

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN DIEGO REGION**

**SUPPLEMENTAL FACT SHEET**

**FOR**

**TENTATIVE ORDER NO. R9-2009-0002  
NPDES NO. CAS0108740**

**WASTE DISCHARGE REQUIREMENTS**

**FOR**

**DISCHARGES OF RUNOFF FROM  
THE MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4S)  
DRAINING THE WATERSHEDS OF THE  
COUNTY OF ORANGE, THE INCORPORATED CITIES OF ORANGE  
COUNTY, AND THE ORANGE COUNTY FLOOD CONTROL DISTRICT  
WITHIN THE SAN DIEGO REGION**

**April 15, 2009**

## **DISCUSSION:**

Revised Tentative Order No. R9-2009-0002, the Orange County Storm Water Permit, (formerly known as Tentative Orders Nos. R9-2007-0002 and R9-2008-0001) was distributed for review on March 13, 2009 by the California Regional Water Quality Control Board, San Diego Region (Regional Board). This is the fourth draft of the Orange County MS4 permit intended to replace Order No. R9-2002-001, which was adopted on February 13, 2002. A public hearing is scheduled to be held on July 1, 2009 at the Ocean Institute in Dana Point. Written comments received by May 15, 2009 will be provided with a written response prior to the public hearing. Written comments or testimony received by 5:00 PM, on June 19, 2009 will be provided to the Regional Board members for their review prior to the July 1, 2009 public hearing. The Regional Board will also consider oral statements at the public hearing. The Regional Board has the option of closing the public comment period at the July 1, 2009 meeting or within a specified time period following the meeting.

## **CHANGES:**

This document summarizes the significant changes found in Revised Tentative Order R9-2009-0002 when compared to the previous Revised Tentative Order R9-2008-0001 and provides a basis for those changes. This Supplemental Fact Sheet has been released to provide a basis for changes and is not intended to replace the Tentative Fact Sheet for Order R9-2009-0002, of which a redline/strikeout version will be released.

### **I. GENERAL CHANGES**

**Removal of “Urban”:** The term urban runoff has been removed throughout Tentative Order R9-2009-002 and replaced with storm water (wet weather) or non-storm water (dry weather) runoff. This clarification is necessary to prevent the misunderstanding that regulation under this permit is subject only to urbanized areas. The term “urban runoff” is not defined in the Code of Federal Regulations or Federal Register in the regulation of phase 1 MS4 discharges.

The discharge of runoff from an MS4 is a “discharge of pollutants from a point source” into waters of the U.S. as defined in the Clean Water Act (CWA). The Permit defines runoff as all flows in a storm water conveyance system (MS4 defined below) and consists of the following components:

- (1) storm water (wet weather flows) and
- (2) non-storm water discharges (dry weather flows).

The Permit defines an MS4 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):

- (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, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or designated and approved management agency under section 208 of the CWA that discharges to waters of the United States;
- (ii) Designated or used for collecting or conveying storm water;
- (iii) Which is not a combined sewer;
- (iv) Which is not part of the Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.26.

Permit finding D.3.c. includes natural streams that convey runoff as part of the MS4. The presence of an MS4 system is not limited to areas considered to be “urban” in nature. Though the term urban is often referred to specifically as pertaining to cities, runoff means all flows in a storm water conveyance system, regardless of the location of the conveyance system. A conveyance system owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law), may be located in a setting (e.g. unincorporated area, low density residential) that is not considered by the public to be “urban” in nature. These areas are contributing pollutants to the MS4 system that must be addressed. The term runoff applies to all flows in an MS4 system, no matter where the MS4 may be located in regards to incorporated or unincorporated property.

## **II. FINDINGS**

Findings of Tentative Order R9-2009-0002 have been modified from Tentative Order R9-2008-0001 to provide clarification and address new requirements. New and significantly modified findings of the Tentative Order are provided and discussed below.

**New Finding C.2.** Municipal storm water (wet weather) and non-storm water (dry weather) discharges are likely to contain pollutants that cause or threaten to cause an exceedance of the water quality standards, as outlined in the Regional Board’s Water Quality Control Plan for the San Diego Basin (Basin Plan). Wet weather and dry weather discharges are subject to the conditions and requirements established in the Basin Plan for point source discharges. These water quality standards must be complied with at all times, irrespective of the source and manner of discharge.

