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

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ORDER NO. R8-2016-0001
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 Palma
Orange County Flood Control District	City of Lake Forest[1]
City of Anaheim	City of Los Alamitos
City of Brea	City of Newport Beach
City of Buena Park	City of Orange
City of Costa Mesa	City of Placentia
City of Cypress	City of Santa Ana
City of Fountain Valley	City of Seal Beach
City of Fullerton	City of Stanton
City of Garden Grove	City of Tustin
City of Huntington Beach	City of Villa Park
City of Irvine	City of Westminster
City of La Habra	City of Yorba Linda

[1] This Order regulates discharges of urban runoff from the entire jurisdiction of the City of Lake Forest, including those discharges into the San Diego Region.

ADMINISTRATIVE INFORMATION

This Order was adopted by the Santa Ana Regional Water Quality Control Board (Regional Board) on:	Month day, 2016
This Order shall become effective on:	Month day, 2016
This Order shall expire on:	Month day, 2021
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 40CFR§122.26(b)(4).	

IT IS HEREBY ORDERED that the Co-permittees[2] 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, 2016.

Kurt V. Berchtold
Executive Officer

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[2] 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. **Designation of Board**. The City of Laguna Hills and the City of Laguna Woods are partly located within the Santa Ana Region but are excluded from Table 1 above. California Water Code section 13228 authorizes the Executive Officer of a regional board to grant a written request, made by an entity that is subject to regulation by more than one regional board, that one regional board be designated to regulate the matter. Written requests for designation have been received from the City of Laguna Hills, the City of Laguna Woods and the City of Lake Forest. The discharges of urban runoff from the respective watersheds of each of these cities are regulated by the San Diego Regional Water Quality Control Board and the Santa Ana Regional Water Quality Control Board. In letters respectively dated March 12, 2014 and September 8, 2014, the cities of Laguna Hills and Laguna Woods requested designation to the San Diego Regional Water Quality Control Board. In letters dated January 14, 2014 and April 4, 2014, the City of Lake Forest requested designation to the Santa Ana Regional Water Quality Control Board. These requests for designation were granted by the respective Executive Officers in separate Designation Agreement letters both dated February 10, 2015. Consequently, the Santa Ana Regional Water Quality Control Board is designated to regulate discharges of urban runoff from the entire jurisdiction of the City of Lake Forest, including those discharges into the San Diego Region. Likewise, the San Diego Regional Water Quality Control Board is designated to regulate discharges of urban runoff from the entire jurisdictions of the City of Laguna Hills and the City of Laguna Woods, including those discharges into the Santa Ana Region. These designations commence with the effective dates of those MS4 Permits adopted by the regional boards with terms and conditions that effectuate the Designation Agreements. For the Santa Ana Region, the designations commence with the effective date of this Order.

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3. **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 9 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 background, naturally-occurring or non-anthropogenic pollutants or flows in receiving waters.

4. **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 section 13370). 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.

5. **CWA NPDES Permit Conditions**. Pursuant to CWA section 402(p)(3)(B), NPDES permits for 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 such other provisions as the Regional Board determines 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; including such other provisions that the Regional Board has determined are appropriate to control pollutants.

6. **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.

7. **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 122.44(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, are consistent with the assumptions and requirements of any available WLA for the discharge. Consistent with this requirement, this Order includes an iterative approach for developing BMPs through a Watershed Management Plan, subject to the approval of the Regional Board. The Watershed Management Plan must include BMPs selected to achieve water quality standards and waste load allocations. The Watershed Management Plan will be amended according to the results of evaluations of the effectiveness of the BMPs.

   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.

The Regional Board will consider removing fecal coliform objectives for bays and estuaries in the Region, consistent with USEPA direction, and will also consider reopening and revising or replacing the current fecal coliform TMDL to implement the Enterococci objective established by USEPA in 2004[3]. Pending such revision, and to ensure compliance with the Enterococci objective the USEPA established for the marine and coastal estuarine waters of California, this order authorizes the MS4 dischargers to demonstrate compliance with WQBELs based on the alternative pathogen indicator bacteria (Enterococci).

8. **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 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;
   e. Or to incorporate any requirements imposed upon the Co-permittees through the TMDL process.

9. **Non-Storm Water and Storm Water Discharges**. The discharge of pollutants from the MS4 is subject to the MEP standard and 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

[3] The need for and nature of the Regional Board's actions to address fecal coliform objectives may be affected by the State Water Resource Control Board's ongoing work to develop new, statewide bacteria indicator objectives.

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; NPDES Permit No. CAG140001 for drinking water system discharges; 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 Co-permittees to discharge urban runoff from their MS4s. Certain authorized non-storm water discharges are subject to requirements in Attachment A of this Order. These discharges would have otherwise been subject to the requirements of NPDES Permit Nos. CAG998001, the *De Minimis* Permit, or CAG140001 for drinking water system discharges. 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.

10. **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).

11. **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 maintained; 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

12. **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.

13. **Pollutants Generated by Land Development**. Land development has created, and threatens 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 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.

14. **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 as

conveyances of storm water and owned or operated by any 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 may be 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))

15. **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 typically 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.

16. **Human Health and Aquatic Life Impairment**. Pollutants in runoff discharged from the MS4s may adversely affect human health and/or 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.

17. **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 a condition of pollution in receiving waters. For this reason, pollutants in storm water discharges from the MS4s 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.

18. **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 of the 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.

19. **Water Quality Improvements**. Since 1990, the Permittees have been developing and implementing programs and BMPs intended to effectively prohibit non-storm water discharges into the MS4s and control pollutants in discharges from the MS4s to the MEP. The Co-permittees have monitored a broad suite of contaminants and other measures of receiving water condition (i.e. toxicity, bioassessment). Based upon their analysis of the frequency and magnitude of the exceedances of regulatory standards presented in the "State of the Environment" section of the Report of Waste Discharge (County of Orange, 2013), fecal indicator bacteria, nutrients and pesticide related toxicity have been identified by the Co-permittees as their priority water quality constituents of concern.

The Co-permittees have found that bacterial contamination has dropped steadily over time; beach report card grades (Heal The Bay, 2015) are consistently high. The Co-permittees report that sources of bacterial

contamination have been reduced through targeted actions by the Co-permittees, such as diversion and disinfection. Remaining issues are believed to be localized and very likely to be significantly influenced by wildlife contributions. The Co-permittees report that bacterial contamination is more widespread during wet weather due to the much wider range of bacterial sources in the landscape, compared to dry weather, and higher flows. The Co-permittees have concluded that consistently attaining current recreational standards in wet weather may be infeasible. The Co-permittees note that this conclusion is also reached in the American Society of Civil Engineers Environmental and Water Resources Institute report *Pathogens in Urban Stormwater Systems* (ASCE/WRI, 2014).

The Co-permittees report that exceedances of thresholds for nutrients are widespread in the County's channels, with occurrences of macroalgal overgrowth due to nutrient over-enrichment much less widespread. Nutrient problems, however, are not limited to the urban portion of the County; regional monitoring data show nutrient enrichment and resultant effects such as increased macroalgal cover or lower dissolved oxygen present in both streams and estuaries in undeveloped regions. The major point sources of nutrients have been controlled and diffuse sources such as leaching from upland soils and intrusions from shallow groundwater are increasingly important.

The Co-permittees report that toxicity in Orange County's freshwater channels in all conditions (aquatic, sediment, wet and dry weather) occurs at low levels and is sporadic, occurring at different locations at different times and varying unpredictably across test species. Aquatic toxicity in dry weather occurs in open (undeveloped) areas at levels equivalent to those in urban areas. The Co-permittees' monitoring data indicates that the use of organophosphate pesticides has declined virtually to zero but use of pyrethroid pesticides has increased and exceedances of thresholds for pyrethroid pesticides are high. The Co-permittees report that the primary source of toxicity appears to be pesticides, with evidence that pyrethroids contribute to sediment toxicity.

20. **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.

21. "**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 requirements for

conducting program effectiveness assessments (PEAs). PEAs are a necessary component of the "iterative process". As part of carrying out PEAs, Co-permittees must compare the outcomes of program activities to the requirements of this Order and to objective performance standards developed by the Co-permittees. The purposes of conducting PEAs include:

a. assessing compliance with the requirements of this Order;
b. tracking progress towards meeting performance standards and/or 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, which 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 performance 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

22. **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).

23. **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.

24. **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.

25. **Recreational Water Quality Criteria.** In the late 1970s and early 1980s, the USEPA conducted public health studies evaluating several organisms as possible indicators of fecal contamination, including fecal coliforms, *E. coli*, and enterococci. The studies showed that enterococci are a very good predictor of illness in all waters, and *E. coli* are a very good predictor in fresh waters. Thereafter, the USEPA recommended in 1986 the use of *E. coli* or enterococci for fresh recreation waters (*E. coli* criteria set at 126/100mL and enterococci at 33/100mL) and enterococci for marine recreation waters (criteria set 35/100mL). These recommendations replaced the USEPA's previously recommended fecal indicator bacteria criteria (fecal coliform of 200/100mL). In 2004, the USEPA promulgated *Water Quality Standards for Coastal and Great Lakes Recreation Waters* (40 CFR 131.41) thereby establishing *E. coli* and enterococci criteria for Great Lakes, coastal and coastal estuarine recreational waters. The Regional Board intends to consider a Basin Plan amendment in the future to formally recognize the enterococci criteria established by USEPA for enclosed bays and estuaries, to define an appropriate averaging period for the application of the geometric

mean criterion, and to define appropriate application of the single sample maximum values to varying areas within enclosed bays and estuaries in the Region. The Regional Board's actions will be informed and may be modified by ongoing work at the State Water Resources Control Board to develop statewide bacteria quality objectives that are based on the USEPA's 2012 criteria.

26. **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.

27. **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.

28. **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

29. **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.

30. **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 2116) 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.

31. **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.

32. **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 4 and 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.

33. **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 of non-storm water discharges into the MS4; and (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 such other provisions as the Regional Board determines 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.

34. **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.

35. **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

36. **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.

37. **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.H.).

38. **Statewide Trash Provisions.** On April 7, 2015, the State Water Board adopted Trash Provisions in an amendment to the Ocean Plan and the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries (ISWEBE Plan). The amendments became effective upon Office of Administrative Law approval on December 2, 2015. The amendments require the Regional Board to implement these new provisions through NPDES permits issued pursuant to Federal Clean Water Act section 402(p), including MS4 permits. Within 18 months of the effective date of the Trash Provisions, the Regional Board must either:

    a. Modify, re-issue, or adopt applicable MS4 permits to add requirements to implement the Trash Provisions. The permit must require written notice from each Co-Permittee of which pathway (either Track 1 or Track 2) they elect to comply with no later than 3 months of the effective date of the permit. The implementing permit must also require that Co-permittees that select Track 2 must submit an implementation plan to the Regional Board within 18 months of the effective date of the implementing permit.
    b. Issue an order pursuant to Water Code section 13267 or 13383 requiring the Co-permittees to provide notice of which pathway (either Track 1 or Track 2) they elect to comply with no later than 3 months of the effective date of the order. The Co-permittees that select Track 2 must submit an implementation plan to the Regional Board within 18 months of the receipt of the Water Code section 13267 or 13383 order.

    The Trash Provisions are not incorporated into this Order. The Regional Board intends to implement the Trash Provisions through issuance of Water Code section 13267 or 13383 orders (Option b, above).

F. ADMINISTRATIVE FINDINGS

39. **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.

40. **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.

41. **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.

42. **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.

43. **Public Hearing**. The Regional Board held a public hearing on MONTH(S), DATE(S) 2016, 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.

44. **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.

45. **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[4], 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 validity of those 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 individually or collectively by Co-permittees pursuant to Provision I.A.2.

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 Principal

[4] 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, strategies, and improvements thereof 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.
5. Coordinate the submission of written reports, programs, plans and procedures to the Executive Officer as required by this Order.

III. DISCHARGE PROHIBITIONS AND LIMITATIONS

A. Prohibitions

1. In accordance with the requirements of 40CFR§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[5].
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 a 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 applicable discharge prohibitions contained in the Ocean Plan and 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 to a condition of pollution, contamination, or nuisance (see CWC Section 13050) are prohibited.
7. The discharge of urban runoff from MS4s into waters of the U.S. containing pollutants that have not been reduced or eliminated using effective BMPs is prohibited.

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

8. The discharge to waters of the U.S. of any substance(s) in concentrations that are toxic to animal or plant life is prohibited.
9. The discharge to waters of the U.S. of any radiological, chemical, or biological warfare agent, or high-level radiological waste, is prohibited.

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
Uncontaminated ground water infiltration (as defined in 40CFR§35.2005(20) to MS4s
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)[6]
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 to the MS4s.
2. With the exception of discharges subject to NPDES Permit No. CAG918002 (General Discharge Permit for Discharges to Surface Waters of Groundwater Resulting from Groundwater Dewatering Operations and/or Groundwater Cleanup Activities at Sites within the San Diego Creek/Newport Bay Watershed Polluted by Petroleum Hydrocarbons, Solvents, Metals and/or

[6] 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).

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Salts), as amended or revised, non-storm water discharges from facilities or activities owned or controlled by Co-permittees, and which are authorized by this Order, must be in compliance with the conditions and provisions in Attachment A to this Order.

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 ground waters.
B. Discharges of urban runoff from the Co-permittees' MS4s must comply with Provision IV.A. through timely implementation of best management practices (BMPs) 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 BMPs and other actions, the responsible Co-permittees must achieve compliance with prohibitions and receiving waters limitations according to Subsections IV.D and IV.E 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. R8-2016-0001 (Attachment B).
D. Where discharges from multiple Co-permittees are comingled and pollutants therein are not addressed by a WQBEL, a Co-permittee shall demonstrate compliance with Provision IV.A. as follows:

    1. Pursuant to 40CFR§122.26(a)(3)(vi), each Co-permittee is only responsible for discharges from the MS4 for which they are the owner or operator.
    2. Where Co-permittees have comingled discharges to the receiving water, or where Co-permittees' discharges comingle in the receiving water, compliance in the receiving water shall be determined for the contributing Co-permittees as a whole unless an individual Co-permittee can demonstrate that its discharge did not cause or contribute to the exceedance as follows:
        a. Demonstrate that there was no discharge from the Co-permittee's MS4 into the applicable receiving water during the relevant time period;
        b. Demonstrate that the discharge from the Co-permittee's MS4 was controlled to a level that did not cause or contribute to the exceedance in the receiving water;
        c. Demonstrate that there is an alternative source of the pollutant that caused the exceedance; that the pollutant is not typically associated with MS4 discharges; or that the pollutant was not discharged from the Co-permittee's MS4; OR
        d. Demonstrate that the Co-permittee is in compliance with the Watershed Management Plan provisions under Section XI.

E. Where a Co-permittee determines that a discharge of urban runoff is causing or contributing to the exceedance of an applicable water quality standard, the responsible Co-permittee(s) must, within 60-days of making the determination, either:

1. 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;
2. Provide evidence, acceptable to the Executive Officer that the source of pollution is background, naturally-occurring, or non-anthropogenic; or that the cause of pollution is not within the jurisdiction or control of the responsible Co-permittees; OR
3. Provide notice to the Executive Officer of their intent to develop a Watershed Management Plan for the affected watershed according to the requirements of Section XI.

F. Prior to accepting evidence or approving plans submitted pursuant to Provision IV.D., the Executive Officer shall provide a 30-day public review period.

G. Where the Executive Officer determines that a discharge of urban runoff is causing or contributing to the exceedance of an applicable water quality standard, the Executive Officer will notify the potentially-responsible Co-permittees of this in writing. The potentially-responsible Co-permittees must respond to the notice, using the options specified in Provision IV.D., by a date specified therein. If 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 reinitiate the procedure in this Section. Nothing in this Section shall prevent the Regional Board from enforcing any provision of this Order while the Co-permittees prepare and implement plans to achieve water quality standards or WQBELs.

H. 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-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 confirmed 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 actions (inclusive of sanctions), and describes performance measures to track and objectively evaluate the actions' effectiveness.

VII. ILLICIT DISCHARGES, ILLICIT CONNECTIONS, AND ILLEGAL DUMPING; TRASH AND OTHER SOLID WASTE CONTROL

A. Illicit Discharges, Illicit Connections, and Illegal Dumping

    1. Each Co-permittee must effectively prohibit illicit discharges and illicit connections to their respective MS4s through their ordinances and other appropriate mechanisms.
    2. 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.).

3. 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.
4. 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.A.5.

    a. Co-permittees must provide mutual assistance to one another in detecting known or suspected illicit discharges, illicit connections, and illegal dumping.
    b. 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.
        i. The database must be designed and used to track compliance with the requirements of this Section (Subsection VII.4.).
        ii. The database must be designed and used to guide the Co-Permittees' most effective use of resources towards satisfying the requirements of this Section.
    c. Each Co-permittee must identify the personnel or staff positions that are responsible for satisfying the requirements of Subsection VII.4. of this Order in their written program.
    d. 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.
        i. The maps must be distributed in a format that is readily available to personnel responsible for satisfying the requirements of Subsection VII.4. of this Order.
        ii. The maps must be reviewed and updated annually.
    e. 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. R8-2016-0001) indicates AB411 receiving water standards are exceeded in ocean outfalls/tributaries and in the nearby surf zone.
    f. 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.4.
        i. 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.

5. 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[7]:
    a. The Co-permittees' SSO program(s) must be comprised of the following elements:
        i. Procedures for responding to SSOs.
        ii. A hands-on field training program for Co-permittees' staff responsible for responding to SSOs.
        iii. An awareness-level training program for Co-permittees' field staff most likely to initially detect SSOs.
        iv. If necessary, executed Memorandum/Memoranda of Understanding (MOU) for delineating jurisdictional and financial responsibilities for the program.
    b. 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.
    c. 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.
    d. 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.

