this Order.

The Co-permittees may request a TSO individually, or two or more Co-permittees may request a TSO jointly for the same WQBEL(s). If responsible Co-permittees request the Regional Board for a TSO, Regional Board staff will, at a minimum, require the following information:

1. Data which demonstrates the current quality of the relevant MS4 discharge(s) to the receiving waters in terms of concentration and/or load;
2. A detailed description and chronology of structural controls and source controls employed to reduce the pollutant load in the MS4 discharge(s) since the effective date of the TMDL;
3. Justification for the additional time desired to achieve the final WQBEL(s);
4. A detailed time schedule of specific actions that the Co-permittee(s) will take to achieve the final WQBEL(s);
5. An analysis that provides reasonable assurance that the proposed actions will achieve the final WQBEL(s) within the requisite time period. The analysis must be supported, in part, by peer-reviewed models that are in the public domain where such models are available and appropriate. (The analysis can include trend analyses that demonstrate that no additional actions are necessary to achieve the WQBEL(s) within the term of the requested TSO.);
6. A demonstration that the requested time schedule is as short as possible, taking into account the technological, operational, and economic factors that affect the design, development, and implementation of the control measures that are necessary to comply with the final WQBEL(s); and
7. If the term of the requested TSO exceeds one year, the request must also include proposed interim requirements and a time schedule for their achievement. The proposed interim requirements will include: (1) effluent limitation(s) for the pollutant(s) of concern; and (2) a detailed time schedule of specific actions the Co-permittee(s) will take to achieve the effluent limitations.

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WQBEL compliance plans and requests for TSOs must include a 'reasonable assurance' that proposed actions will achieve final WQBELs within required time periods. An analysis that provides 'reasonable assurance' is not expected to provide absolute assurance, but nevertheless, a high level of assurance. A reasonable assurance is expected to be supported by evidence that provides a reasonable basis to conclude that the Co-permittees' actions will achieve final WQBELs and that the evidence does not support alternative, conflicting conclusions.

The USEPA Toxics TMDLs also include TMDLs for chlordane, dieldrin, DDT and PCBs in the Rhine Channel (in Lower Newport Bay). The Regional Board-approved TMDLs do not include Rhine Channel-specific TMDLs since the constituents of concern were addressed by dredging in the Channel[41]. Although they have not been formally withdrawn by USEPA, the related WLAs have been superseded by the Regional Board-adopted TMDLs and no longer appear in this Order[42].

~~This Order provides several pathways to complying with the TMDL-related requirements of Section XVIII. These pathways are dependent on the condition of the receiving water and the status of the TMDLs' compliance deadline. Unless a future compliance deadline in specified in Appendices A through G, all WLAs and requirements therein must be complied with immediately unless the Co-permittees elect to develop a plan to comply with the WLA as described below.~~

WLAs are essentially mechanisms to attain water quality standards and to avoid causing or contributing to exceedances of water quality standards. Consequently, the process to meet the WLAs or develop plans to meet the WLAs is intended to also satisfy the process to comply with water quality standards. However, meeting the WLAs and complying with water quality standards are independent requirements that are not equ~~iv~~al~~ent~~. Provisions in ~~both~~ Subsection~~s~~ IV.D. ~~and XVIII.C~~. are included in this Order to establish the relationship between the two processes; compliance with the process in S~~ubs~~ection XVIII~~.C~~. satisfies the process in Subsection IV.D.

If discharges from the responsible Co-permittees' MS4s meet the WLAs, the responsible Co-permittees must continue implementing their storm water programs in order to maintain attainment of the WLAs. The provisions in Section

[41] Anghera, Shelly and Cappellino, Steve, December 17, 2013. "Re: Post-Dredge Confirmatory Sampling Results and Environmental Benefits of Dredging for the Rhine Channel Contaminated Sediment Cleanup Project". Anchor QEA LLC Technical Memorandum, Project 130243-00.03.
[42] Based on electronic communication with Janet Hashimoto, Chief, Water Quality Assessment Section, USEPA Region 9, November 21, 2014.