**Discussion of Finding C.2.** This finding is a clarification regarding the potential for discharges of storm water and non-storm water to impact the Beneficial Uses as described in the Basin Plan. As such these discharges require Waste Discharge Requirements (WDRs) to ensure that water quality standards are met. Furthermore, since discharges require WDRs, the discharges are subject to the prohibitions, conditions and requirements of the Basin Plan.

In addition, municipal discharges have been split into storm water and non-storm water discharges to represent the differing regulations applicable to storm water and non-storm water, though both types of discharges are likely to contain pollutants.

**New Finding C.8.** Trash is a persistent pollutant which can enter receiving waters from the MS4 resulting in accumulation and transport in receiving waters over time. Trash poses a serious threat to the Beneficial Uses of the receiving waters, including, but not limited to, human health, rare and endangered species, navigation and human recreation.

**Discussion of Finding C.8.** The Copermittees to date have documented high volumes of trash coming from the MS4 system and in receiving waters.<sup>1</sup>

The Basin Plan specifies the following narrative Water Quality Objective (WQO) for Floating Material:

*“Waters shall not contain floating material, including solids, liquids, foams, and scum in concentrations which cause nuisance or adversely affect beneficial uses.”*

The Basin Plan specifies the following narrative WQO for Suspended and Settleable Solids: Material:

*“Waters shall not contain suspended and settleable solids in concentrations of solids that cause nuisance or adversely affect beneficial uses.”*

Additionally, high density urban areas in Southern California have been shown to be responsible for up to 60 percent of the trash that enters receiving waters from the MS4.<sup>2</sup> The retrofitting of existing MS4 systems, such as catch basins, in targeted high trash areas can result in significant reductions in the amount of trash entering receiving waters from the MS4.

Trash, as litter in both solid and liquid form, is consistently found on and adjacent to roadways. A California Department of Transportation Litter Management Pilot Study found that of roadway trash, plastics and Styrofoam accounted for 33

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<sup>1</sup> Aliso Creek Watershed 27th, 28th, 29th and 30th Quarterly Progress Reports. 2007-2008.

<sup>2</sup> The City of Los Angeles Meets Trash TMDLs Compliance with CB Inserts and Opening Covers. August 06, 2008.

percent of trash by weight, and 43 percent by volume. Further, the study found that approximately 80 percent of the litter associated with roadways was floatable, indicating that, without capture, this litter would enter Waters of the State after a storm event, resulting in the impairment of Beneficial Uses.<sup>3</sup> The study, however, relied upon a mesh capture size of 0.25 inches (6.35 millimeters). This size is too large to effectively capture plastic pre-production pellets (aka “nurdles”), which are roughly 3 mm in size, and likely underestimated the total contribution of plastics. Plastics, including pre-production pellets, have been found to be the dominant pollutant on beaches in the County of Orange.<sup>4</sup> Furthermore, pre-production plastic pellets, which are small enough to be easily digested, have been found to carry persistent organic pollutants, including PCBs and DDT.<sup>5</sup>

**New Finding C.14.** Non-storm water (dry weather) discharges are not considered storm water (wet weather) discharges and therefore are not subject to regulation to the Maximum Extent Practicable (MEP) from CWA 402(p)(3)(B)(iii), which is explicitly for “Municipal and Industrial *Stormwater Discharges* (emphasis added).” Non-storm water discharges, per CWA 402(p)(3)(B)(ii) are to be effectively prohibited unless specifically exempted. Exempted discharges identified as a source of pollutants are required to be *addressed* (emphasis added) through prohibition. Dry weather non-storm water discharges have been shown to contribute significant levels of pollutants and flow in arid, urban Southern California watersheds. The Copermittees have identified landscape irrigation, irrigation water and lawn water, previously exempted discharges, as a source of pollutants and conveyance of pollutants to waters of the United States.