B. Trash and Other Solid Waste Control

1. Each Co-permittee must implement an effective program to eliminate the discharge of trash and solid waste to waters of the U.S. in amounts that adversely affect beneficial uses or cause nuisance.
    a. Measures employed for the control of trash and solid waste 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.

[7] This program is expected to be initially based on the Countywide Area Spill Control Program (CASC) as amended or revised to satisfy the requirements of this Order.

b. The principle Co-permittee must demonstrate that the Co-permittees have formally evaluated new technologies for the control of trash and solid waste, as they become aware of them, and report the findings in the Annual Progress Report.
c. Co-permittees may discontinue control measures for trash and solid waste 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.
d. 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.
e. Co-permittees must satisfy any conditions imposed by the Executive Officer as part of the approval of any substitution.

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 Construction General Permit (CGP) or an individual NPDES permit.
3. The inventory of construction sites must be updated, at a minimum:
   a. Twice during the dry season.
   b. Once per month during the wet season.
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, CGP WDIDs (if any), and location (latitude/longitude in decimal-degrees or NAD83/WGS84 format).

B. Each Co-permittee must inspect construction sites in their inventory which have an expected or actual duration of more than two weeks. 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. 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).

6. 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 CGP, 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.
7. 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.
8. 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.
9. Construction site inspectors must be trained according to Section XVI of this Order; inspectors must undergo training once per year.
10. The Executive Officer must be notified of any known, suspected, or threatened violation of applicable waste discharge requirements (i.e. statewide Construction General 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.
11. Except as provided for in Section XVII of this Order, Co-permittees must investigate complaints regarding potential or alleged discharge(s) of pollutants from 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,

Scrap Metal Permit (NPDES Permit No. CAG618001), or other NPDES permit.

2. The inventory of industrial sites must be updated through multiple mechanisms. The inventory must be updated yearly through reconciliation with other database inventories of businesses in each Co-permittee's jurisdiction. From all other sources, the inventory must be updated within 15 business days of the Co-permittee first becoming aware of the presence of a new site.
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 Permit or Scrap Metal Permit 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 Industrial General Permit, Scrap Metal 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 Industrial General Permit (except for sites regulated according to "No Exposure Certification"-related requirements), has coverage under the Scrap Metal Permit, or has coverage under an individual 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"[8];
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. Any Co-permittee may propose an alternative priority category distribution of their industrial 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. 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 Industrial General 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.
6. 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.
7. Co-permittees must address instances of non-compliance with a series of effective, progressive actions to ultimately compel compliance.
8. Industrial site inspectors must be trained according to Provision 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. Statewide Industrial or Construction General Permits, etc.), discovered during inspections of industrial sites according to Provision XVII.C. of this Order. Such violations include, but are not limited to:

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

a. Failure to obtain coverage under the applicable waste discharge requirements.
b. Unauthorized discharges.

10. Except as provided for in Provision XVII of this Order, Co-permittees must investigate complaints regarding potential or alleged discharges of pollutants from 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 through multiple mechanisms. The inventory must be updated yearly through reconciliation with other database inventories of businesses in each Co-permittee's jurisdiction. From all other sources, the inventory must be updated within 15 business days of the Co-permittee first becoming aware of the presence of a new site.
2. Each Co-permittees' inventory of commercial sites must be maintained in 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. Statewide Construction General 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 potential or alleged discharges of pollutants from 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 of the inspection date.

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. Mobile Businesses: 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. WATERSHED MANAGEMENT PLANS

In response to determinations that a discharge of urban runoff is causing or contributing to an exceedance of water quality standards or to exceedances of a WQBEL, the responsible Co-permittees may develop and fully implement plans to address these exceedances according to the requirements of this Section XI. The development and implementation of these plans will serve as a means to comply with receiving water limitations in Section IV (*Receiving Water Limitations*) and with WQBELs whose final deadlines have not yet passed in Section XVIII (*Total Maximum Daily Load Implementation*). Co-permittees may also develop plans without waiting for the results of water quality monitoring, analysis, and reporting to indicate that urban runoff is causing or contributing to exceedances of water quality standards or exceeding WQBELs. Whether a plan is initiated reactively or proactively, the responsible Co-permittees' full compliance with the following requirements will constitute compliance with receiving water limitations in Section IV and with those WQBELs that implement WLAs whose final deadlines have not yet passed in Appendices B through H according to the procedures in Section XVIII.

A. The responsible Co-permittees must provide written notice to the Executive Officer of their intent to develop a Watershed Management Plan (WMP) to achieve water quality standards and/or WQBELs within a watershed according to the following requirements:

1. The notice must include a schedule for the development of the draft WMP.
   a. The schedule must include a work breakdown structure for the completion of discrete tasks and the achievement of specific milestones in the development of the draft plan. The plan development schedule must identify a minimum of three (3) critical milestones. The schedule must be sufficiently detailed to allow early detection of variances that may cause the Co-permittees to miss critical milestones or the final deadline. Deadlines may be either fixed dates or floating deadlines (e.g. "thirty days from").
   b. The plan development schedule must be as short as practical, but the date for submitting a final draft WMP must not have a deadline that exceeds 12-months from the date of the notice. The Regional Board

and the Executive Officer may approve extensions of time for meeting critical milestones and the final deadline.

i. The Executive Officer may not approve extensions that exceed 6 months in total.
ii. For the duration of the extension period, the responsible Co-permittees must demonstrate compliance with receiving water limitations in Section IV and with applicable WQBELs according to Section XVIII.
iii. Where a WMP is being prepared subsequent to a determination that discharges of urban runoff are causing or contributing to an exceedance of water quality standards, the time between milestone dates shall not exceed one year.

c. All deadlines must be part of a measurable and verifiable schedule.

2. The notice must also:
   a. Identify the responsible Co-permittees who will be participating in the development of the WMP.
   b. Include copies of executed or draft agreements that are necessary to fund the development of the WMP.
   c. Provide the contact information for representatives for each of the responsible Co-permittees.
   d. Describe the management area (watershed or sub-watershed) over which the plan will apply.
   e. Describe any models or similar analyses that may be used to prepare the draft WMP according to Provision XI.E.8. below.

B. The responsible Co-permittees must implement the development schedule for the draft WMP according to the critical milestones and the final deadline, except as follows:

1. Any changes to the critical milestones and final deadline must be requested in writing and are subject to the approval of the Executive Officer or the Regional Board.
   a. The Executive Officer may approve extensions of time not to exceed 6 months in total.
   b. For the duration where the extension period causes them to deviate from the original critical milestones and final deadline, the responsible Co-permittees must demonstrate compliance with receiving water limitations in Section IV and with applicable WQBELs according to Section XVIII.
   c. Where a WMP is being implemented subsequent to a determination that discharges of urban runoff are causing or contributing to an exceedance of water quality standards, the time between critical milestone dates shall not exceed one year.

2. Any written request for a change in the critical milestones or the final deadline must include a statement of the purpose and need for the change.

3. The Executive Officer will provide a minimum of 10 days for public review of a request for a change prior to approving the request. Written requests must be received not less than 10-days prior to the affected scheduled deadline.

C. WMPs may be developed for more than one pollutant or for similar classes of pollutants. A Watershed Management 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.

D. The responsible Co-permittees must describe programs and projects in their Watershed Management Plan(s) which prioritize the pollutants which are most likely to cause or contribute, or are known or suspected of causing or contributing to exceedances of water quality standards and WQBELs. The projects and programs must be designed to be carried out to reduce those pollutants in urban runoff according to a measurable and verifiable schedule. The responsible Co-permittees will prioritize pollutants based on any available information that is relevant to actual or probable exceedances of water quality standards and WQBELs, including, but not limited to the following:

1. Water quality information collected as part of efforts to detect illicit discharges and illicit connections;
2. Information collected as part of inspections of industrial, commercial, and construction sites;
3. Reports regarding pollutant source investigations;
4. The results of watershed modeling studies;
5. Analyses of outfall monitoring data or receiving water monitoring data; and
6. The status of the receiving water on the Clean Water Act Section 303(d) list of impaired waters.

E. The plan's projects and programs must be designed by the responsible Co-permittees to cause discharges of urban runoff from their MS4s to comply with relevant water quality standards and WQBELs. The WMP contents must include the following:

1. A description of the pollutant(s) that are most likely to cause or contribute, or are known or suspected of causing or contributing to exceedance(s) of water quality standards and/or WQBELs and a description of the supporting information and rationale used to identify the pollutant(s).
2. A description of the persons or activities known or suspected of being the source of the pollutant(s); a description of other potential sources which were considered and excluded; and a description of the supporting information and rationale.
3. A description of the BMPs that were being employed to control the pollutant(s). The description must be adequate to fully characterize the baseline conditions under which exceedances have occurred or may occur.
4. A description of any proposed new BMPs or modifications of currently-employed BMPs. BMPs may include:

a. Execution of studies or pilot programs that fill information gaps in storm water pollution control science and support the effective employment of BMPs.
b. Modification or substitution of procedures or practices at facilities owned or controlled by the responsible Co-permittees.
c. Modifications of the messages and target audiences of public education campaigns.
d. Adoption and enforcement of ordinances or standards designed to reduce certain pollutants.
e. Incentive programs designed to discourage, substitute, or preempt certain polluting practices.
f. Incentive programs designed to encourage source control, site design, and structural treatment control BMPs in existing development (retrofit programs).
g. Planning and execution of stream or habitat restoration or rehabilitation projects that provide or contribute to demonstrable improvements in the physical, chemical, and biological integrity of and to achievement of water quality standards in receiving waters.
h. Planning and implementation of regional or sub-regional structural treatment control BMPs.
i. Adoption and pursuit of land-use or transportation planning goals and objectives that implement and support LID.

5. A time schedule for the implementation of new BMPs or modifications of currently-employed BMPs, to prevent or reduce the pollutant(s). The description must be adequate to measure and verify progress towards implementation and implementation of the BMPs by the responsible parties[9]. BMPs that are required by a WQBEL must be carried out according to the schedule specified in the related TMDL.
6. Interim and final deadlines by which the responsible Co-permittees expect to cause discharges to comply with WQBELS or when water quality standards are expected to be met. The final deadline must be as short as practicable, taking into account the technological, operation, and economic factors that affect the design, development, and implementation of BMPs; or otherwise must not exceed any applicable final deadline for WQBELs in Appendices B through H. The time frame between each interim deadline must not exceed one year.
7. A detailed strategy for financing implementation of the plan. The strategy must be completed by qualified persons using suitable standard practices (e.g. discounting, sensitivity analysis, disclosure of assumptions and limitations, etc.).
8. An objective analysis which provides a reasonable assurance that the new or modified BMPs can be expected to cause discharges to achieve the applicable WQBELS or water quality standards are expected to be met (Reasonable Assurance Analysis).

[9] Also known as a Work Breakdown Structure (WBS).

a. The analysis must be supported, in part, by peer-reviewed models that are in the public domain unless a determination can be made, to the satisfaction of the Executive Officer, that an appropriate model and/or a suitable dataset for use in a model are not available.
b. The analysis must include an assessment of the internal strengths and weaknesses of the plan, including entities responsible for its implementation, and the external opportunities and threats which may affect the likelihood of successfully achieving and/or maintaining compliance with water quality standards and WQBELs.
c. The analysis must be in substantial conformance with written guidance developed or referenced by Regional Board staff.

9. Proposed revisions to the Monitoring and Reporting Program designed to evaluate the effect of implementing the Watershed Management Plan on receiving water quality.

F. The draft WMP is subject to review and approval by the Executive Officer. The Executive Officer is authorized to approve the draft plan, subject to conditions. The Executive Officer may also elect to seek consideration by the Regional Board of the draft plan.
G. The Executive Officer will provide at least a 30-day public review period prior to consideration by the Executive Officer or Regional Board of any draft WMP or any proposed amendments to an already-approved (final) WMP.
H. The draft WMP becomes a final plan upon approval by the Executive Officer or the Regional Board and must be fully implemented by the responsible Co-permittees according to critical performance measures, interim deadlines, and final deadlines identified in the plan or by the Executive Officer as part of conditions of approval.
I. The responsible Co-permittees must provide any information that is missing from their draft WMP, and/or submit changes to the draft plan pursuant to a written request by the Executive Officer by a date specified in the request.
J. The development, review and approval process of a WMP will occur according to the schedule shown in Table 3 below:

Table 3: Schedule for the Development, Review, and Approval of Watershed Management Plans

Step	Deadline
The responsible Co-permittees submit notice of intent to develop a plan to comply with water quality standards and/or WQBELs.	No deadline.
Initial draft is submitted to the Executive Officer.	Not more than one year from the date the Regional Board receives the written notice of intent to prepare a WMP.

The Executive Officer completes the initial review of the draft plan, determines if the initial draft is complete according to the required contents, and notifies the responsible Co-permittees of any missing information or any instructions for amendments in writing.	Within 60-days of receipt of the initial draft WMP.
The responsible Co-permittees provide any missing information to complete the initial draft plan and/or provide a second draft amended according to the Executive Officer's written instructions.	By date specified in the notice.
The Executive Officer provides draft conditions of approval for the draft plan, if any, to the responsible Co-permittees.	Within 60-days of receipt of a complete draft WMP which has been amended according to the Executive Officer's instructions.
The Executive Officer provides the complete, amended draft plan and any proposed conditions of approval for public notice.	Not less than 30-days prior to the expected date of approval of the draft plan.

K. The responsible Co-permittees must make the final WMP, as later amended or revised, accessible to the public by posting the plan to their web site(s), the Principal Permittee's web site, or another method acceptable to the Executive Officer.
L. Except for non-substantive grammatical or technical corrections, the final WMP may be amended by the Co-permittees only with the approval of the Executive Officer.
M. Plan amendments must be requested in writing and are subject to the approval of the Executive Officer. All proposed amendments must include an explanation of the purpose and need for the amendments. The Executive Officer will respond to requests for amendments within 60-days of receipt of the request. The Executive Officer may either: (1) request additional information, (2) approve the proposed amendments as is, (3) approve, subject to conditions, or (4) reject the proposed amendments.
N. In carrying out approved WMPs, the responsible Co-permittees are subject to all of the relevant management requirements of this Order. This includes, but is not limited to requirements related to legal authority to carry out the approved WMP; execution of inter-agency and inter-Co-permittee agreements; execution of the "iterative process"; the performance of program effectiveness assessments using valid performance measures; and the collection and use of monitoring data to

evaluate and improve the effectiveness of projects and programs described in the WMP.

O. The effective requirements of the approved WMPs shall supplement and complement the requirements of this Order, unless provisions of this Order allow otherwise.

P. Performance measures (inclusive of non-critical milestones) developed by the responsible Co-permittees for the BMPs in the WMPs will not be regarded as enforceable unless specified otherwise in the WMP or as part of the Executive Officer's conditions of approval (critical performance measures). However, as with any performance measure, the responsible Co-permittees must use them constructively to improve projects and programs in order to achieve or maintain water quality standards or WQBELs according to the requirements of this Order.

Q. The responsible Co-permittees must provide a written notification to the Executive Officer, no later than 14 days following each critical milestone final deadline in an approved WMP, of the status of compliance or non-compliance thereof.

R. Where regional and sub-regional structural treatment control BMPs are proposed in the WMPs and such facilities are not subject to requirements pertaining to project WQMPs, the Executive Officer and the responsible Co-permittees must provide that regional and sub-regional structural treatment control BMPs comply with the requirements of Section XII.D. (*General Requirements for Structural Treatment Control BMPs*) of this Order and, if applicable, Sections XII.K. (*Specific Requirements for Infiltration LID BMPs*) and XII.L. (*Specific Requirements for Harvest and Use LID BMPs*).

S. If, despite the implementation of the final approved WMP, cycles of monitoring, analysis, and reporting continue to result in determinations that there are continuing or recurring exceedances of water quality standards or WQBELs that are caused or contributed to by discharges of urban runoff, the responsible Co-permittees must reinitiate the planning procedures in this Section. Successive iterations must include in the new draft WMP, in summary:

1. Revised compliance schedule;
2. a comprehensive updated Reasonable Assurance Analysis;
3. modifications to BMPs;
4. additional BMPs; and
5. if appropriate, changes to the monitoring program.

T. Compliance Determination

1. A submitted notice to prepare a draft WMP, compliance with the critical milestones and final deadline in a draft WMP development schedule, or implementation of an approved final WMP according to the requirements of this Order will serve as a mechanism to comply with receiving water limitations in Section IV (*Receiving Water Limitations*) and with WQBELs whose final deadlines have not yet passed in Section XVIII (*Total Maximum Daily Load Implementation*).
2. In the absence of a submitted notice to prepare a draft WMP, compliance with the critical milestones and final deadline in a development schedule for

a draft WMP, or implementation of an approved final WMP according to the requirements of this Order, the responsible Co-permittee must comply directly with the receiving water limitations in Section IV and achieve the WQBELs in Appendices B through H according to the requirements of Section XVIII; compliance will be verified through a process developed for this purpose in the Water Quality Monitoring Plan.