I of the Order require that the program be documented. The responsible Co-permittees must also implement a monitoring program that must be developed according to MRP ~~R8-2014-0002~~R8-2015-0001. The monitoring program must necessarily include efforts to establish whether or not discharges from MS4s continue to meet WLAs. The "iterative process" must continue to be implemented, however, so long as WLAs and water quality standards are met, the process ~~will~~is expected to focus on improving the ~~efficiency~~ effectiveness of the Co-permittees' efforts to comply.

~~If discharges from the responsible Co-permittees' MS4s do not meet the WLAs and the compliance deadline has passed, or compliance must be achieved immediately (where no deadline is specified), responsible Co-permittees will be regarded as being in violation of this Order unless they have initiated efforts to develop and implement a plan to meet the WLAs. The effort to develop and implement a plan to meet the WLAs begins with the submittal of a notice to the Executive Officer of the Co-permittee's intent to develop the plan. The plan must be developed and implemented according to the requirements in Subsection XVIII.C. Failure to comply with the requirements of Subsection XVIII.C. will nullify the effort to develop and implement a plan to comply with the WLA and immediate compliance with the WLA will be required by default.~~

~~The failure to comply with the requirements of Subsection XVIII.C. will not subject Co-permittees to enforcement action. Alternately, the Executive Officer will notify the Co-permittees in writing that they have defaulted on the requirements of Subsection XVIII.C. and must comply with WLAs. Subsequently discharges which have occurred in violation of the WLA(s) will be subject to enforcement action. However, notification of default by the Executive Officer is a courtesy and will not be a prerequisite to enforcement action. Maintaining compliance, or an immediate return to compliance, with Subsection XVIII.C. will serve as an alternative to immediate compliance with WLAs during the development phase of a plan.~~

~~Once a plan to meet the WLAs has been finalized and approved by the Executive Officer, it must be implemented according to Provision XVIII.D. The requirements of those plans become WQBELs in lieu of immediate compliance with WLAs. Failure to implement the plan will subject the responsible Co-permittee(s) to enforcement action whether or not discharges are known to exceed WLAs.~~

~~Development of a plan to meet the WLAs in lieu of immediate compliance with WLAs is optional. A Co-permittee may choose to develop a plan whether or not discharges are meet the WLAs. If a Co-permittee is developing a plan, or a plan~~

~~is approved, compliance with Subsection XVIII.C., or the WQBELs which have been developed within an approved plan, respectively serves in lieu of immediate compliance with WLAs. This Order places higher priority on the development of plans for WLAs that are being violated by requiring the submittal of a draft plan 12 months earlier than plans for WLAs that are not known to be violated.~~

All ~~plans to comply with WLAs~~WQBEL compliance plans are subject to the "iterative process". This process allows the Co-permittees to improve the effectiveness of BMPs based on water quality monitoring data analysis and objective performance metrics, including the WLAs. If, despite compliance with the WQBELs in the plan, discharges continue to exceed WLAs, the "iterative process" requires improvements to the plan according to Section I of the Order. Improvements may also be made in the interest of cost-effectiveness provided that water quality will not be compromised ~~and the MEP standard is satisfied~~. The content of the plans is controlled and, except for inconsequential grammatical and technical changes, is subject to the approval of the Executive Officer.

~~Co-permittees may also submit a plan that does not propose new BMPs or modifications of existing BMPs. Provision XVIII.C.2.g. requires that such a plan include objective evidence that there is a trend in pollutant loads or concentrations indicating that WLAs can be attained without further intervention. All plans are subject to public review prior to the approval of the Executive Officer.~~

The Regional Board submits an Integrated Report to the USEPA to comply with the reporting requirements of CWA Sections 303(d), 305(b), and 314. The Integrated Report list the attainment status of water bodies relative to water quality standards. According to USEPA guidance, water bodies are placed in one of five categories of "attainment status" in the Integrated Report[43]. Water bodies in Category 5 indicate that at least one beneficial use is not being supported or is threatened and a TMDL is required. These water bodies are placed in on the 303(d) list.

Water bodies in Category 4 indicate that at least one beneficial use is not being supported or is threatened but a TMDL is not needed. Impaired water bodies may be placed in Category 4a if a TMDL has been adopted and approved. Impaired water bodies may be placed in Category 4b if other pollution control requirements required by a local, state or federal authority are stringent enough

[43] USEPA, 2005. Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act.

to implement applicable water quality standards within a reasonable period of time. Water bodies may be placed in Category 4c if the failure to meet an applicable water quality standard is not caused by a pollutant, but caused by other types of pollution.