**Discussion of Finding C.14.** The federal Clean Water Act (CWA) generally prohibits the “*discharge of any pollutant*” [33 U.S.C. § 1311(a)] from a “*point source*” into the navigable waters of the United States [33 U.S.C. § 1362(12)(A)]. A National Pollutant Discharge Elimination System (NPDES) permit can be obtained that allows conditionally for the discharge of some pollutants [33 U.S.C. § 1342(a)(1)]. The CWA defines point sources as  
“*discernible, confined and discrete conveyances, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure*” such as a pipe, ditch, container, rolling stock, concentrated animal feeding operation, landfill leachate collections system, vessel or other floating craft from which pollutants are or may be discharged.” 33 U.S.C. § 1362; 40 CFR 122.2.

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<sup>3</sup> California Department of Transportation District 7 Litter Management Pilot Study. June 26, 2000.

<sup>4</sup> Moore, S.L., Gregorio, D., Carreon, M., Weisberg, S.B. and M. K. Leecaster. 1998. Composition and Distribution of Beach Debris in Orange County, California. *Marine Pollution Bulletin*. Vol. 42

<sup>5</sup> Rios, L.M., Moore, C. and Patrick R. Jones. 2007. Persistent organic pollutants carried by synthetic polymers in the ocean environment. *Marine Pollution Bulletin*. Vol. 54.

The CWA and the California Water Code (CWC) contain specific provisions on how wastewater discharges from point sources are to be permitted. The discharge of runoff from a Municipal Separate Storm Sewer System (MS4) is a “*discharge of pollutants from a point source*” into waters of the U.S. as defined in CWA Section 402. The permit defines MS4 Runoff as all flows in a storm water conveyance system and consists of storm water (wet weather flows) and non-storm water discharges (dry weather flows). Furthermore, storm water and non-storm water discharges contain waste, as defined in the CWC, and pollutants that adversely affect the quality of the waters of the State. The U.S. EPA defines storm water as “*storm water runoff, snow melt runoff and surface runoff and drainage*” related to storm events or snow melt (40 CFR 122.26(b)(13); 55 Fed. Reg. 47990, 47995).

Federal regulations specifically identify non-storm water discharges as not relating to precipitation events and include runoff from fire fighting flows, landscape irrigation and rising ground water. Initial comments to the federal regulations felt that these types of non-storm water discharges were originally viewed as not likely to have any significant environmental impacts and thus requested to be included as storm water (see Federal Register, Vol. 55, No. 222, pgs. 47995 and 48037). To the contrary, the USEPA did not agree with the comments and the Federal Register states that “*Congress did not intend that the term storm water be used to describe any discharge that has a de minimis amount of pollutants, nor did it intend for section 402(p) to be used to provide a moratorium from permitting other non-storm water discharges*” [55 Fed. Reg. 47995-96] Instead, non-storm water discharges are Illicit Discharges except for specific discharges identified under 40 CFR 122.26(b) that are not thought to be causing or contributing to a condition of pollution and are therefore exempted from prohibition.

Under CWA 402(p) for Municipal and Industrial *Stormwater* (emphasis added) Discharges, the CWA states that for (B) Municipal Discharge: permits for discharges from municipal storm sewers – (ii) shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers; and (iii) 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. To “*effectively prohibit*” means that the Permittee is to eliminate discharges into and from the MS4 unless specifically authorized under an NPDES permit independent of the MS4 permit (55 Fed. Reg. 47995).

Non-storm water (dry weather) discharges are not considered a storm water (wet weather) discharges and therefore are not subject to regulation to the Maximum Extent Practicable (MEP) from CWA 402(p)(3)(B)(iii), which is explicitly for “*Municipal and Industrial Stormwater Discharges* (emphasis added)”. Non-storm water discharges, per CWA 402(p)(3)(B)(ii) are to be effectively prohibited unless

specifically exempted (see below). Further, 40 CFR 122.26(d)(2)(iv)(B)(1) requires this prohibition of illicit non-storm water discharges be *addressed* (emphasis added) by:

*“implementing and enforcing an ordinance, order or similar means to prevent illicit discharges to the municipal separate storm sewer system .”*

Furthermore, under 40 CFR 122.44: for establishing limitations, standards and other permit conditions applicable to NPDES programs administered by the State, 40 CFR 122.44(k) addresses the use of Best Management Practices (BMPs) to control or abate the discharge of pollutants. Non-numerical limitations such as BMPs to control or abate the discharge of pollutants may be authorized only where (2) authorized under section 402(p) of the CWA for control of *storm water discharges* (emphasis added); or where (3) numeric limits are infeasible or where (4) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

Best Management Practices (BMPs) are defined in 40 CFR 122.2 as “schedules of activities, prohibition of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States.” As described, the prohibition of illicit non-storm water discharges is a BMP prohibitive practice to prevent the discharge of pollution from the MS4 into waters of the United States. In addition, the identification of an exempted non-storm water discharge as a source of pollutants and subsequent mechanism of prohibition of that discharge would be classified as a BMP.