3. In the event that the Executive Officer determines that the Co-permittees have failed to comply with any of the provisions in this Section related to developing a draft plan, or to fully implementing a final plan, the Executive Officer may provide written Notice to the responsible Co-permittees and provide not more than 90-days from the date of the Notice to correct the deficiencies.
    a. If, after issuance of written Notices, a Co-permittee repeatedly fails to come into compliance with the requirements of this Section XI, either through performance of the requirement or by pursuing an acceptable amendment of the WMP, the Executive Officer may conclude that the Co-permittee has constructively abandoned development or implementation of the WMP.
    b. Upon concluding that the WMP has been constructively abandoned, the Executive officer will provide written notice to the responsible Co-permittee that they have been relieved of responsibility for developing a draft WMP or implementing the approved final WMP and direct the responsible Co-permittee to immediately comply with the receiving water limitations and WQBELs.
    c. Once the Executive Officer has issued any written Notice to the responsible Co-permittee, any action taken by the responsible Co-permittee(s) as a means to come back into compliance does not preclude any additional enforcement action by the Executive Officer or the Regional Board for violations of the requirement(s) in effect at the time of the Notice. The Executive Officer will make Notices issued according to this Subsection available for public review.
4. Where the responsible Co-permittee(s) believe that additional time is necessary to comply with an interim milestone or final deadline identified in a WMP with the exception of those final compliance dates established in a TMDL, the Co-permittee(s) may request an extension by way of amending the WMP, subject to public review. The requested extension must be provided to the Executive Officer and for public review not less than 30 days prior to the milestone or deadline and shall include the purpose and need for the extension. Extensions approved by the Executive Officer may not cause or allow a Co-permittee to exceed a final compliance date established in a TMDL.
5. If, during the development phase for a WMP, the responsible Co-permittees are granted an extension of time to meet critical milestones or the final deadline for the submission of a draft WMP, the responsible Co-permittees must demonstrate compliance with receiving water limitations in Section IV and with those WQBELs that implement WLAs whose final deadlines have

not yet passed in Appendices B through H during the period where the extension causes them to deviate from the original development schedule.

6. Where the responsible Co-permittee(s) believe that additional time is necessary to comply with a final deadline for a WQBEL, the Co-permittee(s) may request a time schedule order pursuant to California Water Code Section 13300. The request must be in writing and received by the Regional Board not less than 180-days before the final deadline.

XII. NEW DEVELOPMENT (INCLUDING SIGNIFICANT REDEVELOPMENT)

A. Planning Requirements

1. Each Co-permittee must adopt and implement 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 where design has been initiated 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.O.
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. <u>Significant redevelopment projects</u> 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*[10].

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, where such plans apply, 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-

[10] 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

making body (e.g. staff, 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 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 according to the final approved project WQMP or non-priority project plan. Each Co-permittee must effectively enforce the measure(s) accordingly.
15. Each Co-permittee must implement an effective 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 control BMPs 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 which requires a project WQMP or a Non-Priority Project Plan 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 and by the

project applicant.

a. Serviceable facilities must be in working order and 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 and document 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.
    d. Documents written and certified acknowledgement by the project owner of the obligations established in the final project WQMP and the related municipal ordinance(s).

C. General Requirements for Priority Projects

1. Co-permittees must require priority projects to use source control, site design, and structural treatment control BMPs to remove pollutants in urban runoff discharged from the project site unless an equal design capture flow or volume is treated according to Subsections XII.I. or XII.N.[11]. These BMPs and other information necessary to demonstrate compliance with this Order must be documented in a project WQMP.
2. Source control and site design BMPs must be located on the project site. Structural treatment control BMPs must be located on-site, unless the provisions of Subsections, XII.I., XII.M., or XII.N. are met. Structural treatment control BMPs may be required to be located on-site as pre-treatment controls to comply with Subsection XII.M.
3. Source control, site design, and structural treatment control BMPs must be designed to maximize retention of the site's design capture volume unless such measures pose an unmitigatable environmental hazard.

[11] See Glossary for the meaning of structural treatment control BMP.

4. Project WQMPs must be prepared in substantial conformance with uniform written technical guidance[12]. 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.
5. Project WQMPs must be prepared by or under the supervision of a registered civil engineer or licensed landscape architect (See Provision XII.D.9. below).
6. 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.
7. 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, 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.
8. The Co-permittees must provide and promote an effective mechanism for stakeholder input in the continual improvement process for the preparation, review, enforcement, and implementation of WQMPs.
9. Co-permittees must require project proponents to identify, in each approved project WQMP, a source of available funding and a party that will be legally 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.
10. 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.
11. 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.
12. Co-permittees must maintain an electronic database adequate to identify sites affected by an approved WQMP.

[12] 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.

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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. Identifying information for the party responsible for maintenance and their contact information, including emergency contact information.
    vii. 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.

13. 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. and XII.P. of this Order (See also Provision XII.C.4.).
3. A singular or set of structural treatment control BMPs that are <u>volume-</u>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).
c. 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*).
d. 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. Prior to approval, Co-permittees must identify a party that will be responsible for the long-term operation and maintenance of structural

treatment control BMPs.

9. Structural treatment control BMPs must be sized and designed by, or under the direction of, a registered civil engineer.
10. 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.
11. Structural treatment control BMPs must incorporate one or more practical mechanisms to allow verification of the drawdown of the design capture volume or flow. 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.
12. 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.
13. 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[13].
    b. All Co-permittee-owned or operated structural treatment control BMPs must be inspected annually prior to the wet season (October 1st).
14. Structural treatment control BMPs must not cause a condition of nuisance or pollution, as defined in CWC Section 13050.
15. Structural treatment control BMPs must not cause or contribute to an exceedance of groundwater quality objectives.
16. 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, waste discharge requirements, or waiver thereof.
17. Except as permitted by Subsection XII.E, below, structural treatment control BMPs must:
    a. Be identified using standard nomenclature; AND
    b. Must be sized and designed in substantial conformance with non-proprietary 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 by qualified independent third parties in field tests using published and recognized protocols.
18. All requirements in this Order for the selection and design of structural

[13]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.

treatment control BMPs apply to both on-site and off-site facilities.

19. Where the tributary area to an on-site facility includes areas outside of the project boundary, the facility does not need to be sized to treat the design capture volume or flow from outside the project boundary unless appropriate agreements are in place for that facility to function as a regional or sub-regional facility according to Subsection XII.M.

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 by qualified independent third parties 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 must be 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 ten (10) nonconforming structural treatment control BMPs in total during the term of this Order.
    d. Each nonconforming structural treatment control BMP must be subject to a performance monitoring plan designed and carried out to substantiate the expected performance of the facility using published and recognized protocols. The results must be evaluated by a qualified independent third party.
    e. The results of the performance monitoring plan must be submitted to the Executive Officer if the responsible Co-permittee concludes that the expected performance of the facility is similar or better as compared to the most similar conforming structural treatment control BMP.
    f. The nonconforming structural treatment control BMP is subject to all other requirements of this Order.
2. The responsible Co-permittees must provide that a non-conforming structural treatment control BMP be replaced with a conforming BMP in the event that the facility fails to perform in a similar or better manner as compared to the most similar conforming BMP or that the facility fails to perform to the Co-permittee's satisfaction. The Co-permittee must require financial assurance instruments that are adequate to carry out the replacement.
3. Co-permittees must report both the application for approval and approval of any nonconforming structural treatment control BMPs within their jurisdiction to the Principal Permittee in writing.

4. 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.4.).
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[14].
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

[14] See Glossary.

the design capture volume or flow 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.
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 unless such measures pose an unmitigatable environmental hazard.
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 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. 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 and evaluated by a qualified independent third party.

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 categories and a corresponding common list of pollutants which can reasonably be expected to be found in urban runoff from those project categories.
4. If non-LID BMPs, or systems of non-LID BMPs, are the only type of structural treatment control BMP employed to treat the design capture volume or flow from a tributary area of a project, the Co- Permittees must only accept the use of non-LID BMPs, or systems 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.

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 or flow with treatment of the same or greater design capture volume or flow 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. The off-site location must not have a pending or submitted development application which would produce similar structural treatment controls on its own.
4. The structural treatment control(s) selection process at the off-site location must be subject to the requirements of Section XII as applicable.

5. 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.
6. Future redevelopment projects on either the retrofit site or the project site using the retrofit option must consider incorporation of structural treatment controls according to the requirements of the Order in effect at the time.

J. Waiver of Structural Treatment Control BMPs

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 to treat the untreated design capture volume or flow;
    c. Source and site design BMPs have been incorporated to maximize the infiltration of urban runoff;
    d. If a schedule of fees or services has been designed to mitigate the water quality impacts of the untreated design capture volume or flow and the schedule 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".

K. 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 that (1) utilizes a pipe or conveyance to direct flow to a subsurface system, such as a dry well, vault, or infiltration trench, (2) is

comprised of surface infiltration with a cumulative tributary area that exceeds 5,000 square feet, or (3) is proposed to be located over known soil or groundwater contamination, prior to the approval of the final WQMP.

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. The approval of any infiltration LID BMP with a vertical separation from the bottom of the facility to groundwater that is less than 10-feet must be based on site-specific information on groundwater depth wherever available.
5. Infiltration LID BMPs must be located a minimum horizontal distance of 100-feet from any water supply wells.
6. The construction method must not result in the compaction of the subgrade of infiltration LID BMPs.
7. Infiltration LID BMPs must not be designed to infiltrate the design capture volume outside of minimum or maximum rates recommended in published and generally-accepted engineering design manuals. This provision does not prohibit the use of engineered infiltration substrate or other methods used to bring the infiltration rate within the recommended design parameters[15].
8. Infiltration LID BMPs which are proposed to be located over known soil or groundwater contamination must not be approved if there is substantial evidence that the facility may adversely impact groundwater conditions.
9. Infiltration LID BMPs used to treat storm water runoff associated with industrial activity[16], storm water runoff from highways subject to motorized vehicular traffic of 25,000 average annual daily traffic, motorized fleet vehicle storage, or other land uses or activities that pose a high-threat to ground water quality must employ design features that allow flow into the facility to be readily blocked in the event of an accidental spill or release.
10. 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[17].
11. Structural treatment control BMPs must be provided to pre-treat and remove

[15] This does not permit the designer to install a flow restrictor on some vessel to meet design parameters: the flow rate from the vessel to the infiltrated substrate is not the same as the infiltration rate through the substrate.
[16] This excludes areas of an industrial site where no industrial activity occurs, such as a roof which has no roof-mounted industrial equipment or exhausts from industrial equipment which may emit potential storm water pollutants. See NPDES Permit No. CAS000001 for a definition of "storm water associated with industrial activity".
[17] 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)

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.

12. 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.
13. 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.

L. 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.
        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.

M. 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 pursuant to Subsections XII.I., XII.N., or 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 effect 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.M.).

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 and approved by the Co-permittees' land-use authority, 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 applicable, Sections XII.K. or XII.L. 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 prepared according to the requirements of this Order.

c. A regional or sub-regional biotreatment control BMP has been planned and approved by the Co-permittees' land-use authority, 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.M.1.b. (for regional or sub-regional retention LID BMPs above) have been or will be met as appropriate.

2. Where a structural treatment control BMP has been approved or constructed according to a final project WQMP, the Co-permittees are authorized to amend the relevant project WQMP(s) to replace the facility and, if applicable, decommission the facility, only if:

a. The facility's design capture volume or flow will be treated by an off-site facility that satisfies the provisions in Subsection XII.M.1. above;

b. The expected performance of the off-site facility in removing pollutants from its effluent is equal or better than the combined expected performance of the facilities that it will replace; and

c. Co-permittees employ decommissioning standards and conditions which effectively address the water quality hazards that the decommissioned facility may pose.

N. Credit Programs

1. Co-permittees are authorized to allow the transfer of design capture volume or flow "credits" to priority projects. These credits may be used by a priority project to satisfying requirements in this Order to treat the design capture volume or flow from the project using structural treatment controls subject to the following limitations:

a. The "credit" shall only be generated when a structural treatment control LID BMP has been designed and is operated to treat the design capture volume or flow from a tributary area that does not include the area of a proposed project. The "credit", as a unit of trade, must be directly related to a unit of design capture volume or flow treated by the structural treatment control LID BMP (e.g. acre-foot, cfs, etc.). Credits must be revocable in the event that the facility is abandoned or is not operated and maintained in substantial conformance with best practices.

b. Credits may only be generated based on the design capture

volume or flow produced by the area tributary to, and treated by, the structural treatment control LID BMP – upsizing a facility to treat the design capture volume or flow from a fictitious area is not allowed. The installation of the structural treatment control LID BMP may occur independent of a development project; in this case, the entire design capture volume or flow may be traded. If the facility is installed in association with a priority project, only the design capture volume or flow from that area outside of the project boundary may be traded.

c. The credit must be generated by a structural treatment control LID BMP that is located on property which is owned or controlled by the proposed project proponent. The property on which the facility is located and the property where the project is located need not be contiguous. However, credits must not be allowed to be applied to projects outside of the watershed of the nearest receiving water of the U.S. in which the structural treatment control LID BMP is located.
d. The selection process for the structural treatment control LID BMP must give first priority consideration to retention LID BMPs according to the criteria in Subsection XII.F. The basis for selection must be documented in a plan accordingly, but not necessarily in a project WQMP. The plan must be subject to the same requirements in this Order related to providing that the plan is authentic, readily discoverable by interested parties, and protected over the life of the related projects.
e. The structural treatment control LID BMP must be subject to applicable provisions of Subsections XII,D., XII.F., XII.G., XII.K., and XII.L. of this Order. Where there is a conflict, the provisions of this subsection prevail.
f. The structural treatment control LID BMP must be constructed, serviceable, and satisfactory to the responsible Co-permittee prior to final occupancy or use of the first project that is entitled to use the credit generated by the facility.
g. Prior to allowing credit trading, the Co-permittee(s) within whose jurisdiction(s) the affected projects are located must have and employ an effective system of accounting and controls to provide that credits are sold and used once, to relate all uses of credits to the originating structural treatment control LID BMP, to track the ownership and use of credits, and to protect against fraud and abuse.

O. 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 are a significant source of pollutants in urban runoff, Co-permittees must require such 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[18].

a. Each Co-permittee must develop policies and procedures to identify non-priority projects that include modifications or improvements that are, or affect areas that are, exposed to storm water and which are a significant source of pollutants in urban runoff.
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 effective date of this Order. Updates must be reported in subsequent Annual Reports thereafter.

2. BMPs for non-priority projects identified in Section XII.O.1.a. 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 prepared by persons with qualifications and competencies that are commensurate with the complexity of the project and plan.
6. Non-priority Project Plans must be approved by the responsible Co-permittee by a person with qualifications and competencies that are commensurate with the complexity of the plan.

P. 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.

[18] 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.

d. The Executive Officer grants an individual or general variance in 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.P.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.P.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:
      i. 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
      ii. 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.P.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.P.2.b. above.
      iii. The proponent has demonstrated in the project WQMP that it is infeasible to satisfy the criteria of Provision XII.P.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.

3. 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 for the planned build-out of the tributary area, as dictated by the latest version of the Orange County Hydrology Manual, 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.P.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.P.).

XIII. PUBLIC EDUCATION AND OUTREACH

A. The Co-permittees must implement an effective public education program that is designed to raise awareness of pollution-prevention best practices and cause 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 behaviors and target audiences to address the selected high-priority urban runoff pollution issues;
4. Create specific messages that are appropriate to the target audiences and to specific 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.
4. The survey must be completed no later than 60 months from the effective date of this Order.
5. 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 implement an effective program for maintenance activities for fixed facilities, field operations, and drainage facilities for the purpose of ensuring that such activities do not adversely impact water quality.
B. 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. Potable water distribution facilities (this excludes the distribution system, wells, etc.);
h. Hazardous waste treatment, disposal, and recovery facilities;
i. Corporation, maintenance, and storage yards;
j. Airfields;
k. Parks, golf courses, and recreation areas;
l. Cemeteries;
m. Public buildings (police and fire stations and training facilities, libraries, etc.)
n. Stadiums and other special event venues;
o. Equestrian facilities;
p. Animal shelters and kennels;
q. Boat yards and marinas;
r. Public parking facilities; and
s. Areas or facilities that discharge directly to lagoons, the ocean, or Environmentally Sensitive Areas.

C. Each Co-permittees' inventory of fixed facilities under their ownership or control must identify those facilities which may discharge subject to the provisions in Attachment A of this Order.
D. Each Co-permittee must report their inventory of fixed facilities with the exception of catch basins, storm drain inlets, and open channels. The initial report must be provided within 90-days of the effective date of this Order in an electronic format consistent with guidance provided by the Executive Officer. Subsequent updates must be reported bi-annually thereafter no later than November 15th of the year that the update is required.
E. The Principal Permittee may propose a schedule for visual inspection and mechanical or physical cleaning of catch basins, storm drain inlets, and open channels (collectively referred to as "systems" in this Section) 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.F. below.
F. 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 all facilities that are subject to this requirement.

1. Trash and debris must be physically removed from the systems in a timely manner when found.
2. Where other agencies' authorization is required to remove trash and debris 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 trash and debris 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 trash and debris.

4. Each Co-permittee must establish objective thresholds to define "unusually large quantities" of trash and debris in systems that they own or control.
5. Each Co-permittee must implement an effective management system to identify portions of the systems which accumulate unusually large quantities of trash and debris and remove them.
6. Each Co-permittee must implement an effective program to detect and eliminate or minimize the seepage of wastewater from sanitary sewers to the storm drain system.

G. 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 ordinance or other requirements related to the control of pollutants to the MS4; identify and correct unnecessary deviations from standard operating procedures (see Section XIV.H. below); internally enforce relevant discharge requirements; and identify and eliminate known or suspected unauthorized non-storm water discharges.

H. 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 in urban runoff.
2. The program must include written standard operating procedures for Co-Permittees' staff who 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 written in plain, straightforward language, avoiding technical terms as much as possible, and using a coherent and easily readable style.
    c. 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.

I. 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 according to with Federal, State, and local laws and regulations[19].

1. Each Co-permittee must develop and implement Integrated Pest

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

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 of 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 provisions 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.

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. Affected personnel must be able to demonstrate proficient knowledge of 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 able to demonstrate proficient knowledge of 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. Methods for affecting compliance, including enforcement tools and procedures.