Impaired water bodies can be included in Category 4b if there are acceptable "pollution control requirements" required by a local, state or federal authority stringent enough to implement applicable water quality standards within a reasonable period of time (e.g. a compliance date is set). When evaluating whether a particular set of pollution controls are "requirements", the USEPA considers a number of factors. These include:

1) The authority (local, state, federal) under which the controls are required and will be implemented with respect to sources contributing to the water quality impairment (examples may include: self-executing state or local regulations, permits, and contracts and grant/funding agreements that require implementation of necessary controls);
2) Existing commitments made by the sources and completion or soon-to-be-completed implementation of the controls (including an analysis of the amount of actual implementation that has already occurred);
3) The certainty of the dedicated funding for the implementation of the controls; and
4) Other relevant factors as determined by USEPA depending on case-specific circumstances.[44]

Impaired water bodies can be included in Category 4c if the failure to meet an applicable water quality standard is not caused by a pollutant, but is caused by other types of pollution. Pollution is defined in the Clean Water Act as "the mad-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water". (Clean Water Act Section 502(19) In some cases, pollution does not result from a pollutant and a TMDL is not required. These causes may include segments impaired solely due to lack of adequate flow, stream channelization or hydro-modification. In these situations, there may be water quality management actions that can address the causes of the impairment, but a TMDL may not be required for their implementation.

In specific cases, implementation of plans to comply with WLAs and other TMDL requirements may demonstrate that TMDLs are not necessary for impaired water

[44] Ibid

bodies. This conclusion must be supported by analytical documentation that demonstrates that technology-based effluent limitations required by the Clean Water Act; more stringent effluent limitations required by state, local, or federal authority; and/or other pollution control requirements required by local, state, or federal authority are stringent enough to satisfy water quality standards within a reasonable period of time. This would change the attainment status to Category 4b or 4c.

The water bodies placed in Category 4b or 4c of the Integrated Report must show a record that they are attaining water quality standards or supporting the identified beneficial uses, or will attain water quality standards or support identified beneficial uses in a reasonable period of time. This will allow the water bodies to be appropriately removed from the 303(d) List.

P. Section XIX: Program Effectiveness Assessments

Section XIX of the previous permit contained provisions thate allowed revisions to the DAMP and controlled its content. Because the DAMP is no longer incorporated by reference into this Order and the Co-permittees can generally amend the DAMP and other related planning documents, the previous permit's requirements in Section XIX are not necessary. The previous content of Section XIX has been replaced with requirements for the performance of Program Effectiveness Assessments. The rationale for this change has been provided earlier in this Technical Report in Section VIII.C. above.

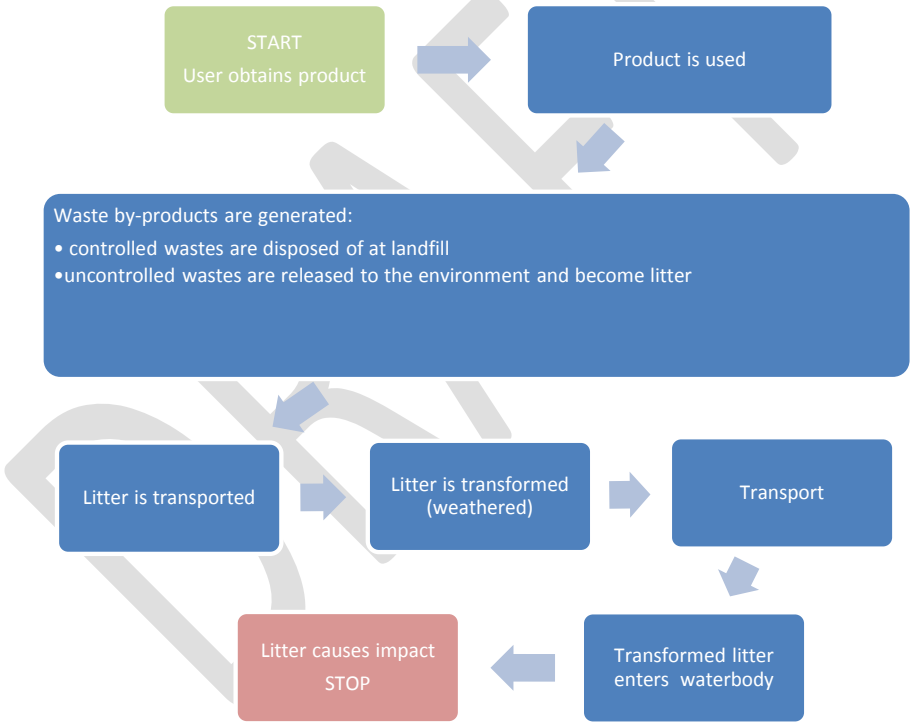
Section XIX requires that each Co-permittee have a program in place to objectively assess the effectiveness of best management practices employed in each of the elements of their storm water programs. Each Co-permittee's program must be documented in writing. The Principal Permittee is tasked with developing a model program effectiveness assessment. These requirements set the expectation that common features of each of the Co-permittees' programs will generally be assessed in a similar way, but that there is no requirement that a completely uniform set of methods will be applied across each program. ~~But e~~Each of the Co-permittees' programs must have the elements described in Section XIX.C.