Municipal Separate Storm Sewer Conveyance System permits are required to effectively prohibit non-storm water discharges into the MS4. For the past 4 permit cycles (19 years), non-numerical limitations (BMPs), including Illicit Discharge Detection and Elimination, have been used to control and abate the discharge of any pollutants in non-storm water discharges.

In 1987, the United States Clean Water Act was amended to include Section 402(p)(3)(B)(iii) which is explicitly for Municipal and Industrial *Stormwater* Discharges:

“Permits for discharges from municipal Storm sewers ... shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers;”

Order 90-38, adopted on July 16, 1990 was the first MS4 permit for southern Orange County. This permit required the elimination of non-stormwater discharges in the shortest time practicable, and in no case later than July 16, 1995.

Order 90-38, Section V.C “The Permittees shall effectively eliminate all identified illegal/illicit discharges in the shortest time practicable, and in no

case later [than] July 16, 1995 ... The following discharges shall not be considered illegal/illicit discharges provided the discharges do not cause or contribute to violations of water quality standards and are not significant contributors of pollutants to waters of the United States: discharges composed entirely of stormwater, discharges covered under an NPDES permit, ...”

Although stormwater discharges are listed as not being considered a illegal/illicit discharge, non-stormwater discharges are not listed and therefore are considered an illegal/illicit discharge under Order 90-38.

Order 96-03, adopted on August 8, 1996, replaced Order 90-38 and prohibited non-storm water discharges in slightly different language:

Order 96-03 Section III.5 “Non-storm water discharges from public agency activities into waters of the U.S. are prohibited unless the non-storm water discharges are permitted by an NPDES permit or are included in item 3, above...”

Order R9-2002-0001, adopted on February 13 2002, replaced Order 96-03. While numeric effluent limits on non-stormwater dry weather discharges were not required in R9-2002-001, the previous order did require prohibition of non-storm water discharges in almost identical language to the current revision of the tentative Order:

R9-2002-0001 Section B.1 “Each Copermittee shall effectively prohibit **all** types of non-storm water discharges into its Municipal Separate Storm Sewer System (MS4) unless such discharges are either authorized by a separate NPDES permit; or not prohibited in accordance with B.2 and B.3 below.”

Copermittees have been accorded ample opportunity to eliminate unauthorized non-storm water discharges from the MS4 that are causing or contributing to the exceedance(s) of WQOs, including the identification of any exempted discharges as a source of pollutants. To date, however, dry weather receiving water monitoring conducted by Copermittees has shown consistent exceedances of Basin Plan Objectives (BPOs) and the California Toxic Rule (CTR) for pollutants consistently found to be present in runoff from MS4 systems. Furthermore, multiple receiving waters within the Copermittees jurisdiction are 303(d) listed for pollutants whose known source includes wet and dry weather runoff. Those pollutants include: Indicator Bacteria, Phosphorous, Toxicity and Turbidity. Additional 303(d) listings within the Copermittees jurisdiction for Benzo(b)fluoranthene, Dieldrin, Sediment Toxicity, Chlorides, Sulfates and DDE have a source that has yet to be determined.

Given the ineffectiveness to date of BMPs in controlling and abating 303(d) listed

pollutants in non-storm water discharges (see above), numeric effluent limitations on those pollutants are necessary to protect the Beneficial Uses of Waters of the State from point source dry weather non-storm water runoff as established by 40 CFR 122.44(k). Furthermore, imposition of non-storm water NELs provide a quantitative assessment of the assumption that exempted non-storm water discharges are not causing or contributing to a condition of pollution or an exceedance of water quality standards. USEPA guidance<sup>6</sup> on water quality based effluent limitations in storm water permits states:

“Numeric water quality-based effluent limitations provide a greater degree of confidence that a discharge will not cause or contribute to an exceedance of the water quality standards, because numeric water quality-based effluent limitations are derived directly from the numeric component of those standards. In addition, numeric water quality-based effluent limitations can avoid the expense associated with overly protective treatment technologies because numeric water quality-based effluent limitations provide a more precisely quantified target for Permittees.”