4. At a minimum, personnel responsible for inspecting restaurants must be able to demonstrate proficient knowledge of 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.
    e. Proper spill clean-up methods.
    f. Proper operation and maintenance of devices designed to separate fat, oil, and grease from wastewater.
    g. Methods for affecting compliance, including enforcement tools and procedures.
5. At a minimum, personnel responsible for investigating, eliminating or permitting illicit discharges and illicit connections must be able to demonstrate proficient knowledge of 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.
    d. Methods for affecting compliance, including 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 able to demonstrate proficient knowledge of 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 40CFR§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. Statewide Industrial or Construction General 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 calendar 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 Maximum Daily 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). Additionally, the City of Lake Forest must implement any TMDL and associated Phase I MS4 permit requirements issued by the San Diego Regional Water Quality Control Board that are applicable to the City of Lake Forest.
2. Unless a future deadline to comply with a WQBEL is shown in Appendices B through H, Co-permittees responsible for complying with the WQBELs 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.D. below
3. A Co-permittee may comply with WQBELs through any lawful means.
4. In cases where a WQBEL is assigned jointly to a group of Co-permittees or other parties whose discharges are, or may be comingled prior to entering the receiving water, pursuant to 40CFR§122.26(a)(3)(vi), each Co-permittee is only responsible for discharges from the MS4 for which they are owners or operators.
5. Where Co-permittees have comingled discharges to the receiving water, compliance at the outfall or in the receiving water shall be determined for the group of Co-permittees as a whole unless an individual Co-permittee demonstrates that its discharge did not cause or contribute to the exceedance. A Co-permittee may demonstrate compliance with WQBELs using monitoring data to:
    a. Demonstrate that there are no exceedances of WQBELs using monitoring data that has been collected and analyzed pursuant to an approved TMDL monitoring plan; OR
    b. Demonstrate that there are no violations of receiving water limitations at monitoring locations which have been designated pursuant to the requirements of Monitoring and Reporting Program R8-2016-0001; OR
    c. Demonstrate that there is no discharge from the responsible Co-permittees' MS4(s) to the receiving water during the time period subject to the WQBEL.
    d. For exceedances of WQBELs for indicator bacteria, demonstrate through the use of generally-accepted source-identification protocols, or, if applicable, through protocols established under California Water Code Section 13178 that sources within the Co-permittee's jurisdiction or MS4 have not caused or contributed to the exceedance.
6. For water body-pollutant combinations subject to an adopted TMDL, full compliance with TMDL requirements, as incorporated in this Order, will be regarded as compliance with the receiving water limitations for the water body-pollutant combination.
7. 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[20]. 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 according to Subsection XVIII.A.5. above.
    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 WLAs 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[20]. 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 according to Subsection XVIII.A.5. above.
    b. The responsible Co-permittees may initiate development of and implement a Watershed Management Plan according to the requirements of Section XI and the following:
        i. For WQBELs where the related TMDL has an implementation plan that includes a requirement that the Co-permittees develop a compliance plan, the draft Watershed Management Plan must be submitted consistent with the schedule specified in the TMDL implementation plan.
        ii. For WQBELs where a 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 Section XI.

[20] 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.

iii. Where monitoring data indicates that discharges of urban runoff are not achieving applicable WQBELs, the responsible Co-permittees must submit a notice of their intent to develop and implement a Watershed Management Plan according to the requirements of Section XI within 60-days of becoming aware of the situation.

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 WQBELs at MS4 outfalls which have been designated pursuant to the requirements of Monitoring and Reporting Program R8-2016-0001; OR
      iii. Demonstrating that there are no exceedances of WQBELs according to the *Regional Monitoring Program for the BMP Strategic Plan: Santa Ana-Delhi Channel and San Diego Creek Subwatershed*, as approved by the Regional Board; OR
      iv. There is no discharge from the responsible Co-permittees' MS4(s) to the receiving water during the time period subject to the WQBELs.
   b. The responsible Co-permittees may initiate development of and fully implement a Watershed Management Plan according to the requirements of Section XI and the following:
      i. For WQBELs where a 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 Section XI.

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 and any Watershed Management Plan which has been approved by the Executive Officer or the Regional Board. The assessment 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. Methods used to monitor and measure program activities must be carried out in a manner that is representative of the monitored activity.
D. Each Co-permittee's assessment program 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.

E. 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. R8-2016-0001). Reported outcomes must be expressly compared to the objective requirements of this Order (prescribed performance standards or measures) where they are provided or where they have been established in a Watershed Management Plan which has been approved by the Executive Officer or the Regional Board. The Principal Permittee is responsible for compiling and analyzing information where necessary to demonstrate compliance with the requirements of this Order.
F. Where a Watershed Management Plan has been approved, the responsible Co-permittees' report must include:

    1. The status of completion of proposed structural treatment control BMPs.
    2. The status of implementation of non-structural BMPs.
    3. Information related to the validity of the reasonable assurance analysis performed in support of the Watershed Management Plan and any underlying assumptions and risks.
    4. The results of any monitoring undertaken to evaluate the impact of implementation of the Watershed Management Plan on receiving water

quality.

G. 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. R8-2016-0001) 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. R8-2016-0001 (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.
4. 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.

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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, 2021. 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 (40CFR§ 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 (40CFR§122.22(a)(3)) or a duly-authorized representative as per 40CFR§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 ninety (90) 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 Order;
    b. Access and copy at reasonable times any records that must be kept under the conditions of this Order.

c. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; AND
d. Sample or monitor, at reasonable times, for the purpose of assuring compliance with this Order or as otherwise authorized by the Clean Water Act or the Water Code, any substances or parameters at any location.

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 that 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 40CFR§122.41 and 40CFR§122.42 are incorporated into this Permit by reference.

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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

ISWEBE Inland Surface Waters, Enclosed Bays, and Estuaries of California

LA Load Allocation

LID Low Impact Development

LIP Local Implementation Plan

LRP Legally Responsible Person

MEP Maximum Extent Practicable

MOU Memorandum of Understanding

MPN Most Probable Number

MRP Monitoring and Reporting Program, R8-2016-0001

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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

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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; discharges from emergency fire-fighting activities; 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. BMPs means 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 (40CFR§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 significant portion of the design capture volume or flow will incidentally infiltrate, evaporate, or evapotranspire, the principal of operation involves the discharge of the treated storm water after detention in a densely-vegetated basin and after 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 Construction General 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. R8-2016-0001, 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 – 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 (DAR) – All reports required by this permit, and other information by the Executive Officer shall be signed by the legally responsible party (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 either a principal executive officer or ranking elected official; and
- 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 (A duly authorized representative may thus be either a named individual or any individual occupying a named position).

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. (40CFR§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; Marine Protected Areas designated as such pursuant to the Marine Life Protection Act; 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 40CFR§116 pursuant to Section 311(b)(2) of the Clean Water Act (40CFR§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 (40CFR§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 (LRP) – For a municipality: a principal executive officer or ranking elected official. The LRP designates the duly authorized representative.

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, evapotranspire, 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, 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 40CFR§122.2 (40CFR§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 40CFR§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. (40CFR§122.26(b)(9)).

Party – Defined as an individual, association, partnership, corporation, municipality, state or federal agency, or an agent or employee thereof (40CFR§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 (40CFR§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, evapotranspired, 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 (40CFR§122.26(b)(13)).

Storm Water General Permits – Industrial General Permit (State Board Order No. 2014-0057-DWQ, NPDES No. CAS000001), and Construction General Permit (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 treat the design capture volume or flow or a portion thereof. They 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 (40CFR§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 40CFR§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.

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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[2]	X		X	X	X		
City of Laguna Woods[2]	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[3]

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[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] The TMDLs requirements will be enforced through the San Diego Regional Water Quality Control Board's MS4 permit.

[3] 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-permittees discharging into Newport Bay as indicated in Appendix A. The WQBELs in this Appendix are based on the waste load allocations (WLAs) in the Nutrient TMDL. The Nutrient TMDL supports the trading of pollutant allocations among sources where appropriate. Trading can take place between point/point, point/nonpoint, and nonpoint/nonpoint pollutant sources to comply with the Nutrient TMDL. Compliance with the WQBELs in this Appendix will be determined according to methods described in Section XVIII of Order No. R8-2016-0001.

The Nutrient TMDL has been approved by the 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 OAL 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. R8-2016-0001 to demonstrate compliance with the WQBELs in Table B-1 or trade pollutant allocations with other responsible Nutrient TMDL parties to ensure the WQBELs in Table B-2 are met. The responsible Co-permittees must also demonstrate compliance with one of the WQBELs in Section B below, for Reach 2, San Diego Creek. If responsible Co-permittees choose to demonstrate compliance by trading pollutant allocations with other responsible parties, they must develop and implement an approved Watershed Management Plan that describes how the WQBELs will be met in accordance to the requirements of Section XI of Order No. R8-2016-0001.

A. Newport Bay Watershed

Table B-1: Final Nutrient WQBELs for urban runoff from MS4 Co-Permittees in the Newport Bay Watershed.

WQBELs	**Total Nitrogen[1] – Summer[2] (pounds/season)**	**Total Nitrogen[1] – Winter[3, 4, 5] (pounds/season)**	**Total Phosphorous – Annual (pounds/year)**
Individual Wasteload Allocation for MS4 Co-permittees	16,628	55,442	2,960

Table B-2: Final Nutrient WQBELs for all sources in the Newport Bay Watershed

WQBELs	**Total Nitrogen[1] – Summer[2] (pounds/season)**	**Total Nitrogen[1] – Winter[3, 4, 5] (pounds/season)**	**Total Phosphorous – Annual (pounds/year)**
Total load for all discharges to Newport Bay	153,861	144,364	62,080

Notes for Tables B-1 and B-2:

1. Total Nitrogen = NO_3 + NH_3 + organic N
2. Summer season: April 1st through September 30th
3. Winter season: October 1st through March 31st
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. WQBELs for Reach 2, San Diego Creek: 5.5 pounds per day Total Nitrogen or trade pollutant allocations with other responsible Nutrient TMDL parties to ensure that the total load, 14 lbs/day Total Nitrogen, is met.

1. The WQBELs for Total Nitrogen apply 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 indicator bacteria in urban runoff from MS4s owned or controlled by those Co-permittees discharging into Newport Bay as indicated in Appendix A. This includes WQBELs for *Enterococcus* for water-contact recreation (REC-1), and WQBELs based on fecal coliform for the shell fish harvesting (SHEL) beneficial uses. As described in the Fact Sheet, the WQBELs in this Appendix are consistent with the assumptions and requirements of 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. R8-2016-0001.

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 by USEPA on 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. REC-1 WQBELs for Enterococci: The responsible Co-permittees must comply with the methods described in Section XVIII of Order No. R8-2016-0001 to demonstrate compliance with the following final WQBELs to protect the water-contact recreation beneficial use:

Table C-1: *Enterococci* WQBELs to protect REC-1

***Enterococci* WQBELs to protect REC-1**	**Compliance Date**
30-day Geometric Mean less than 35 CFU/100mL[1].	Immediately upon the effective date of Order No. R8-2016-0001

Notes for Table C-1:

1. WQBELs are based on the Water Quality Standards Bacteria Rule for Coastal and Great Lakes Recreation Waters, 40 CFR Part 131 Promulgated by USEPA in 2004.

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B. SHEL WQBELs for Fecal Coliform: The responsible Co-permittees must comply with the methods described in Section XVIII of Order No. R8-2016-0001 to demonstrate compliance with the following final WQBEL to protect the shell fish harvesting beneficial use:

Table C-2: Final Fecal Coliform WQBELs to protect SHEL

Fecal Coliform WQBELs to protect SHEL	**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 30, 2019.

II. Monitoring and Reporting Requirements

A. The responsible Co-permittees must provide an updated TMDL report for the final WQBELs to protect REC-1 and SHEL. This report must be submitted either no later than 60-days from the effective date of this Order or on a date acceptable to the Executive Officer. The TMDL report must:

1. Integrate and evaluate the results of the relevant 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 TMDL development if appropriate; and
3. Include recommendations for interim WQBELs and related compliance schedules.

B. For the purpose of implementing all TMDL-related requirements for pathogen indicator bacteria (e.g. fecal coliform or enterococcus) intended to protect REC-1 uses, the phrase "any 30-day period" refers to 12 discrete monthly averages and should not be construed as a running mean that overlaps more than one calendar month. Compliance shall be evaluated and reported based on the geometric mean of all relevant monitoring data collected during each calendar month regardless of whether the month has 28, 29, 30 or 31 days.

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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 sediment in urban runoff from MS4s owned or controlled by those Co-permittees discharging into Upper Newport Bay as indicated in Appendix A. The WQBELs in this Appendix are based on the requirements in the Sediment TMDL, exclusive of the load allocations. The sediment TMDL states that the sediment targets and allocations must be implemented by the Cities of Irvine, Tustin, Lake Forest, Costa Mesa, Santa Ana and Newport Beach and the County of Orange. The Cities and County, acting through cooperative agreements under the Newport Bay Watershed Executive Committee, are also required to provide a proposal for evaluating compliance with allocations assigned to all sources. Compliance with the WQBELs in this Appendix will be determined according to methods described in Section XVIII of Order No. R8-2016-0001.

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. R8-2016-0001 to demonstrate compliance with the following final WQBELs:

A. Discharges of sediment must not exceed 62,500 tons of sediment per year, calculated as a 10-year running average, into Newport Bay. In addition, discharges of sediment must not exceed 62,500 tons of sediment per year, calculated as a 10-year running average, into San Diego Creek and its tributaries.

B. Discharges from urban sources must not transport more than 2,500 tons of sediment per year, calculated as a 10-year running average, into Newport Bay. In addition, discharges from urban sources 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. 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.

D. Bathymetric and vegetation surveys must be performed no less than once every five years, or as agreed to by the Executive Officer, in a manner to determine compliance with the above requirements for sediment[1].

E. 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.

F. 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.

G. 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.

H. Sediment in discharges from the responsible Co-permittees' MS4s 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 California 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	0.31

[1] The Basin Plan calls for a 3-year survey period. The period was amended pursuant to an approval granted by the Executive Officer in a letter dated February 14, 2014.

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-permittees discharging into Newport Bay and San Diego Creek as indicated in Appendix A. 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. R8-2016-0001. 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 and are not in effect.

The Organochlorine Compounds TMDLs are to be implemented within an adaptive management framework, with compliance monitoring, special studies, and stakeholder interaction guiding the process over time. Information obtained from sources such as compliance monitoring and special studies will measure progress towards achievement of WLAs and LAs, potentially leading to changes to TMDL allocations; ongoing investigations and recommended special studies, if implemented, may provide information that leads to revisions of the TMDLs, adjustments to the implementation schedule, and/or improved implementation strategies. Thus, implementation of the TMDLs is expected to be an ongoing and dynamic process.

I. Final WQBELs

The responsible Co-permittees must comply with the methods described in Section XVIII of Order No. R8-2016-0001 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 (grams per year).

Receiving Water	**Total DDT (g/year)**	**Chlordane (g/year)**	**Total PCBs (g/year)**	**Toxaphene (g/year)**
San Diego Creek and Tributaries	128.3	--	--	1.9
Upper Newport Bay	51.8	30.1	29.8	--
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-permittees discharging into Upper Newport Bay or San Diego Creek as indicated in Appendix A. 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. R8-2016-0001.

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. Final WQBELs

The responsible Co-permittees must comply with the methods described in Section XVIII of Order No. R8-2016-0001 to demonstrate compliance with the final WQBELs in Table F-1.

Table F-1: WQBELs for urban runoff from MS4 Co-Permittees for Chlorpyrifos and Diazinon in Upper Newport Bay and San Diego Creek (nanograms per liter).

	Chlorpyrifos (ng/L)		**Diazinon (ng/L)**	
Receiving Water	Acute Concentration[1]	Chronic Concentration[2]	Acute Concentration[1]	Chronic Concentration[2]
Upper Newport Bay	18	8.1	--	--
San Diego Creek	18	12.6	72	45

1. An acute concentration is measured as a 24-hour average concentration
2. A chronic concentration is the average concentration measured over a period of 4-consecutive days

Appendix G

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

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

The WQBELs for metals and selenium in this Appendix are based on the waste load allocations (WLAs) in the Toxic Pollutants TMDLs[2] promulgated by USEPA on June 17, 2002. Compliance with the WQBELs for metals and selenium in this Appendix will be determined according to methods developed pursuant to Section XVIII of Order No. R8-2016-0001. Compliance deadlines for the WQBELs in this Appendix were not established.

I. Final WQBELs

The responsible Co-permittees must comply with the methods described in Section XVIII of Order No. R8-2016-0001 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 Dissolved 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 (µg/L)	Acute (µg/L)
Cadmium	19.1	6.2	15.1	5.3	10.8	14.2	8.9
Copper	50	29.3	40	24.3	30.2	18.7	25.5

[2] The pollutant-water body combinations for diazinon, chlorpyrifos, and organochlorine compounds in USEPA's Toxic Pollutant TMDLs have been superseded by Basin Plan Amendments for revised TMDLs by the Regional Board. Therefore, the waste load allocations in the Toxic Pollutant TMDLs for these compounds are no longer in effect. WQBELs based on the waste load allocations in the Regional Board's Basin Plan amendments for diazinon and chlorpyrifos can be found in Appendix F, and for organochlorine compounds in Appendix E, of this attachment.