The first required element are conceptual generalized models of pollution process(es). The development of conceptual models is the first step in developing more detailed quantitative models and eventually to developing solutions. They establish and communicate a baseline of understanding of a process. They can help identify parts of a process that are not well understood.

And they can help identify opportunities where interventions or best management practices may be effective in getting a desired outcome.

~~An example of a~~ conceptual generalized model ~~is provided below:~~may be a graphical representation, but simple models may be expressed as written narratives. The Co-permittees have expressed simple models in written narratives in their Annual Progress Reports. For example, the Co-permittees have generally outlined the pollution processes for copper and certain pesticides and concluded that at least portions of the process are outside of their control. This model forms the basis for certain aspects of their storm water programs.

~~Figure 1: Example of a Conceptual Generalized Model for Litter Pollution~~



~~An examination of the example model above may reveal certain things:~~

- ~~*Flaws may be discovered in the model.* This example model assumes that controlled wastes will never become litter.~~

- ~~*Opportunities may be realized*. For example, examining this assumption, a program manager learns that certain public waste cans are more prone to falling over or releasing trash on windy days.~~
- ~~*New best management practices are developed*. Specifications are developed for new waste can purchases and old waste cans are phased out.~~
- ~~*And new performance measures are applied*. The phase-out project is tracked as percent complete.~~

The required second element is an inventory of best management practices and where in the pollution process they are applied. This establishes a baseline condition and sets the context for monitoring and reporting results. Placing best management practices in relation to the pollution process can help identify imbalances and gaps. An imbalance may occur where BMPs disproportionately focus on prevention OR treatment of pollution. A gap may occur where there is a missed opportunity to implement a BMP in the pollution process.

The third element is a system to objectively measure the performance of the best management practices or groups of practices. This will include using performance measures prescribed by this Order and measures that will need to be developed by the Co-permittees. While the performance measures prescribed by this Order are enforceable if not achieved, performance measures developed by the Co-permittees will not be enforceable. However, failure to implement the "iterative process" when voluntary performance measures are not achieved will subject the Co-permittees to enforcement.

The final element is to evaluate the validity of the program. This element involves considering if the performance measures are genuinely relevant to what they are intended to measure. It also involves evaluating if the method used to measure outcomes is also valid. As part of this element, Co-permittees are encouraged to develop "S.M.A.R.T." goals. S.M.A.R.T. goals are ~~goals~~ performance measures that are Specific, Measurable, Attainable, Realistic, and Timely.

There are various resources which are widely available that describe how to develop S.M.A.R.T. goals. S.M.A.R.T. goals are known by other names, including, measurable goals, performance metrics, performance standards, targets and objectives. Performance measures, the term used most widely in this document, should align with more general goals found in this Order or, otherwise developed by the Co-permittees to be valid. An example of a general goal established in the Order is Provision VII.E. which describes a mandatory

goal to "implement an effective program to reduce and/or eliminate the discharge of trash and debris to waters of the U.S."