Non-storm water NELs also can provide a greater degree of confidence for the Copermittee that they are in compliance with the Permit requirements rather than the current resource intensive and judgement based determination of compliance with the current narrative effluent limitations. The 303(d) listing of those pollutants and the subsequent identification of MS4 runoff as a source of pollutants has established reasonable potential and the necessity for water quality based effluent limits (WQBELs) to be developed. Per 40 CFR 122.44(d)(1), WQBELs apply when there is reasonable potential for Water Quality Standards (WQS) to be exceeded.

Additionally, dry weather loading of pollutants from natural, undeveloped areas in Southern California has been shown to typically be one to two orders of magnitude lower than the contribution from developed areas.<sup>7</sup> Dry weather flows have been shown to account for 10 to 57 percent of total annual volume in arid, developed Southern California watersheds.<sup>8,9</sup> Dry weather runoff from developed areas (i.e. streets, parking lots and irrigated landscapes) is likely to contain pesticides, persistent organic pollutants, heavy metals, nutrients, bacteria and sediments.<sup>6,7,10</sup> In arid, developed watersheds dry weather loading can contribute a significant percentage of the total annual pollutant load for metals and

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<sup>6</sup> United States Environmental Protection Agency, “Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits”, 61 FR 43761, August 1996.

<sup>7</sup> Stein E.D. and V.K. Yoon 2007. Dry Weather Flow Contribution of Metals, Nutrients, and Solids from Natural Catchments. *Water, Air, & Soil Pollution*. Vol. 190.

<sup>8</sup> McPherson, T.N., Burian, S.J., Turin, H.J., Stenstrom, M.K. and I.H. Suffet. 2002. Comparison of the pollutant loads in dry wet weather runoff in a Southern California urban watershed. *Water Science and Technology*. Vol. 45, no. 9.

<sup>9</sup> Stein E.D. and D. Ackerman 2007. Dry Weather Water Quality Loadings in Arid, Urban Watersheds of the Los Angeles Basin, California, USA. *Journal of the American Water Resources Association*. Vol. 43, Iss. 2.

<sup>10</sup> Hipp, B., Alexander, S. and T. Knowles. 1993. Use of resource-efficient plants to reduce nitrogen, phosphorus, and pesticide runoff in residential and commercial landscapes. *Water Science and Technology*. Vol. 28, no. 3-5.

nutrients. Dry weather loading has been shown to contribute 20 to 50 percent of total trace metals and up to 24 percent of total nutrients annually.<sup>7,8</sup> Dry weather non-storm water loading of trace metals occurs predominately in the dissolved form, which has a higher bioavailability to organisms than wet weather metals, which are predominantly particle-bound. Consequently, BMPs implemented that focus on removal of suspended solids and prevention of sediment runoff during storm flows are likely to have little effect on removing dry weather trace metals.<sup>7,8</sup>

Current Region-wide Bioassessment data indicates roughly 75 percent of streams have impaired (poor or very poor) Index of Biotic Integrity (IBI) scores, which is in part due to water chemistry.<sup>11</sup> Bioassessment monitoring from Fall 2006/Spring 2007, done by Copermittees as required under Order R9-2002-001, showed all sites, excluding reference sites, as having "Poor" or "Very Poor" IBI scores. Reference sites were either "Fair" or "Good."<sup>12</sup> However, Southern California studies indicate that 10 percent of storm drains contribute up to 85 percent of dry weather loads.<sup>13</sup> This indicates that a relatively small level of effort can result in significant improvements in water quality.