Lead	281	10.9	224	8.8	162	6.3	134
Zinc	379	382	316	318	243	244	208

*Based on WLAs in Table 5-6 (Toxics TMDLs for Newport Bay and San Diego Creek 2002)
cfs =cubic feet per second, mg/L =milligrams per liter, µg/L =micrograms per liter

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

	Saltwater Acute[3] Concentrations (µg/L)	Saltwater Chronic[4] Concentrations (µg/L)	Mass-based Loads (pounds/year)[2]
Cadmium[1]	42	9.3	9,589
Copper	4.8	3.1	3,043
Lead	210	8.1	17,638
Zinc	90	81	174,057

[1]Values for dissolved cadmium apply only to discharges to Upper Newport Bay
[2]Mass-based loads are measured in the Newport Bay water column according to the Basin Plan.
[3]An acute concentration is measured as a 24-hour average concentration.
[4]A chronic concentration is the average concentration measured over a period of 4-consecutive days µg/L =micrograms per liter

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

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

kg/year =kilograms per year

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

*Based on WLAs in Table 4-5 (Toxics TMDLs for Newport Bay and San Diego Creek 2002) cfs = cubic feet per second

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-permittees discharging into Coyote Creek as indicated in Appendix A. 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 Section XVIII or Order No. R8-2016-0001. Compliance deadlines for the WBELs in this Appendix were not established.

I. Final WQBELs

The responsible Co-permittees must comply with the methods described in Section XVIII of Order No. R8-2016-0001 to demonstrate compliance with the final WQBELs in the Table H-1:

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

kg/day – kilograms per day µg/L – micrograms per liter

Notes for Table H-1:

1. These WQBELs are calculated using the median flow rate of 19 cubic feet per second (cfs) measured at the U.S. Army Corps of Engineers' stream gauge station F-354-R, 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 to or greater than 156 cfs, as measured at 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)[3].

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 R8-2016-0001.

[3] 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

Provisions for Certain Non-Storm Water Discharges from Sources Owned or Operated by Co-permittees

I. Applicability

The provisions contained in this Attachment A apply to the control of wastes in certain non-storm water discharges into municipal separate storm sewer systems (MS4s) which are conveyed to waters of the U.S. from sources that are owned or operated by the Co-permittees. The provisions in this Attachment are based on those found in Regional Board Order No. R8-2015-0004, NPDES Permit No. CAG998001 and State Board Order WQ 2014-0194-DWQ, General Order No. CAG140001. Discharges that are not required to obtain an NPDES permit under federal law are not subject to these provisions. Co-permittees may discharge wastes related to the operation of drinking water systems either pursuant to the provisions in this Attachment A or they may obtain coverage under CAG140001 at their discretion. These provisions supplement and do not supersede those in Regional Board Order No. R8-2016-0001.

The non-storm water discharges regulated by the provisions in this Attachment A are listed below:

A. Discharges related to operating drinking water systems and which would otherwise be authorized under CAG140001, including, but not limited to:

    1. Groundwater supply well flushing or pump-to-waste
    2. Groundwater well development, rehabilitation, and testing
    3. Groundwater monitoring for purpose of supply well development, rehabilitation and testing
    4. Trench dewatering of drinking water during planned repairs
    5. Transmission system installation, cleaning, and testing
    6. Water treatment plant operations (excluding un-decanted filter backwash that is discharged to a water of the U.S.)
    7. Distribution system storage tank or reservoir releases
    8. Distribution system dewatering flushing, and pressure testing
    9. Fire flow/fire hydrant testing
    10. Meter testing
    11. Automated water quality analyzer operation
    12. Pressure relief valves
    13. Unscheduled activities that must be undertaken to comply with mandates of the Federal Drinking Water Act and California Health and Safety Code
    14. Emergency discharges due to: (1) system failures; (2) operation errors; or (3) catastrophic events.

B. Other types of discharges deemed to contain wastes that pose an insignificant threat to water quality which would otherwise be authorized under NPDES Permit No. CAG998001:

15. Dewatering wastes from subterranean seepage, except for discharges from utility vaults and discharges in the Newport Bay Watershed containing nutrients, selenium, and other pollutants of concern at levels that pose a threat to water quality[1].
16. Air conditioning condensate
17. Swimming pool discharge
18. Discharges resulting from diverted stream flows
19. Wastewater which has been subjected to decantation from filter backwashing and filtrate wastewater from sludge dewatering at water treatment facilities.
20. Construction dewatering wastes that are not subject to the state-wide Construction General Permit, NPDES Permit No. CAS000002, as amended or revised.
21. Discharges from decorative ponds and golf course lakes.

C. Co-permittee's non-storm water discharges that are <u>not</u> authorized under this Order are as follows:

1. Non-storm water discharges that are not described in Table 2 of this Order and Sections I.A. and I.B. of this Attachment.
2. Groundwater-related discharges from within the San Diego Creek/Newport Bay Watershed which contain nutrients, selenium, and other TMDL-related contaminants at levels that may pose a threat to water quality.
3. Non-storm water discharges to a water of the U.S. for which a Total Maximum Daily Load (TMDL) has been adopted that prescribes a waste load allocation to a water purveyor and where the Executive Officer determines that the requirements of this Order are not consistent with the assumptions and requirements of the TMDL; thus, compliance with this Order is not sufficient for the discharger to comply with the waste load allocation or related water quality-based effluent limit(s).
4. Discharges from new drinking water systems (not an expansion of an existing system) into a water body that is listed, pursuant to Clean Water Act Section 303(d), as impaired by a constituent that exists in the new discharge at a concentration or load greater than the criteria used to establish the impairment of the water body and for which a the Regional Board has issued an individual permit that addresses the TMDL.
5. Wastewater discharged from hydro-testing of contaminated pipes, vessels, or tanks.

[1] Discharges from utility vaults are regulated under State Board Order No. 2006-0008-DWQ, NPDES Permit No. CAG990002, as amended or revised.

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6. Wastewater discharges containing pollutants of concern except for those pollutants for which effluent discharges are specified in this Attachment.

II. Discharge Prohibitions

A. The discharge of oil, trash, industrial waste sludge, or other solid waste directly to waters of the U.S. in this region or in any manner that will ultimately affect such waters in this region is prohibited.

B. The discharge of any substances in concentrations toxic to aquatic life, animal life, or plant life is prohibited.

C. The discharge of wastes to property not owned or controlled by the responsible Co-permittee is prohibited.

D. Odors, vectors, and other nuisances of waste origin are prohibited beyond the limits of the responsible Co-permittee's facility.

E. The addition of chemicals to extracted water, with the exception of chlorine used to control biofouling in treatment systems, is prohibited without written approval from the Executive Officer.

III. Effluent Limitations and Discharge Specifications

The effluent limitations in this Section apply at the point of discharge into the receiving water. The responsible Co-permittee's discharge must comply with the effluent limitations prior to entry into waters of the U.S. The responsible Co-permittee may demonstrate compliance through monitoring at any accessible point between the discharge and the receiving water.

A. The pH of the discharge must be within 6.5 and 8.5 pH units (see also Section IV.B.8. below).

B. The discharge must exhibit no visible oil and grease.

C. Where the discharge is composed of water from decorative ponds and golf course lakes, the responsible Co-permittee must demonstrate that the discharge does not contain pollutants according to the following:

1. The operator of such facilities must fully characterize the discharge with respect to priority toxic pollutants; pesticides, inclusive of insecticides and biocides; and other chemicals that may be present in the discharge under representative conditions.

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2. The discharge must be re-characterized when there has been a change in operating procedures or other circumstances that may reasonably affect the quality of the discharge.

D. Where the discharge is composed of decanted filter backwash wastewater or sludge dewatering filtrate water from water treatment facilities, the maximum daily concentration of total suspended solids must not exceed 30 mg/L.

E. Where a discharge from a drinking water system into inland surface waters, enclosed bays and estuaries contains residual chlorine equal or greater than the action level of 0.019 mg/L, the responsible Co-permittee must take corrective action to reduce residual chlorine concentrations until the concentration is less than the action level. If residual chlorine is measured using a field instrument, the action level is 0.1 mg/L.

F. Where a discharge related to groundwater supply well development or operations to inland waters contains turbidity that is greater than the action level of 100 Nephelometric Turbidity Units (NTUs), the responsible Co-permittee must take corrective action to reduce turbidity until it is equal or less than the action level.

G. The turbidity of discharges related to drinking water systems directly into or within 300-feet of ocean waters must not exceed 225 NTUs at any time.

H. The discharge of wastewater containing constituent concentrations in excess of the effluent limitations shown in Table 1 below is prohibited.

Table 1: Effluent Limits Applicable to All Receiving Waters

Constituent	Maximum Daily Concentration Limit (mg/L)
Total Petroleum Hydrocarbons	0.1
Total Residual Chlorine	0.1
Suspended Solids	75
Sulfides	0.4

IV. Receiving Water Limitations

A. The discharge of wastes must not cause a violation of any applicable water quality standard for receiving waters adopted by the Regional Board or the State Board as required by the Clean Water Act and regulations adopted thereunder.

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B. Authorized discharges of the types of wastewater described in Section I. above must not cause any of the following:

1. Coloration of the receiving water that causes a nuisance or adversely affects beneficial uses. The natural color of fish, shellfish, or other inland, bay and estuarine resources used for human consumption shall not be impaired.
2. Deposition of oil, grease, wax or other materials in the receiving waters in concentrations that result in a visible film or coating of objects in the water, or which cause a nuisance or adversely affect beneficial uses.
3. An increase in the amount of suspended or settleable solids in the receiving waters that will cause a nuisance or adversely affect beneficial uses as a result of controllable water quality factors.
4. Taste or odor-producing substances in the receiving waters at concentrations that cause a nuisance or adversely affect beneficial uses.
5. The presence of radioactive materials in concentrations that are deleterious to human, plant, or animal life.
6. The depletion of the dissolved oxygen concentrations below 5.0 mg/L.
7. The temperature of the receiving water to be raised above 90° Fahrenheit (32° Celsius) during the period of June through October, or above 78° Fahrenheit (26° Celsius) during the rest of the year.
8. A change in the ambient pH of more than 0.5 pH units.
9. The concentration of pollutants in the water column, sediments, or biota to adversely affect the beneficial uses of the receiving water. The discharge must not result in the degradation of inland surface water communities and populations, including vertebrate, invertebrate, and plant species.
10. Bioaccumulation of pollutants in aquatic resources at levels which are harmful to human health or animal life.
11. Erosion of conveyance pathways or erosion or other adverse modification of the physical characteristics of the receiving waters.

V. Monitoring Requirements

A. The responsible Co-permittee must implement a monitoring and reporting program that is adequate to determine compliance with the requirements of this Attachment A in a timely manner. The monitoring and reporting program must be fully documented in writing.

B. The responsible Co-permittees must carry out effluent monitoring according to the requirements in Section VII below.

C. The responsible Co-permittee must monitor the discharge volume from their drinking water system. The monitoring effort must produce a count of the number of events where a volume exceeding 50,000 gallons was discharged directly into waters of the U.S. The effort must also produce a reasonable

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estimate of the total volume discharged from the drinking water system during a calendar year; the total volume discharged from the system that reached waters of the U.S. during a calendar year; and the balance, if any, of which was directed to a beneficial use (e.g. dust suppression, industrial process supply, irrigation, groundwater recharge, etc.).

D. The responsible Co-permittee must carry out visual monitoring of the receiving water at least once during the discharge and weekly thereafter for the duration of the discharge. For discharges from drinking water systems, visual monitoring must be performed when non-compliance with the provisions of Section III above are known or suspected.

E. Monitoring personnel must maintain written or photographic records of their visual monitoring observations in a log, to include: visible oil sheen or coloration of the receiving waters, evidence of toxicity, and other observations that may indicate an impact on the beneficial uses of the receiving water.

F. The Executive Officer is authorized to require revisions to the responsible Co-permittee's monitoring and reporting program at any time during the term of this Order. These revisions may include alteration of sampling protocols, requiring a reduction or increase in the number of constituents to be monitored, the frequency of monitoring, the number and size of samples collected, and the frequency of report submittal.

G. The responsible Co-permittee must establish monitoring locations that are adequate to demonstrate compliance with the requirements of this Attachment A; the locations must be where representative samples of the discharge can be obtained and prior to where the discharge flow joins or is diluted by any other flow or body of water.

H. Samples and measurements taken for the purpose of monitoring must be representative of the monitored activity.

I. The responsible Co-permittee must develop and implement a written quality assurance plan for laboratory analyses. The plan must include the performance of duplicate analyses on a minimum of ten percent (10%) of samples, or at least two samples each month, whichever is greater. Spiked samples must be analyzed at a similar frequency.

J. Upon request by the Regional Board or the USEPA, the responsible Co-permittee(s) will participate in the NPDES discharging monitoring report quality assurance study.

K. Monitoring results must be obtained according to test procedures under 40 CFR § 136 unless otherwise specified otherwise in 40 CFR § 503, or unless other test procedures have been specified in this Order.

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L. All sampling and sample preservation must occur according to the current edition of *Standard Methods for the Examination of Water and Wastewater* (American Public Health Association).

M. All laboratory analyses must be performed according to test procedures in 40 CFR § 136, *Guidelines Establishing Test Procedures for the Analysis of Pollutants*, unless specified otherwise in this Attachment A. The Executive Officer or the USEPA may specify test methods that are more sensitive than those specified in 40 CFR § 136.

N. Chemical, bacteriological, and bioassay analyses must be:

1. Conducted at a laboratory certified for such analyses by the California Department of Public Health in accordance with California Water Code Section 13176;
2. Conducted at a laboratory certified for such analyses by the USEPA; or
3. Conducted at a laboratory approved by the Executive Officer.

VI. Reporting Requirements

A. When initiating a planned discharge of one acre-foot or more of wastewater from a drinking water system, the responsible Co-permittee must provide written notice of the anticipated discharge to the Regional Board not less than three (3) days prior to initiating the discharge. If the discharge is urgent and must occur within a shorter period, the responsible Co-permittee must provide written notice as soon as possible, but not less than 24-hours after the discharge is initiated.

B. Any toxic chemical release data related to discharges from drinking water systems that is reported to the State Emergency Response Commission pursuant to Section 313 of the "Emergency Planning and Community Right to Know Act" of 1986 must also be reported to the State Board within 15 days of the report to the Commission at the address shown below[2].

C. My March 1 of every year, the responsible Co-permittee must submit a report (annual report) to the State Board describing discharges related to drinking water systems during the previous calendar year (January 1 through December 31).

1. The annual report must disclose all discharges from drinking water systems which did not comply with the relevant effluent limitations, discharge specifications and receiving water limitations in Sections III and IV above.
2. The annual report must report the results of monitoring of the discharge volume from the drinking water system.

[2] Provisions XXIV.J. and XXIV.K. of this Order require reports to be signed and certified.

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3. The annual report must identify the limitation or specification that was exceeded; the known or suspected cause(s) of the exceedance; and any corrective action taken.
4. For instances where the discharge was transient and no effective action could be taken (including preventing the discharge from entering the receiving water), the annual report must describe actions taken or planned to cause future similar discharges to comply.
5. Where corrective action is planned, the annual report must include a time schedule to carry out the corrective action(s).
6. Annual reports must be submitted to the address below[2]:

State Water Resources Control Board
Division of Water Quality
NPDES Permitting Unit
1001 "I" Street, 15th Floor
Sacramento, CA 95814

D. The responsible Co-permittee must submit to the Regional Board a report describing all discharges regulated by the provisions of this Attachment A once each quarter (quarterly report).

1. For purposes of this Provision IV.D., each calendar quarter constitutes a monitoring period, with the reports due within 30-days of the end of each period.
2. If no discharge occurs during the monitoring period, the responsible Co-permittee must submit a notification to that effect *in lieu* of a monitoring report.
3. Each quarterly report must be submitted in an electronic format acceptable to the Executive Officer.
4. Each quarterly report must include the nature, location and estimated and measured daily flow data from all sources of discharges regulated by the provisions of this Attachment A which occurred during the reporting period.
5. Each quarterly report must include the results of all physical and chemical analyses for the discharge(s) that occurred during the reporting period; and a copy of the observation logs and related photos of the respective receiving waters (see Provision V.E. above.).

E. The responsible Co-permittee must report with each sample result:

1. The reporting level achieved by the testing laboratory; and
2. The laboratory's current Method Detection Limit (MDL), as determined by the procedure in 40 CFR § 136 as amended or revised.

F. The responsible Co-permittee must report the results of sample analyses according to the following:

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1. Sample results which are greater than or equal to the reported Minimum Level (ML) must be reported as measured by the laboratory.
2. Sample results which are less than the reported ML, but greater than the laboratory's current MDL must be reported as "Detected, but Not Quantified" or "DNQ". The estimated chemical concentration of the sample must also be reported.
3. Contaminants not detected above the laboratory's MDL must be reported as "not detected" or "ND".

G. If the responsible Co-permittee monitors any contaminant more frequently than is required by this Attachment A, the results of that monitoring must be included in the analyses and reporting submitted to the Regional Board.

H. At any time during the term of this Order, the Regional Board or the State Board may require the responsible Co-permittee to electronically submit Self-Monitoring Reports (SMRs) using the State Board's *California Integrated Water Quality System* program web site address shown below:

https://ciwqs.waterboards.ca.gov/

I. The responsible Co-permittee must maintain records of all monitoring information in a readily-accessible manner for a period of at least five (5) years from the date of the sample, report, or application, whichever is longer. This retention period must be extended during the course of any unresolved litigation regarding a related discharge or according to a request by the Regional Board at any time.

J. Records of monitoring information must include:

1. The date, exact place, and time of sampling or measurements;
2. The identities of individuals who performed the sampling or measurements;
3. The laboratory which performed the analyses;
4. The date(s) analyses were performed;
5. The identities of individuals who performed the analyses;
6. The analytical techniques or methods used, including modifications if any;
7. All monitoring equipment and calibration and maintenance records;
8. All original strip charts from continuous monitoring devices, if used;
9. Copies of all reports required by the provisions of this Attachment A;
10. Electronic data and information generated by Supervisory Control and Data Acquisition system(s), if used;
11. The results of all sampling and analysis, including:
    a. Units of measurement used;
    b. Minimum reporting level for the analysis (minimum level);

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c. Results less than the reporting level but above the method detection limit (MDL);
d. Data qualifiers and a description of the qualifiers;
e. Quality control test results and a written copy of the laboratory quality assurance plan;
f. Dilution factors if used; and
g. Sample matrix type.