For example, the Co-permittees could establish the following performance ~~metric~~measure: *Annually increase the proportion of new volunteers for coastal clean-up events.* This example performance measure is aligned with permit-required goals to "raise awareness" and cause an audience "to take action to reduce pollution of urban runoff" in Provision XIII.1. and to "reduce and/or eliminate the discharge of trash and debris" in Provision VII.E. This performance ~~metric~~ measure is a S.M.A.R.T. goal because it specifically relates to a target audience and events; with baseline data, it can be measured; it is realistic; and can be measured annually.

~~–~~The ~~goal~~ example performance measure will logically require a combination of tactics to be achieved, such as social media targeted at past participants and their friends and associates, along with traditional media favored by target demographics. But, where established by Co-permittees, the ~~goal~~ performance measure permits broad experimentation without the threat of enforcement action if it is not achieved. One outcome of pursuing the performance measure is that Co-permittees will develop an understanding of what combination of tactics are most effective to meet the Permit goals.

Q. Section XX: Fiscal Analysis

Section XX continues all of the requirements of the previous permit unchanged in substance with one modification. It has been re-written in a manner designed to make it clear that three fiscal years must be reported: the previous, current, and future years. A requirement has been added so that fiscal reports conform to USEPA reporting guidance if such guidance becomes available.

R. Section~~s~~ XXI ~~and XXII~~: Provisions ~~and Permit Modification~~

Section XXI establishes procedures for public review and comment on any reports that are submitted according to this Order's requirements and which are subject to the Executive Officer's approval. Section XXI grants the Executive Officer the authority to review and approve changes to the Monitoring and Reporting Program, subject to public review and comment.

Section XXI had been modified from the previous Permit to no longer requires that the Co-permittees implement the DAMP or other related, previously-approved plans or reports, except for those that are described as needing approval from the Executive Officer elsewhere in this Order. As discussed earlier, the DAMP and other previously-approved plans or reports, constitute all or a large part of written plans, procedures, or programs required elsewhere in this Order. They are still necessary to demonstrate compliance with various requirements, although they may need to be updated or revised.

Section XXI continues the previous permit's requirements to report enforcement actions or discharges that may have an impact on human health and the environment and certain activities on land or facilities outside of the Co-permittees' jurisdiction that may be contributing pollutants to waters of the U.S.

~~No changes have been made to the language of Section XXII.~~

S. Section XXII~~I: Permit Expiration and Renewa~~: Permit Modification

No changes have been made to the language of Section XXII.

~~S.~~T. Section XXIII: Permit Expiration and Renewal

Section XXIII establishes the expiration date of this Order. However, Provision XXIV.R. establishes that this Order will continue in full force and effect past its expiration date until a new permit is issued or the Regional Board rescinds this Order. Section XIII states that this Order is effective 50-days after the date of its adoption except where the Regional Administrator of the USEPA has objections. The previous Order is also withdrawn at that time. However, the Regional Board retains the authority to enforce the previous Order for any violations of its provisions or conditions at the time it was in effect.

~~T.~~U. Section XXIV: Standard Provisions

Section XXIV has been modified to incorporate standard provisions consistent with State Board policies regarding the preparation of NPDES permits. Standard Provisions apply to all NPDES permits according to ~~40 CFR~~40CFR Section 122.41. Dischargers must comply with all standard provisions and with those additional conditions that are applicable under ~~40 CFR~~40CFR Section 122.42.

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V. Appendix A

Appendix A is a table showing which Co-permittees discharge into watersheds for which TMDLs have been adopted. Many Co-permittees discharge into more than one watershed. The table does not identify what portions of what cities drain into the watersheds. For some cities, their entire area may drain into a single watershed. For others, only a small portion may drain into another watershed.

This apportioning affects the level of responsibility (e.g. cost sharing) that each Co-permittee may assume for compliance with WLAs and other TMDL requirements. However, this apportioning is a matter that is addressed among the Co-permittees. The inclusion of the table in Appendix A is intended to identify the respective responsibilities of the Co-permittees to comply with WLAs and other TMDL requirements. It is not intended to indicate their level of responsibility.

The cities of Fountain Valley, Garden Grove, Huntington Beach, Villa Park, and Westminster are not shown in Appendix A. These Co-permittees do not discharge to waters for which there is an adopted TMDL.

Appendix A makes certain clarifications regarding the Newport Bay Watershed Nutrient TMDL, Fecal Coliform TMDL, and the Coyote Creek Metals TMDL. Appendix A shows that the cities of Laguna Hills and Laguna Woods contribute discharges for which pollutants are controlled by the Nutrient TMDL and the Fecal Coliform TMDL. These cities were not noted in these TMDLs at the time of their adoption. This is because the City of Laguna Woods was incorporated in 1999, at about the same time that these TMDLs were adopted in 1999 and 2000 respectively. In the case of the City of Laguna Hills, the City annexed its portion located in the Santa Ana Region in 2000. As the result of this timing, both cities were omitted from the Nutrient and Fecal Coliform TMDLs. Prior to incorporation or annexation, the areas of both cities were under the control of the County and still discharged into the Newport Bay watershed. Appendix A recognizes that the responsible parties have changed and clarifies that the responsible parties for these discharges are the cities of Laguna Hills and Laguna Woods.

For the Coyote Creek Metals TMDL, the table in Appendix A differs from the USEPA's TMDL[45]. This TMDL includes Table 7-1 which lists the cities in the San

[45] The Coyote Creek Metals TMDL is formally known as the "Total Maximum Daily Loads for Metals and Selenium: San Gabriel River and Impaired Tributaries" and is available at:

Gabriel Watershed by watershed sub-basin, including the Coyote Creek watershed. Appendix A reiterates that list but adds the City of Stanton and removes the City of Garden Grove. The City of Yorba Linda is shown in Appendix A conditionally.

The City of Stanton has been added because a review of County watershed maps shows that a small portion at its northern edge, bound by Beach Boulevard, Starr Street, and Fern Avenue (estimated at less than one acre) drains into the Coyote Creek watershed[46]. The same watershed maps show that the City of Garden Grove does not drain into the Coyote Creek watershed.

The City of Yorba Linda drains partly towards the Coyote Creek watershed. However, Orange County Water District has reported that this flow is diverted away from the Coyote Creek watershed and to the Santa Ana River by a gate located in the forebay to Miller Retarding Basin which is located at the southwest corner of the intersection of East Orangethorpe Avenue and North Miller Street. When open, the gate allows flow to continue down Carbon Creek where it may enter Coyote Creek. Although the City of Yorba Linda is shown in Appendix A, the City is only subject to the Coyote Creek Metals TMDL requirements if flows are allowed to enter Coyote Creek.

~~U.~~W. Appendices B through H

Appendices B through H contains ~~WLAs and requirements~~water quality effluent limits ("WQBELs") that are based on WLAs and other requirements f~~or~~rom 6 TMDLs that are applicable to the permit area. The ~~WLAs and requirements~~WQBELs have been selected from ~~those identified in~~ the adopted TMDLs based on their applicability to the Co-permittees and their appropriateness to the Co-permittees' discharges.

Appendices B through H do not provide instruction on *how* the ~~WLAs~~ WQBELs will be complied with. That instruction is located in Section XVIII of the Order and Section II.B. of the Monitoring and Reporting Program. Appendices B through H are references containing *what* must be complied with.

Appendices B through H are subject to change during the term of this Order. In order to make changes, this Order may be modified, revoked, or issued as

http://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/Established/San%20Gabriel%20River%20Metals%20TMDL/final_sangabriel_metalstmdl_3-27-07.pdf

[46] The County's watershed map is available at: http://ocwatersheds.com/civicax/filebank/blobdload.aspx?BlobID=10612

described in Finding 7 and Subsection XXII.A. of the Order. Appendices B through H in particular may be amended in order to incorporate any requirements imposed upon the Co-permittees though the TMDL process. This process may result in new TMDLs or modifications to existing TMDLs.

~~V. Appendix A~~

~~Appendix A is a table showing which Co-permittees discharge into watersheds for which TMDLs have been adopted. Many Co-permittees discharge into more than one watershed. The table does not identify what portions of what cities drain into the watersheds. For some cities, their entire area may drain into a single watershed. For others, only a small portion may drain into another watershed.~~

~~This apportioning affects the level of responsibility (e.g. cost sharing) that each Co-permittee may assume for compliance with WLAs and other TMDL requirements. However, this apportioning is a matter that is addressed among the Co-permittees. The inclusion of the table in Appendix A is intended to identify the respective responsibilities of the Co-permittees to comply with WLAs and other TMDL requirements. It is not intended to indicate their level of responsibility.~~