VII. Effluent Monitoring Requirements

A. The effluent monitoring requirements of this Section VII. do not apply to discharges from drinking water systems.

B. For purposes of this Section, a "grab" sample is defined as any individual sample collected in less than 15 minutes.

C. Effluent monitoring must occur according to Table 2, below:

Table 2: Standard Effluent Monitoring Program

Parameter	**Unit**	**Sample type**	**Minimum sample frequency**
Flow	Gallons per day	Estimate	Each discharge event or daily if continuous
Total petroleum hydrocarbons	µg/L	Grab	During the first 30-minutes of each discharge; weekly thereafter; or as directed by the Executive Officer
Total residual chlorine[3]	mg/L	Grab	During the first 30-minutes of each discharge; weekly thereafter; or as directed by the Executive Officer
Total suspended solids	mg/L	Grab	During the first 30-minutes of each discharge; weekly thereafter; or as directed by the Executive Officer
Sulfides	mg/L	Grab	During the first 30-minutes of each discharge; weekly thereafter; or as directed by the Executive Officer
pH	Standard units	Grab	During the first 30-minutes of each discharge; weekly thereafter; or as directed by the Executive Officer

[3] Unless it is known that chlorine is not in the discharge.

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VIII. Effluent Monitoring Requirements for Discharges Related to Drinking Water Systems

For purposes of this Section, discharges related to drinking water systems are divided into two groups. The first group includes superchlorinated discharges; all discharges from well development and well rehabilitation activities; and all other individual discharges greater than one acre-foot (325,850 gallons). The second group includes all other drinking water system discharges. The two groups are subject to different monitoring requirements described below.

A. The effluent monitoring requirements of this Section VIII. do not apply to discharges related to drinking water systems which occur under emergency circumstances.

B. For purposes of this Section, a “grab” sample is defined as any individual sample collected in less than 15 minutes.

C. Discharges related to drinking water systems must be sampled annually except for superchlorinated discharges; all discharges from well development and well rehabilitation activities; and individual discharges greater than one acre-foot (325,850 gallons). The annual samples must be representative of discharges of a similar nature, from the same general water source, subject to the same water treatment and/or BMPs, and are consequently reasonably expected to have the same water quality. This monitoring must occur according to Table 3 and Table 5 below.

Table 3: Effluent Monitoring Requirements for Representative Annual Samples

Parameter	**Unit**	**Sample type**
Volume	Total gallons per day	Measured if read meter data is available; otherwise, estimated
Total residual chlorine[3]	mg/L	Grab
Turbidity	NTU	Visual Estimate

D. The responsible Co-permittee must monitor all discharge events involving superchlorinated discharges; all discharges from well development and well rehabilitation activities; and individual discharges greater than one acre-foot (325,850 gallons) according to Table 4 and Table 5 below for each discharge event.

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Table 4: Effluent Monitoring Requirements for All Discharge Events Involving Superchlorinated Discharges; Well Development and Rehabilitation Activities; and All Other Individual Discharges Greater than One Acre-Foot

Parameter	**Unit**	**Sample type**
Volume	Total gallons per day	Measured if read meter data is available; otherwise, estimated
Total residual chlorine[3]	mg/L	Grab
pH (for superchlorinated discharges only)	Standard units	Grab
Turbidity	NTU	Visual Estimate
Turbidity (for well development and rehabilitation activities only)	NTU	Grab

Table 5: Sampling Frequency for Each Event for Discharges Related to Drinking Water Systems

Duration of Discharge	**Sampling Frequency**
Less than 20 minutes	Once during first 10-minutes of each discharge event (one sample/event)
20 minutes to 60-minutes	Once during the first 10-minutes and again within the last 10-minutes of each discharge event (two samples/event).
Greater than 60-minutes	Once during the first 10-minutes; again within the next 50-minutes; and again during the last 10-minutes of each discharge event (three samples/event).

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Attachment B

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. R8-2016-0001

for

Order No. R8-2016-0001
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

XXXX XX, 2016

Revision No.	Date Requested	Approval Date

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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 or work carried out by the Co-permittees in support of other programs may be substituted for work described in the MRP provided that the work meets the requirements of the MRP and Order No. R8-2016-0001.
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 R8-2016-0001 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 R8-2016-0001 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. R8-2016-0001 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.

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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 cause or contribute to impairments, exceedances of water quality standards or adversely affect the beneficial uses of the receiving waters.
3. To characterize pollutant loads or concentrations in discharges from the MS4s relative to water quality-based effluent limits (WQBELs) 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 in 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 (Plan) according to the goals, requirements, and specifications described in this Section (Section II.), State Board Resolution No. 2012-0012, and Order No. R8-2016-0001. 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. R8-2016-0001.
    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 WQBELs.
3. The Water Quality Monitoring Plan must describe processes and a schedule for determining and reporting attainment of the Water Quality-Based Effluent Limits (WQBELs) and requirements in Appendices B through H of Order No. R8-2016-0001 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 WQBELs and 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, and must not exceed once every 5 years.
    b. A complete cycle 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 and Board approved TMDL monitoring plans, 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).
    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].
    c. The QAPP must include quality control and sample handling guidelines against which collected data must be verified; where the

[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

guidelines are not met, the affected data must be identified as such using appropriate verification codes.

7. Until the 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 changes, as needed annually. Proposed changes must be submitted by August 1 of each year following the approval of the initial Water Quality Monitoring Plan. The proposed changes to the Plan must be approved 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 must be separated by a minimum of two (2) days of dry weather (no precipitation).
7. Locations and frequencies of monitoring performed to determine achievement of the WQBELs in Appendices B through H of Order No. R8-2016-0001 must be consistent with the requirements specified in the relevant TMDL and Board approved TMDL monitoring plans.

[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.

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 from each outfall monitoring location which is designated to be sampled during the applicable even or odd monitoring year.
        i. A sample for this event must be collected which is representative of the "first flush" of the storm and consists of a composite of discrete samples collected during the first hour of the storm.
        ii. A subsequent composite sample for this event must be collected after the storm's first hour, starting two hours after completion of the first flush sampling; this sample must consist of a composite of discrete storm water samples collected every two (2) hours during a 96-hour period or until storm flow is insufficient to allow continued sampling.

    b. For storm events occurring after the first storm event of the season, composite samples must be collected at each outfall monitoring location during the applicable even or odd monitoring year as follows:
        i. A first flush sample must be collected during the first hour of the storm consisting of a composite of discrete samples.
        ii. A second 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 continued sampling.
        iii. The 24-hour period must begin two hours after the "first flush" sampling period is completed.

c. The Co-permittees must document 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 under dry-weather conditions ("dry-weather sample") at each outfall monitoring location during the applicable even or odd monitoring years as follow:
   a. Twice each year (2 times per year) on samples taken from outfall monitoring locations during the applicable even or odd year discharging to Carbon Creek, Coyote Creek, East Garden Grove-Wintersburg Channel, Bolsa Chica Channel, Fullerton Creek, Central Irvine Channel, and Costa Mesa Channel.
   b. Four times per year, on a quarterly basis, during the even or odd monitoring year, on samples taken from outfall monitoring locations discharging into Peters Canyon Wash, San Diego Creek at Campus Drive and Harvard Avenue, and Santa Ana Delhi Channel.
6. All wet-weather and dry-weather samples must be tested for the parameters indicated in Table 1 below. Each dry-weather sample must consist of a composite of discrete samples collected during a 24-hour period.
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 is subject to change, subject to the approval of the Executive Officer and a demonstration of good cause by the Co-permittees. The list of parameters in Table 1 may be modified for individual monitoring sites for either wet-weather or dry-weather sampling, subject to the approval of the Executive Officer.

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	
Sulfate		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
Pyrethroids		X	X	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		

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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.
    a. Monitoring locations in Huntington Harbor, East Garden Grove-Wintersburg Tide Gate, Bolsa Chica and Talbert Marsh stations must be sampled twice each year during the applicable even or odd years.
    b. Monitoring locations in Upper and Lower Newport Bay must be sampled four times per year, on a quarterly basis during the applicable even or odd years.
2. The Co-permittees must sample sediment under dry-weather conditions ("sediment sample") at the same frequencies included in Provision II.E.1 above 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 is subject to change, subject to the approval of the Executive Officer and a demonstration of good cause by the Co-permittees. The list of parameters in Table 2 may be modified for individual monitoring sites for either wet-weather or dry-weather sampling, subject to the approval of the Executive Officer.

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
Pyrethroids		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
	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	

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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 monitoring 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 on representative *dry-weather* samples at the applicable even and odd year receiving water monitoring stations using sea urchin fertilization and/or mysid survival and growth. The sampling frequency must be consistent with Provision II.E.1. above.
5. Toxicity tests must be performed once annually on *sediment samples* collected from the 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 (one time per year) 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 hydrology 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.A.4. of Order No. R8-2016-0001.

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	

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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.
3. For the purpose of implementing all TMDL-related requirements for pathogen indicator bacteria (e.g. fecal coliform or enterococcus) intended to protect REC-1 uses, the phrase "any 30-day period" refers to 12 discrete monthly averages and should not be construed as a running mean that overlaps more than one calendar month. Compliance shall be evaluated and reported based on the geometric mean of all relevant monitoring data collected during each calendar month regardless of whether the month has 28, 29, 30 or 31 days.

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 initiate and complete a minimum of one Causal Assessment during the term of Order No. R8-2016-0001 to identify the

likely causes of the biological condition at the monitoring locations. The Causal Assessment must be submitted to the Executive Officer of the Regional Board within 60-days of completion.

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

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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 the Annual Progress Report or an alternate reporting mechanism acceptable to the Executive Officer (e.g. as a stand-alone 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.

III. Program Effectiveness Assessments and Reporting

A. All reports and plans required by this Order must be signed by a duly authorized representative and submitted to the Executive Officer of the Regional Board under penalty of perjury.
B. Each Co-permittee 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. R8-2016-0001 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. R8-2016-0001 during the reporting period, any outstanding actions required by Order No. R8-2016-0001 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. These results must be submitted by each Co-permittee directly to the Regional Board.
3. The results of the Principal Permittee's overall evaluation of the results of the program effectiveness assessments which are of mutual interest to the Co-permittees.
4. 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.
5. 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)
6. The status of efforts to reduce and/or eliminate the discharge of trash and solid waste (See Subsection VII.B. of Order No. R8-2016-0001).
7. The status of efforts to detect and mitigate SSOs (See Subsection VII.A.5. of Order No. R8-2016-0001).
8. The unified fiscal analysis (See Section XX of Order No. R8-2016-0001).

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. R8-2016-0001. 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. R8-2016-0001, this MRP, or the Technical Report.

A. With the exception of deliverables with capitalized titles, Order No. R8-2016-0001, 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.

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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 solid waste BMP report	VII.B.1.a	Reported as part of Annual Progress Report.
Trash and solid waste technology evaluation report	VII.B.1.b.	Reported as part of Annual Progress Report.
BMP retrofit study updates	XII.A.8.	12 months from date of adoption.
Causal Assessment	MRP II.J.3	Within 60 days of completion
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

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Annual Progress Report	XXIV.I. and MRP III.D.	Annually by November 15th of each year.

Ordered by:

Kurt V. Berchtold
Executive Officer

Date

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Attachment C

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. R8-2016-0001
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

XXXX XX, 2016

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. R8-2016-0001 (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. R8-2016-0001 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. R8-2016-0001:

Michelle Beckwith Senior Environmental Scientist Coastal Section Chief Michelle.Beckwith@waterboards.ca.gov (951) 782-4433	Adam Fischer, MESM (principal author) Environmental Scientist Adam.Fischer@waterboards.ca.gov (951) 320-6363
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
Barbara Barry (co-author) Environmental Scientist Barbara.Barry@waterboards.ca.gov (951) 248-0375	

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. R8-2016-0001.

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. R8-2016-0001 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	City of La Palma
Orange County Flood Control District	City of Lake Forest
City of Anaheim	City of Los Alamitos
City of Brea	City of Newport Beach
City of Buena Park	City of Orange
City of Costa Mesa	City of Placentia
City of Cypress	City of Santa Ana
City of Fountain Valley	City of Seal Beach
City of Fullerton	City of Stanton
City of Garden Grove	City of Tustin
City of Huntington Beach	City of Villa Park
City of Irvine	City of Westminster
City of La Habra	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 cities discharge into both the Santa Ana Region and the San Diego Region. These cities are Laguna Hills, Laguna Woods, and Lake Forest.

The City of Laguna Hills and the City of Laguna Woods are partly located within the Santa Ana Region but are excluded from Table 1 above. California Water Code section 13228 authorizes the executive officer of a regional board to grant a written request, made by an entity that is subject to regulation by more than one regional board, that one regional board be designated to regulate the matter.

Written requests for designation have been received from the City of Laguna Hills, the City of Laguna Woods and the City of Lake Forest.

In letters respectively dated March 12, 2014 and September 8, 2014, the cities of Laguna Hills and Laguna Woods requested designation to the San Diego Regional Water Quality Control Board. In letters dated January 14, 2014 and April 4, 2014, the City of Lake Forest requested designation to the Santa Ana Regional Water Quality Control Board. These requests for designation were granted by the respective executive officers in separate Designation Agreement letters both dated February 10, 2015.

Consequently, the Santa Ana Regional Water Quality Control Board is designated to regulate discharges of urban runoff from the entire jurisdiction of the City of Lake Forest, including those discharges into the San Diego Region. Likewise, the San Diego Regional Water Quality Control Board is designated to regulate discharges of urban runoff from the entire jurisdictions of the City of Laguna Hills and the City of Laguna Woods, including those discharges into the Santa Ana Region. These designations commence with the effective dates of those MS4 Permits adopted by the regional boards with terms and conditions that effectuate the Designation Agreements. For the Santa Ana Region, the designations commence with the effective date of this Order.

The basis for approving the designation requests are set forth in the February 10, 2015 Designation Agreements which essentially mirror one another. In summary, the cities have reported that variations between the regional boards' MS4 permits create significant administrative and financial burdens that do not contribute to greater overall water quality improvements in either region. The regional boards may terminate or modify the Designation Agreements. Each regional board also reserves the right to take enforcement action for any violation of the applicable MS4 permit which affects that regional board pursuant to California Water Code Section 13228(b).

All of the Co-permittees listed in Table 1 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 references the Principal Permittee alone, that requirement is the responsibility of the County of Orange.

V. PERMITTED DISCHARGES

Order No. R8-2016-0001 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 meaning of "conveyance", portions of MS4s in the permit area will include open channels that may also be waters of the U.S.

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. R8-2016-0001 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 waters 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 (MEP), 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 2116) 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 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

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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.

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 includes exceptions for discharges from the City of Newport Beach' MS4 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 MS4s owned and operated by 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.

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 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 unless the Regional Board makes findings that (1) any lowering of the water quality is necessary to accommodate important economic or social development 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 (BMPs) 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 anti-degradation 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 or 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 Total Maximum Daily Loads (TMDLs) to address some of the impairments.
b. This Order ensures that existing in stream (beneficial) water uses and the level of water quality necessary to protect the existing uses is maintained and

protected. This Order requires the Co-permittees to comply with permit provisions to implement the Waste Load Allocations (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. Water quality-based effluent limits (WQBELs) include the WLAs and requirements to perform certain actions anticipated in the TMDL. This Order further requires compliance with receiving water limitations to meet water quality standards in the receiving water either by showing compliance or by implementing Watershed Management 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.

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. In some circumstances, the discharge of storm water is to the maximum benefit to the people of the State because it can assist with maintaining instream flows that support beneficial uses, may spur the development of multi-benefit projects and may be necessary for flood control and public safety as well as to accommodate development in the area. The alternative – capturing all storm water from all storm events – would be an enormous cost that would preclude Co-permittees from spending funds on other important social needs. 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.
b. 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 programs. Recognizing that best practicable treatment or 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 Watershed Management Plans that must specify BMPs that must be implemented in accordance with an approved time schedule.

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.

While this Order allows the implementation of Watershed Management 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 Watershed Management 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, 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))

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

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 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, 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 (40CFR122.44(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 (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 (SIP).

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 Permit. 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 that 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 federal requirements.

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, 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.) 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. R8-2016-0001 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.

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".

VIII. CONSIDERATIONS IN THE DEVELOPMENT OF ORDER NO. R8-2016-0001

A. Results of Audits

During the term of Order No. R8-2009-0030, Regional Board staff performed over 20 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 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, the data was not used to overtly evaluate compliance with performance metrics in the Permit.

Fundamentally, the permit describes 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 activities with different levels of detail. As a result, the Co-permittees often must better define these activities in a practical way in their program planning documents, such as the Drainage Area Management Plan or Local Implementation Plans (LIPs), to describe how they will comply.

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 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 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 and generally reaffirmed in Order WQ 2015-0075. 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. This partly fulfills the iterative process. But 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 may not always be available to evaluate the effectiveness of *specific* program activities or even of combinations of program activities. A large amount of water quality data may have to be collected over extended periods of time to establish correlations between program activities 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 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 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 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 expanded this requirement to include Local Implementation Plans developed by each Co-permittee for their respective jurisdiction.

The 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 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, 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

[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.

of their storm water programs off-the-books. 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.

In business, the 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 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

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

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 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 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 using general descriptions, instead of mandating specific program activities in the DAMP or LIP, is to allow the Co-permittees greater flexibility to add or discontinue specific program activities or to modify their level of effort.

This flexibility is tempered in 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 satisfy the requirements of this Order and the Clean Water Act.

Although some modifications may be needed, the Co-permittees' storm water program is initially generally presumed to 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; 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. Report of Waste Discharge

The Co-permittees' Report of Waste Discharge (ROWD) for the fifth-term MS4 Permit was received on October 3, 2013. The ROWD outlined various accomplishments by the Co-permittees and other parties and related them to improvements in receiving water quality. The ROWD also included a general assessment of the "State of the Environment" with regards to bacteria, nutrients, and toxicity. The Co-permittees reported that these three categories of pollutants should be priorities in the next MS4 Permit.

C. 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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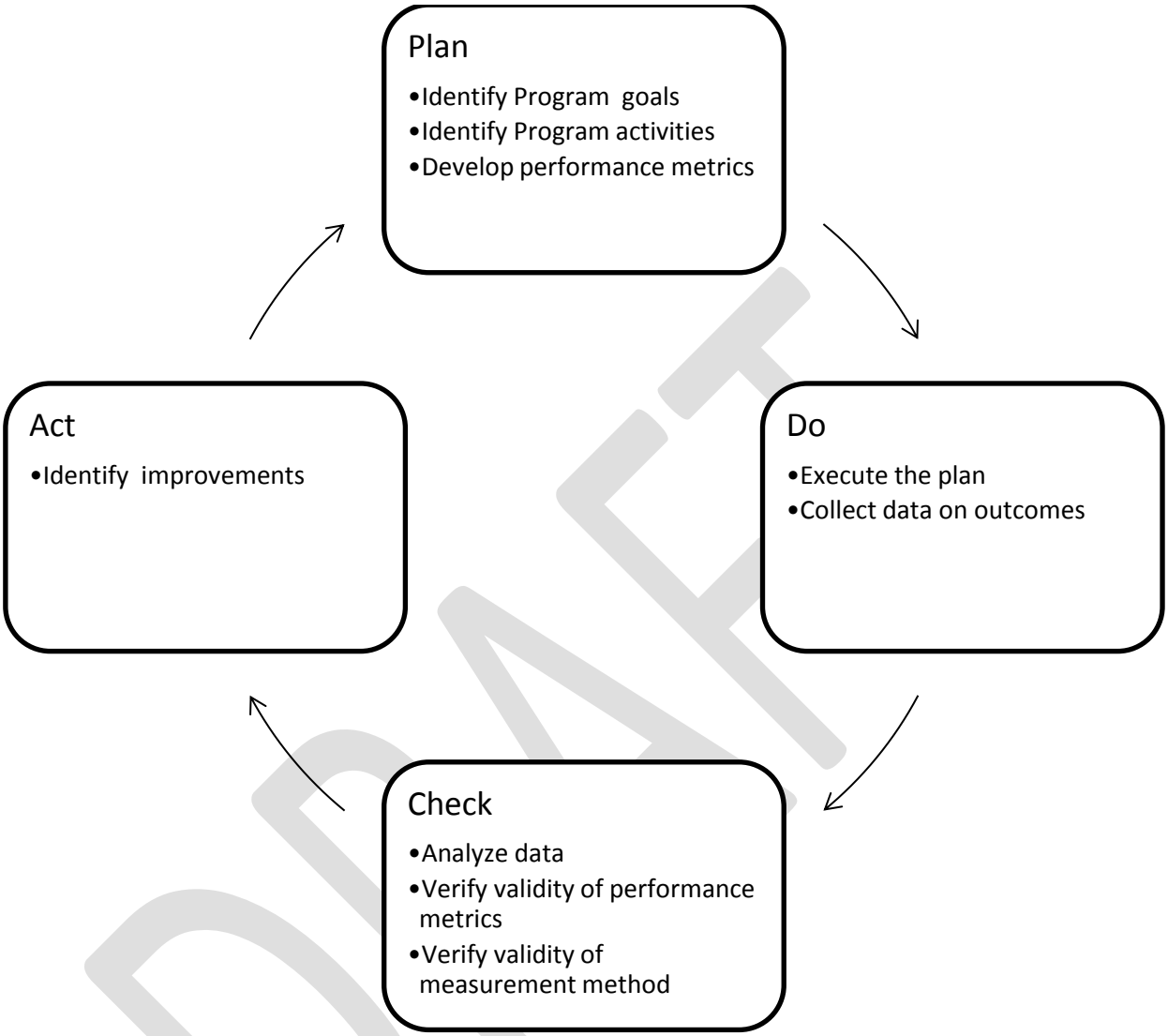
Figure 1: Conceptual Model of the "Iterative Process"



The “iterative process” can inform both the Co-permittees’ development and execution of their storm water programs and 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 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 may be discovered as programs are evaluated and performance metrics and their methods of measurement are developed and scrutinized. 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 water quality-based effluent limitations developed as part of TMDLs. The water quality-based effluent limitations are described in Appendices B through H 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 numeric effluent limits, where TMDL compliance dates have passed. They may alternately be 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. Each Co-permittee is required to use measurable and verifiable objective performance standards or metrics to evaluate the effectiveness of their BMPs. Where appropriate, the Principal Permittee should strive to harmonize the Co-permittees' performance metrics so that a meaningful assessment of the overall effectiveness of common program elements can be performed. Certain performance standards are found within this Order as desired measurable and verifiable program outcomes, but they are purposefully incomplete in order to provide the Co-permittees flexibility. Additional performance standards 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 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 typically 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 Watershed Management Plans in Sections IV and XVIII and detailed in Section XI, this Order does not require new planning documents. 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.

D. 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 generally regional or sub-regional facilities. Instead, preference is given in this Order 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. This Order requires that source control and site design BMPs be located on-site under any circumstance.

This shift in regard to the location of structural treatment controls has been made in consideration of the benefits of centralizing these 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 are more likely to collect runoff from roadways and other public rights of way whose runoff might be treated using less effective BMPs. Centralized facilities may also be at a scale that they provide other community benefits, such as open space. These facilities could be considered similar to the multi-benefit regional projects discussed in State Board Water Quality Order 2015-0075.

Alternately, difficulties in developing regional and sub-regional structural treatment control BMPs largely stem from the need 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 completed or partly-completed development projects located in the facilities' tributary area. 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.

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 a 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.

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[4].

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.

E. 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

[4] Detailed perspectives on regional and sub-regional structural treatment control BMP may be found in Podolsky, Laura. *Barriers to Low Impact Development*, Local Government Commission, September 2012. Available at: http://www.socalsmc.org/Docs/FINAL_BarrierstoLID_LGC.pdf

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 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 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[5].

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 an entity to construct a LID BMP that treats runoff from a drainage area that does not necessarily include the area of a project. The entity or project proponent is then allowed to trade the treatment capacity with projects in the same drainage area of the same receiving water (water of the U.S.) subject to certain conditions. The 'excess' capacity is the design capture volume or flow that the facility treats minus the volume or flow generated by a related project, if any. This excess capacity is a "credit" that serves as a unit of trade between projects. This market-based feature of the permit is designed to encourage early

[5] For a detailed discussion on barriers to LID see McConnel, Virginia and Wiley, Keith. *Infill Development: Perspectives and Evidence from Economics and Planning*, RFF DP 10-13, May 2010. Available at: http://www.rff.org/rff/documents/RFF-DP-10-13.pdf

investments in LID BMP infrastructure for large or multi-property property owners. This Order does not regulate the manner of the transaction between projects, but the structural treatment control employed to produce the credit must be a LID BMP.

Credit trading is permitted between projects, but the project owners must be the same. This is a limitation on the size of the trading market. This limitation is necessary at this time because permitting a larger trading market would require a more complex system of accounting and controls. Few Co-permittees may be prepared to effectively manage the credit trading. An expansion of the trading market to allow trading between different project owners in the same watershed may be considered as part of future permits.

F. 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. R8-2016-0001 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.

G. 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 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. A second public workshop was held during a scheduled Board meeting on January 31, 2015 to discuss the second Draft. Attendees were given an opportunity to submit oral and written comments. The comment period closed on February 13, 2015. Another meeting was held with staff of the County of Orange on March 9, 2015. Other communications with the public occurred. These include a meeting held with representatives of The Disney Resort on May 11, 2015; a meeting with staff of the County of Orange, representatives of

Orange County Coastkeeper, and representatives of the Inland Empire Waterkeeper on August 4, 2015; and a meeting with staff of the County of Orange on September 30, 2015.

On October 23, 2015, the public comment period began on Draft Order No. R8-2015-0001. A public workshop was held on November 5, 2015 to discuss the third Draft. The comment period closed on December 7, 2015. A meeting was held with representatives of the Building Industry Association of Southern California on December 3, 2015. Other communications with the public occurred. These include a meeting held with representatives of Orange County Coastkeeper on December 7, 2015; teleconferences with staff of the County of Orange on February 3, 2016, March 16, 2016 and also on August 15, 2016; and additional meetings with the Building Industry Association of Southern California on May 9, 2016 and May 13, 2016.

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 water quality-based effluent 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 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[6]. 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)[7]. The USEPA also reported that the average annual Phase II program costs were $9.16 per household (1998 dollars), comparable to the per-household costs of the Phase I program.

[6] Federal Register/Vol. 64 No. 235/Wednesday, December 8, 1999/Rules and Regulations. P. 68791-68792.
[7] 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.

In 2003, staff of the Los Angeles Regional Water Quality Control Board performed a study of Phase I MS4 program costs[8]. 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[9]. 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 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

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

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

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[10]. 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[11, 12].

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 for improvements in freshwater quality for fishing and boating is approximately $158 to $210 per household (1998 dollars)[13]. 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)[14].

[10] *Ibid*, P. 58.
[11] County of Orange, 2000, 2000 Annual Progress Report, P. 60.
[12] More recent data from the County of Orange is not available because the County no longer reports it.
[13] *Ibid*. P. 68793.
[14] State Water Resources Control Board, 2005. NPDES Storm Water Cost Survey. P. iv.

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)[15].

XI. GENERAL EXPLANATION OF PERMIT REQUIREMENTS

A. Basis in Federal Regulations

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 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 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 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.

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

[15] 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).

the context of storm water pollution"[16]. 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[17].

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."

B. Use of Existing Storm Water Program Planning Documents

This Order includes requirements for the implementation of programs in accordance with 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.

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

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

synthesized from those documents and incorporated into the requirements of this Order.

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.C. 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 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.

C. Minimal Reference to Existing Storm Water Program Planning Documents

The Co-permittees have various plans and programs whose development pre-date this Order. This Order avoids describing these plans and programs by their names in the requirements as a means of compliance. This approach has been taken in order to:

1. Avoid the appearance that the contents of those preexisting plans and programs supersede the requirements of this Order;
2. Avoid the appearance that the implementation of those preexisting plans and programs is presumed to fully comply with the requirements of this Order;
3. Maintain the impartiality of the Regional Board by avoiding the suggestion that the Regional Board endorses those plans or programs;
4. Avoid suggesting that implementing them provides assurance of compliance with the Permit; and
5. Prevent 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. 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 (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".

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 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 CFR122.26(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.

1. Effective Prohibition of Irrigation Water

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. Furthermore, the Co-permittees have identified nutrients, pathogens, and toxicity (for which pesticides are believed to be the cause) as water quality priorities.[18]

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.

[18] County of Orange 2015. Attachment A to Comments on Draft Order No. R8-2015-0001, NPDES Permit No. CAS618030, p. 2 of 35, February 12, 2015

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[19]. Irrigation has also been identified as playing a key role in mobilizing pollutants such as pesticides[20]. Pesticides are suspected of being responsible for most of the toxicity observed as part of the Newport Bay Watershed Toxicity Study[21]. 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[22]. In the San Diego Creek watershed, dry-weather runoff from urban areas accounts for 20 to 25% of the annual total nitrogen load[23]. 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 exceedances of the Newport Bay Watershed *Fecal Coliform* TMDL[24] [25]. 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[26]. 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[27].

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

[19] 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.
[20] Haver, Darren L. and Fox, Angelia, March 2008. Mitigating Pesticide Runoff in Urbanized Environments, Final Report, SWRCB Agreement No. 04-013-558-0.
[21] 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.
[22] Haver, Darren L. and Fox, Angelia, March 2008. Mitigating Pesticide Runoff in Urbanized Environments, Final Report, SWRCB Agreement No. 04-013-558-0.
[23] Irvine Ranch Water District and Municipal Water District of Orange County, "The Residential Runoff Reduction Study", July 2004.
[24] Ibid.
[25] 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.
[26] Orange County Public Works Department, OC Stormwater Program, 2011-2012 Unified Annual Progress Report, Section C-11.0, December 6, 2012.
[27] Irvine Ranch Water District and Municipal Water District of Orange County, "The Residential Runoff Reduction Study", July 2004.

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.

2. Effective Prohibition of Street Wash Water

During the comment period for Draft Order No. R8-2016-0001, the Co-permittees noted that street wash water is included in 40 CFR122.26(d)(2)(iv)(B)(1) among those discharges that are exempt from the requirement to be effectively prohibited. Regional Board staff noted that street wash water was not included in Order No. R8-2009-0030 or the previous Order No. R8-2002-0010. In Order No. R8-2002-0010, street wash water is expressly subject to an effective prohibition in Provision VI.6.e. However, street wash water was included in Order No. 96-31 and in Order No. 90-71. Considering that street wash water was initially excluded from being effectively prohibited almost 13 years ago and that the Co-permittees have raised the issue, it is appropriate to refresh the rationale here.

In 1997, the City of Los Angeles submitted a report to the Los Angeles Regional Water Quality Control Board entitled, *A Study of Pollutants Entering Storm Drains from Street and Sidewalk Washing Operations in Los Angeles, California*[28]. The City reported that street washing occurred in conjunction with general street and alleyway cleaning operations. These operations involve manual trash and debris removal and street sweeping as well as washing with a disinfecting solution. The operations are “essential to maintain public health and control nuisance odors caused by deposition of human waste” related to homeless encampments. The operation objectives are “to remove trash, disinfect, and deodorize targeted streets, alleys, and sidewalks.”

The City of Los Angeles documented that street wash water contained fecal indicator bacteria at levels that were comparable to raw sewage. In some locations, the biological chemical demand of the wash water was up to 6 times higher than raw sewage. The wash solution was also found to be highly toxic and that the toxicity decreased with time or distance after the solution was applied to the street.

[28] City of Los Angeles, Department of Public Works. A Study of Pollutants Entering Storm Drains from Street and Sidewalk Washing Operations in Los Angeles, California, July 1997.

The wash water also contained highly-varied concentrations of metals. While many metals were found in trace amounts, others, such as zinc, were found in concentrations that averaged 6,478 µg/L, with a maximum of 18,700 µg/L. For comparison, the USEPA benchmark value for zinc is 100 µg/L. A benchmark value is a value above which the pollutant presents a level that could potentially impair water quality.

The findings in the 1997 report indicate that street wash water is a source of pollutants to waters of the U.S. In accordance with 40 CFR122.26(d)(2)(iv)(B)(1), subsequent authorizations of the MS4 permits for Orange County, Riverside County, and San Bernardino County excluded street wash water from the list of discharge types not subject to an effective prohibition by the Co-permittees. Similar actions on street wash water have been taken by the Los Angeles and San Diego Regional Water Quality Control Boards. This Order continues the exclusion.

This exclusion should not be interpreted as a prohibition on street washing. This exclusion means that, if a Co-permittee performs street washing, best management practices must be in place to prevent the wastewater from discharging into the MS4. Because streets include gutters that constitute conveyances under the definition of “MS4”, street washing means that wash solutions will be directly discharged into the MS4 as part of the process. The wastewater from the washing activities must not be allowed to enter the MS4. For practical purposes, this will typically be at the nearest receiving storm drain inlet.

3. *De Minimis* and Drinking Water System Discharges

This Order authorizes the Co-permittees to discharge certain non-storm water subject to limitations and prohibitions. *De Minimis* discharges and most discharges from potable water systems are authorized by this Order, subject to the requirements found in Attachment A of the Order. The requirements in Attachment A are based on those found in Regional Board Order No. R8-2015-0004, NPDES Permit No. CAG998001 and State Board Order WQ 2014-0194-DWQ, General Order No. CAG140001.

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 40CFR Section 122.44. 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 and with the State Board's decision in WQO 2015-0075.

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 such 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."[29] 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[30].

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.

[29] See, e.g., Phase II Stormwater Regulations, Final Rule, 64 Fed. Reg. 68722, 68737.
[30] 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.

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 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, 40CFR 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 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 storm water or non-storm water, for which a

Permittee is responsible, shall not cause or contribute to a condition of nuisance[31].

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 responsible Co-permittees to notify the Executive Officer of their intent to develop a Watershed Management Plan to comply with receiving water limitations if a determination is made that urban runoff is causing or contributing to an exceedance of water quality standards. A Watershed Management Plan may be developed preemptively before such a determination is made. A Watershed Management Plan may also be developed as a mechanism to comply with WQBELs in Appendices B through H so long as final compliance deadlines have not passed.

The development of a plan involves 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 Watershed Management Plan must also include a 'reasonable 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[32].

[31] 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").

[32] 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.

In addition, this protocol for implementing the "iterative process" 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[33].

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 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 40CFR Section 122.26(d)(2)(i) which recognizes that a "series of contracts" may be necessary to comply with an MS4 permit; and by 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, 40CFR122.26(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

[33] See, e.g., USEPA 2014 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.'"

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 40CFR122.26(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 actions to compel compliance with regulatory requirements related to 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; Trash And Other Solid Waste 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 40CFR122.26(d)(2)(iv)(B). Illicit discharges are defined in the Glossary of this Order. Discharges that are authorized under an NPDES permit are not illicit discharges. As noted there, the definition provided in the Glossary comes from 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[34]. 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

[34] 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

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. 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.