~~The cities of Fountain Valley, Garden Grove, Huntington Beach, Villa Park, and Westminster are not shown in Appendix A. These Co-permittees do not discharge to waters for which there is an adopted TMDL.~~

~~Appendix A makes certain clarifications regarding the Nutrient TMDL, Fecal Coliform TMDL, and the Coyote Creek Metals TMDL. Appendix H shows that the cities of Laguna Hills and Laguna Woods contribute discharges for which pollutants are controlled by the Nutrient TMDL and the Fecal Coliform TMDL. These cities were not noted in these TMDLs at the time of their adoption. This is because the City of Laguna Woods was incorporated in 1999, at about the same time that these TMDLs were adopted in 1999 and 2000 respectively. In the case of the City of Laguna Hills, the City annexed its portion located in the Santa Ana Region in 2000. As the result of this timing, both cities were inadvertently omitted from the Nutrient and Fecal Coliform TMDLs. Prior to incorporation or annexation, the areas of both cities were under the control of the County and still discharged into the Newport Bay watershed. Appendix A recognizes that the responsible parties have changed and clarifies that the responsible parties for these discharges are the cities of Laguna Hills and Laguna Woods.~~

~~For the Coyote Creek Metals TMDL, the table in Appendix A differs from the USEPA's TMDL[47]. This TMDL includes Table 7-1 which lists the cities in the San Gabriel Watershed by watershed sub-basin, including the Coyote Creek watershed. Appendix A reiterates that list but adds the City of Stanton and removes the City of Garden Grove. The City of Yorba Linda is shown in Appendix A conditionally.~~

~~The City of Stanton has been added because a review of County watershed maps shows that a small portion at its northern edge, bound by Beach Boulevard, Starr Street, and Fern Avenue (estimated at less than one acre) drains into the Coyote Creek watershed[48]. The same watershed maps show that the City of Garden Grove does not drain into the Coyote Creek watershed.~~

~~The City of Yorba Linda drains partly towards the Coyote Creek watershed. However, Orange County Water District has reported that this flow is diverted away from the Coyote Creek watershed and to the Santa Ana River by a gate located in the fore bay to Miller Retarding Basin located at the southwest corner of the intersection of East Orangethorpe Avenue and North Miller Street. When open, the gate allows flow to continue down Carbon Creek where it may enter Coyote Creek. Although the City of Yorba Linda is shown in Appendix A, the City is only subject to the Coyote Creek Metals TMDL requirements if flows are allowed to enter Coyote Creek.~~

XIII. Monitoring and Reporting Program

Monitoring and Reporting Program ("MRP") No. ~~R8-2014-0002~~R8-2015-0001 is an attachment to Order No. ~~R8-2014-0002~~R8-2015-0001. It contains requirements for both water quality monitoring, annual reporting, and for program effectiveness assessments. The requirements of the MRP are incorporated by reference into Order No. R8-2015-0001 and are enforceable. The MRP was written on the basis of the requirements of federal regulation and the Santa Ana Region Water Quality Monitoring Program developed by the Co-permittees as part of the 2003 DAMP (Exhibit 11.II).

~~[47] The Coyote Creek Metals TMDL is formally known as the "Total Maximum Daily Loads for Metals and Selenium: San Gabriel River and Impaired Tributaries" and is available at: http://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/Established/San%20Gabriel%20River%20Metals%20TMDL/final_sangabriel_metalstmdl_3_27_07.pdf~~
~~[48] The County's watershed map is available at: http://ocwatersheds.com/civicax/filebank/blobdload.aspx?BlobID=10612~~

The MRP contains requirements for both dry-weather and wet-weather monitoring as part of a Water Quality Monitoring Plan. The dry-weather monitoring requirements are based on the requirements of ~~40 CFR~~40CFR ~~1~~40CFR122.26(d)(1)(iv)(D), (d)(1)(v)(B), and (d)(2)(iv)(B). The wet-weather monitoring requirements are based on the requirements of ~~40 CFR~~40CFR ~~1~~40CFR122.269d)(2)(iii), (d)(2)(iii)(A) and (d)(2)(iii)(A)(1) through (4); and ~~40 CFR~~40CFR ~~1~~40CFR122.21(g)(7)(i) through (ii). Requirements related to monitoring and reporting pollutant loads are consistent with ~~40 CFR~~40CFR ~~1~~40CFR122.26(d)(2)(iii)(B) and (d)(2)(v). Requirements for receiving water monitoring are consistent with federal requirements to report "water quality improvements or degradation" according to 40CFR122.42(c)(7). Annual reporting requirements are consistent with 40CFR122.42(c).