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 eliminate the discharge of trash and solid waste to waters of the U.S in amounts that adversely affect beneficial uses or cause nuisance. 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 or use the relevant results of established programs elsewhere if available.

Subsection VII.B. also requires program-level oversight of the trash and solid waste 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. <u>Sections VIII, IX, and X: Municipal Inspections of Construction, Industrial, and Commercial Sites</u>

Sections VIII, IX, and X continue 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 40CFR Sections 40CFR Section 122.26(d)(2)(iv)(A), 122.26(d)(2)(iv)(C), and 122.26(d)(2)(iv)(D), 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, inspectors 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 overstates the inspector's 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-permittees 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 rates of compliance or non-compliance are not the best indicator 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, all sites benefit from the deterrent and education effects of a personal visit, but a cursory and incomplete inspection of even a low-priority 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.

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[35].

[35] 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.

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 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[36]. 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 judgment.

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.

[36] This adjustment increases the number of expected inspections by 2% versus without the adjustment.

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.

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[37])	Expected inspections over 5 years (Option 2[38])
Commercial	25,622	22,810	19,120 (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	28,606 (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

[37] As proposed from the 2013 Report of Waste Discharge.
[38] Ibid.

Order reduces the number of expected inspections by 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 significant.

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 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: Watershed Management Plans

In the previous Order No. 2009-0030, Section XI contained requirements for a Residential Program. 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.

The Residential Program in Section XI of the previous Order has been replaced by requirements for the development and implementation of Watershed Management Plans (WMP). WMPs are plans to comply with receiving water limitations in Section IV, certain water quality based effluent limits (WQBELs) in Appendices B though H according to Section XVIII, or both. WMPs are a

compliance option if a determination is made that discharges of urban runoff are causing or contributing to exceedances of water quality standards or waste load allocations represented as WQBELs. Such determinations are the result of the monitoring, analysis, and reporting cycles required in the Monitoring and Reporting Program. However, Co-permittees may elect to initiate preparation of WMPs before a cycle is complete and a determination is made. Therefore the basis for prioritizing the preparation of WMPs may rest with the risk of a determination being made rather than an actual determination.

Section XI provides that responsible Co-permittees will be regarded as being in compliance with the receiving water limitations in Section IV and/or with certain waste load allocations so long as WMPs are being prepared in accordance with the requirements of Section XI. Once a final WMP is approved, responsible Co-permittees will be regarded as being in compliance so long as the final WMP is being fully implemented subject to any conditions of approval imposed by the Executive Officer.

Section XI effectively establishes a mechanism by which responsible Co-permittees can plan and implement BMPs which have a reasonable assurance of causing discharges of urban runoff to discontinue causing or contributing to exceedances of water quality standards and/or to meet waste load allocations. This has been popularly called an “alternative to receiving water limitations” in State Board Water Quality Order 2015-0075. Absent compliance with the requirements of Section XI, responsible Co-permittees must comply with receiving water limitations in Section IV and achieve the WQBELs.

The Executive Officer may make a determination that the responsible Co-permittee has constructively abandoned a WMP if any commitment has not been met and after multiple Notices have been issued. Because the issuance of such Notices may have the same effect as granting an extension, Notices will be available for public review. If repeated Notices do not cause the responsible Co-permittee to comply with the requirements of Section XI, then the Executive Officer may conclude that the WMP has been abandoned and subsequently issue a Notice relieving the Co-permittee(s) of responsibilities to develop or implement the WMP and direct them to immediately comply with receiving water limitations and WQBELs.

A responsible Co-permittee may respond to a Notice by either performing the required commitment in the WMP or by requesting an amendment to the WMP. A Notice may be accompanied by an enforcement action. Requests for extensions of time will be treated in the same manner as a request for an amendment and be subject to public review. The Executive Officer is limited on

the individual or cumulative length of time that is allowed by an approved extension. Requests that exceed these limits will be considered by the Regional Board.

The development and implementation of a WMP is not a remedy for failing to meet all of the WQBELs in Appendices B through H. Appendices B through H include waste load allocations that must be met according to final deadlines established in related TMDLs. Once the final deadline has passed, the waste load allocation is effectively a numeric effluent limit. WMPs cannot be used to comply with such limits if cycles of monitoring, analysis, and reporting conclude that the limit is being exceeded. The remedy in these cases includes the issuance of a Time Schedule Order by the Regional Board.

Section XI requires that the responsible Co-permittees define a measureable and verifiable schedule for the completion of discrete tasks in the final approved WMP. Failure to meet the schedule may subject the responsible Co-permittees to enforcement action. The responsible Co-permittees will also include in the WMPs performance measures for the BMPs. Unless specified otherwise by the Executive Officer in conditions of approval, a failure to meet performance measures, generally will not subject a Co-permittee to enforcement action. The purpose is to allow the Co-permittees the maximum latitude to practice the "iterative process" to improve their storm water programs.

WMPs should not be used to supercede the requirements of this Order. The WMP should be used to complement the requirements of this Order. WMPs are subject to all of the relevant management requirements of this Order. This includes, but is not limited to requirements related to legal authority to carry out the approved WMP; execution of inter-agency and inter-Co-permittee agreements; execution of the "iterative process"; the performance of program effectiveness assessments using valid performance measures; and the collection and use of monitoring data to evaluate and improve the effectiveness of projects and programs described in the WMP

On June 16, 2015, the State Water Resource Control Board adopted WQ 2015-0075 in response to petitions on Los Angeles Regional Water Quality Control Board Order No. R4-2012-0175. The State Board's Order constitutes a precedential order affecting this Order. Regional Board staff has a detailed assessment of how the requirements of Section XI, in combination with other supporting requirements in this Order, satisfy the State Board's precedential order.

I. Section XII: New Development (Including Significant Redevelopment)

The requirements of Section XII are based on 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 40CFR Section 122.26(d)(2)(iv)(A)(4). 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.

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 rights of way have been excluded from "redevelopment projects" that are priority projects. This exclusion does not apply to related surface improvements. 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, regardless of whether or not any enforcement action was taken by the Regional Board.
- In Subsection XII.O., 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[39]. Whatever the meaning, the Co-permittees' application of the term must not be used 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 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 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, new development projects are classified into two types: priority and non-priority projects. Priority projects must employ source-control, site-design, and structural treatment controls. 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 characteristic which distinguishes source and site design BMPs from structural treatment control BMPs.

This Order includes numeric design standards for storm water runoff from new development and redevelopment. 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.

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 Section XII.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

[39] 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.

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. Last, 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 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 the hierarchy 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 preference is for bio-treatment control BMPs, 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. Although this Order does not require that structural treatment control LID BMPs be located on site, site design and source control LID BMPs must be on site consistent with LID principles.

The effectiveness of LID BMPs 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.[40,41] 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 hierarchy.

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 evapotranspiring 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 where feasible.

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)[42]. 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

[40] Horner, Richard R. Investigation of the Feasibility and Benefits of Low-Impact Site Design Practices (LID) for San Diego, University of Washington, 2006.
[41] Horner, Richard R. Investigation of the Feasibility and Benefits of Low-Impact Site Design Practices (LID) for Ventura County, University of Washington, 2007.
[42] Available at: www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/ventura_ms4/VenturaTGM/Ventura%20Stormwater%20TGM%20Final%207-13-11.pdf

that the Ventura County study was based on local hydrologic and soil conditions. The Co-permittees are allowed in the Order to estimate a similar alternative factor using local conditions for biotreatment control BMPs in Orange County.

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. By using the 1.5 factor, the reductions in pollutant loads may be comparable to 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 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. As the result of Regional Board staff observations during audits of convenient mis-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 reasonably 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 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.

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. 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 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 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 XIII of the Order requires that the Co-permittees implement an effective public education program. The requirements of Section XIII are based on 40CFR Sections 122.26(d)(2)(iv)(A)(6), (B)(6), and (D)(4). The public education program, as currently practiced, has been a core element of the Co-permittees' storm water program for over a decade.

Section XIII 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"[43]. 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[44], 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-

[43] 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

[44] The previous Permit included "100% of the residents" inadvertently capturing babies and infants.

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 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 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 based in part on 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 and their duties to help fulfill that obligation. Section XVI contains requirements appropriate to 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 proficiency 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

Federal regulations require that NPDES permits contain WQBELs consistent with the assumptions and requirements of all available WLAs (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 B 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 dates 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 or it was not established as in the case with USEPA promulgated TMDLs.

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. Monitoring data must be collected, analyzed, and the results reported based on an enforceable schedule. The schedule will be developed according to the requirements Subsection II.B. of Monitoring and Reporting Program R8-2016-0001. The analyses and reporting frequencies in the schedule do not need to be uniform across all pollutants. The reporting process constitutes the notification that discharges from an MS4 are causing or contributing to an exceedance of a water quality standard and WQBEL.

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) notifying the Executive Officer of their intent to develop a Watershed Management Plan and thereafter implementing an approved plan that is designed to comply with final WQBELs by the final compliance dates in Appendices C and E; or (3) the Co-permittees may fully implement a TSO. If a Watershed Management 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 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) notifying the Executive Officer of their intent to develop a Watershed Management Plan that is designed to comply with final WQBELs in Appendices G and H ("WQBEL compliance plan"). In the latter case, the lack of action by the responsible Co-permittees to implement the plan will constitute 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.

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[45]. 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[46].

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 equal. Provisions in Subsection IV.D. are included in this Order to establish the relationship between the two processes; compliance with the process in Section XVIII. satisfies the process in Subsection IV.D.

[45] 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.

[46] Based on electronic communication with Janet Hashimoto, Chief, Water Quality Assessment Section, USEPA Region 9, November 21, 2014.

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 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 R8-2016-0001. 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 is expected to focus on improving the effectiveness of the Co-permittees' efforts to comply.

All Watershed Management Plans (WMP) 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 WMP, 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. The content of the plans is controlled and, except for inconsequential grammatical and technical changes, is subject 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[47]. 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 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 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

[47] USEPA, 2005. Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act.

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.[47]

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 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 that 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. Each of the Co-permittees' programs must have the elements described in Section XIX.D.

The first required element is 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. They can also help identify opportunities where interventions or best management practices may be effective in getting a desired outcome[48].

[48] For an example of a model of littering behavior, see Sibley, Chris and Liu, James. *Differentiating Active and Passive Littering: A Two-Stage Process Model of Littering Behavior in Public Spaces*, available at:

A conceptual generalized model 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.

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 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. Valid performance

http://trashethnography.wikispaces.com/file/view/Differentiating+active+and+passive+littering--+a+two+stage+process+model+of+littering+behaviour+in+public+spaces.pdf

measures should have certain basic characteristics. The performance measure should:

- Have a need or purpose.
- Provide useful information.
- Focus toward a target or objective.
- Be measurable with reasonable accuracy and verifiable.
- Reflect the true status of the activity or project.
- Not be subject to alternative conflicting interpretation.
- Support proactive and adaptive management.
- Assist in evaluating the likelihood of success or failure.
- Be accepted by internal and external stakeholders as a tool for informed decision-making[49].

An example of a general goal established in the Order is Provision VII.E. Provision VII.E. 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." The Co-permittees would establish one or more performance measures to evaluate how they are achieving the mandatory goal and to demonstrate the effectiveness of their supporting activities (BMPs).

For example, the Co-permittees could establish the following performance 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 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 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 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.

[49] Adapted from Kerzner, H. (2013). *Project management: A systems approach to planning, scheduling, and controlling* (11th ed.). Wiley, Hoboken NJ.

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 XXI: Provisions

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 require 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.

S. Section XXII: Permit Modification

No changes have been made to the language of Section XXII.

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.

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 40CFR Section 122.41. Dischargers must comply with all standard provisions and with those additional conditions that are applicable under 40CFR Section 122.42.

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[50]. 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[51]. 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 staff has reported that 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. The Basin 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.

W. <u>Appendices B through H</u>

Appendices B through H contains water quality-based effluent limits ("WQBELs") that are based on WLAs and other requirements from 6 TMDLs that are

[50] 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

[51] The County's watershed map is available at: http://ocwatersheds.com/civicax/filebank/blobdload.aspx?BlobID=10612

applicable to the permit area. The WQBELs have been selected from 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 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 reissued as described in Finding 8 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.

Appendix B includes WQBELs that are consistent with the assumptions and requirements specified in the Nutrient TMDL for the Newport Bay and San Diego Creek watershed. Responsible Co-permittees are given the option to comply with the WQBELs based on the final individual WLAs for MS4 Co-permittees, or to trade pollutant allocations with responsible parties to ensure WQBELs based on the total load given to all dischargers into Newport Bay and San Diego Creek is met. Although individual allocations were distributed to all responsible parties in the Nutrient TMDL, the trading of pollutant allocations among responsible parties is supported where appropriate in the Nutrient TMDL.

The Nutrient TMDL states that optimizing alternative point and nonpoint control strategies through allocation tradeoffs may be a cost effective way to achieve nutrient load reductions. However, Co-permittees can only pursue compliance through trading pollutant allocations to comply with the WQBELs based on the total load if they develop and implement an approved Watershed Management Plan that describes how those WQBELs will be met in accordance to the requirements of Section XI of the Order.

Appendix C contains WQBELs that are consistent with the assumptions and requirements of the WLAs specified in the Fecal Coliform TMDL for Newport Bay. Fecal coliform WQBELs for the protection of shellfish harvesting (SHEL) are still included based on the TMDL and the fecal coliform objectives for SHEL that are specified in the Fecal Coliform TMDL and the Basin Plan. However, *Enterococci,* rather than fecal coliform, WQBELs are included for the protection of primary contact recreation (REC-1). The rationale for this approach is as follows:

In 2004, USEPA promulgated Enterococci objectives to protect primary contact recreation in Newport Bay and other coastal and coastal estuarine marine waters.[52].The objectives were based on USEPA's *Ambient Water Quality Criteria for Bacteria – 1986.* USEPA's 1986 bacteria criteria and 2004 action to promulgate Enterococci objectives applicable to Newport Bay were based on scientific findings that fecal coliform are not a reliable indicator of public health risk to those engaged in primary contact recreation[53].

Because USEPA has determined that fecal coliform are not a reliable indicator of public health risk to those engaged in primary contact recreation, the Fecal Coliform TMDL for REC1, including fecal coliform wasteload allocations, does not meet its intended purpose to assure the reasonable protection of the REC1 use in Newport Bay. To assure that the REC1 use of Newport Bay is protected, it is appropriate to specify WQBELs based on the USEPA established Enterococci objectives. The Enterococci WQBELs are consistent with the assumptions and requirements of the Fecal Coliform TMDL because the establishment and implementation of appropriate limitations based on scientifically defensible bacteria indicator organism objectives would protection public health and the REC1 beneficial use. Further, the Enterococci WQBELs are established at levels that provide the same level of human health protection as was originally intended by the Fecal Coliform TMDL[54]

USEPA advised states, including California, to remove fecal coliform objectives where, as in Newport Bay, Enterococci standards are in place[55]. The Regional Board intends to consider a Basin Plan amendment to remove the fecal coliform objectives applicable to coastal bays and estuaries in the Region in the future. Such a change would necessitate review and likely replacement of the Fecal Coliform TMDL for REC1 in Newport Bay.

Appendix D includes WQBELs that are consistent with the assumptions and requirements specified in the Sediment TMDL for the Newport Bay and San Diego Creek watershed. Although individual allocations were given to both point and nonpoint sources, the sediment TMDL states that the sediment targets and allocations must be implemented by the Cities of Irvine, Tustin, Lake Forest, Costa Mesa, Santa Ana and Newport Beach and the County of Orange. Therefore, WQBELs were included for the individual urban allocation and the

[52] Water Quality Standards for Coastal and Great Lakes Recreation Waters; Final Rule ("Great Lakes or BEACH Act Rule"); 69 FR 67218 *et seq.*; 40 CFR131.41
[53] 69 FR 67230
[54] The Enterococci WQBELS are established based on the Enterococci objectives developed using the accepted illness rates for fecal coliform. See USEPA *Ambient Water Quality Criteria for Bacteria – 1986,* p.9
[55] 69 FR 67228

total sediment allocation for all sources as the Cities and County are responsible for all discharges of sediment to Newport Bay and San Diego Creek.

The Sediment TMDL also requires the Cities and County, acting through cooperative agreements under the Newport Bay Watershed Executive Committee, to provide a proposal for evaluating compliance with allocations assigned to all sources. The cooperative agreement requires the participants to implement the Comprehensive Stormwater Sediment Control Plan; the primary purpose of which is to reduce sedimentation into Newport Bay. This Plan was completed by the Southern California Association of Governments (SCAG) in 1982 as part of an area wide planning process conducted pursuant to Section 208 of the Clean Water Act. The Cooperative Agreement was renewed on April 24, 2009 and includes the Regional Board as a non-funding participant. The Sediment TMDL uses the structure of the Cooperative Agreement to implement the sediment allocation reductions. Responsibility for implementation is on the parties that entered into that agreement.

XIII. Monitoring and Reporting Program

Monitoring and Reporting Program (MRP) No. R8-2016-0001 is an attachment to Order No. R8-2016-0001. 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. R8-2016-0001 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).

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 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 40CFR122.269d)(2)(iii), (d)(2)(iii)(A) and (d)(2)(iii)(A)(1) through (4); and 40CFR122.21(g)(7)(i) through (ii). Requirements related to monitoring and reporting pollutant loads are consistent with 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 in Appendices B through H.

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. The requirements in the MRP establish certain limitations to those improvements. The water quality monitoring requirements of the MRP will be consistent with the monitoring requirements in adopted TMDLs. 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 of the Executive Officer.

The requirements in this Order and the MRP for effectiveness assessments are consistent with 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 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 permittees 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 ASBSs'. 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.

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