~~–~~The water quality monitoring requirements include requirements for the development of a Water Quality Monitoring Plan. The Water Quality Monitoring Plan must address monitoring to address illicit discharges/illicit connections, water quality standards attainment or non-attainment; and compliance with waste load allocations which are expressed as water quality-based effluent limits.

The Co-permittees have been implementing a water quality monitoring program for several decades. This program, in one form or another, has served multiple purposes beyond compliance with MS4 Permits requirements. This Order essentially requires re-documentation of the current program and provides the Co-permittees with an opportunity to make improvements in the process. The MRP is purposefully written without some of the detail found in the Co-permittees' Santa Ana Region Water Quality Monitoring Program to provide flexibility to the Co-permittees as they prepare a new Water Quality Monitoring Plan. ~~Certain~~ The requirements in the MRP establish certain limitations to those improvements ~~are established by requirements in the MRP~~. However, the Executive Officer is authorized to amend the MRP, particularly if important program improvements are hindered by the MRP. The newly-documented program will be subject to public review and the review and approval ~~by~~ of the Executive Officer.

The requirements in this Order and the MRP for effectiveness assessments are consistent with ~~40 CFR~~40CFR ~~1~~40CFR122.42(c)(1), which requires reports of the "status of implementing the components of the storm water management program that are established as permit conditions." This includes use of the "iterative process" as well as other "management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants" as described in Clean Water Act Section 402(p)(3)(B)(iii).

~~The MRP contains requirements for both dry-weather and wet-weather monitoring as part of a Water Quality Monitoring Plan. The dry-weather monitoring requirements are based on the requirements of 40 CFR~~40CFR ~~1~~40CFR1~~22.26(d)(1)(iv)(D), (d)(1)(v)(B), and (d)(2)(iv)(B). The wet-weather monitoring requirements are based on the requirements of 40 CFR~~40CFR ~~1~~40CFR1~~22.269d)(2)(iii), (d)(2)(iii)(A) and (d)(2)(iii)(A)(1) through (4); and 40 CFR~~40CFR~~1~~40CFR1~~22.21(g)(7)(i) through (ii). Requirements related to monitoring and reporting pollutant loads are consistent with 40 CFR~~40CFR ~~1~~40CFR1~~22.26(d)(2)(iii)(B) and (d)(2)(v).~~

The MRP requirements allow the Co-permittees to use monitoring work performed by others to substitute for work required by the MRP. The MRP requirements also allow the Co-permittees to supplement their own monitoring work with work performed by others to improve any related analyses. The substituted or supplemental monitoring work must meet the requirements of the MRP in order to be valid. The MRP has been written with the intent of encouraging the Co-permittees' participation in state-wide, national, regional, or local monitoring programs in order to avoid duplication of work, improve related analyses of monitoring results, promote cooperation among other NPDES permitees and other institutions interested in water quality, and generally strengthen the body of scientific and technical knowledge of water quality. In this spirit, Provision XXI.B.2. of the Order requires the Co-permittees to make the results of field and laboratory analyses available to the public.

The State Water Resources Control Board ("State Board") adopted Resolution No. 2012-0012, which approves exceptions to the California Ocean Plan for certain discharges into Areas of Special Biological Significance ("ASBS'"). Resolution No. 2012-0012 became effective on March 20, 2012. Attachment B to the Resolution established limitations on point source storm water discharges to ASBS'. Among the Co-permittees, the City of Newport Beach is affected by Resolution No. 2012-0012. This Order requires the City of Newport Beach to comply with the Resolution, including monitoring of its discharge. The Monitoring and Reporting Plan must incorporate this monitoring effort.

The State Board has also adopted the Water Quality control Plan for Enclosed Bays and Estuaries of California – Part 1 Sediment Quality. This Plan became effective on August 25, 2009. The MRP includes requirements for the Co-permittees to monitor sediments in enclosed bays or estuary receiving waters consistent with this Plan.