40 CFR 122.26(d)(2)(iv)(B)(1) allows for certain exempted non-storm water discharges into and from the MS4 (e.g. rising ground water). If any exempted discharges, however, are identified as a source of pollutants, they are required to be *addressed* (emphasis added) through prohibition. Non-storm water discharges are not subject to MEP, and should either be prohibited and addressed via ordinance, order or similar means or exempted under the 40 CFR 122.26(d)(2)(iv)(B)(1) exemption list if not identified as a source of pollutants. The prohibition of previously exempted discharges of non-storm water to waters of the United States from an MS4, conforms with United States Code requirements for standards and enforcement for effluent limitations to meet water quality standards (33 U.S.C. 1311(b)(1)(C)).

The Federal Register (Vol. 55, No. 222, pg. 48037) makes it clear that municipalities are to have a management system in place that addresses exempted non-storm water discharges found to be a source of pollutants to waters of the United States. Furthermore, the Director (in California the State acts as Director) may include permit conditions that either require municipalities to prohibit or otherwise control any exempted non-storm water discharges where appropriate.

To date the Copermittees have identified overspray and drainage from potable and reclaimed water landscape irrigation as a substantial source and conveyance mechanism for pollutants into waters of the United States. Irrigation runoff into the

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<sup>11</sup> Busse, L. , Gibson, D., Pohlman, A. and K. A. Voss. Biotic Integrity of streams in San Diego since 1998. FOURTH BIENNIAL CALIFORNIA NONPOINT SOURCE POLLUTION CONFERENCE, MAY 5-7, 2008.

<sup>12</sup> November 15, 2007. 2006-2007 Unified Annual Progress Report Program Effectiveness Assessment (San Diego Region).

<sup>13</sup> Stein E.D. and L.L. Tiefenthaler 2005. Dry-Weather Metals and Bacteria Loading in an Arid, Urban Watershed: Ballona Creek, California. *Water, Air, & Soil Pollution*. Vol. 164.

MS4, as identified by the Copermittees, is a source of pollutants to waters of the United States, and is required to be *addressed* (emphasis added) as an illicit discharge per 40 CFR 122.26(d)(2)(iv)(B)(1) by prohibition through implementing and enforcing an ordinance, order or similar means. The Copermittees have identified irrigation water as a source of pollutants and conveyance of pollutants to waters of the United States, when applied improperly in excess and therefore enters the MS4, in the following documents:

- Per requirements of 401 Water Quality Certification 02C-055, the County of Orange conducted a **Drainage Area Reconnaissance and Urban Runoff Characterization study**. From the reconnaissance and characterization, the County of Orange determined that:
  - “...*water quality results provided two important findings.*” First, “*analytical data strongly indicates that irrigation overspray and drainage constitutes a very substantial source and conveyance mechanism for fecal indicator bacteria into Aliso Creek, and suggests that reduction measures for this source of urban runoff could provide meaningful reduction in bacteria loading to the stream.*”
- Aliso Creek, currently 303(d) listed as impaired for Indicator Bacteria, is included in the Bacteria Project I TMDL adopted by the Regional Board on December 12, 2007. Secondly, reclaimed water high in electrical conductivity and Nitrate was indicated as:
  - “...*the source water at three of the excessive runoff locations (P1,P2,J01). These dissolved nitrogen concentration and flow rates create relatively high nitrogen loadings, which have the potential to contribute to undesirable levels of periphytic algal growth in Aliso Creek.*”
- On November 15, 2007 the **Unified Annual Progress Report Program Effectiveness Assessment** for the 2006-2007 reporting period was submitted by the Copermittees. Within the report, the Copermittees demonstrate that a “*wide range of constituents exceeded the tolerance interval bounds*”, including orthophosphate. Tolerance interval bounds are pollutant levels set by the Copermittees that represent when a problem may be occurring. These tolerance levels sometimes equate with Basin Plan Objectives (BPOs) and California Toxic Rules (CTR) and USEPA Criteria. The report states that “*high levels of orthophosphate concentration are most likely the result of fertilizer runoff or reclaimed water runoff*”. Aliso Creek is currently 303(d) listed as impaired for phosphorous.
- On November 15, 2007 the **Watershed Action Plan Annual Report(s)** for the 2006-2007 reporting period was submitted by the County of Orange, Orange County Flood Control District and Copermittees within the

San Juan Creek, Laguna Coastal Streams, Aliso Creek, and Dana Point Coastal Streams Watersheds. San Juan Creek, Laguna Coastal Streams, Aliso Creek and Dana Point Coastal Streams are all currently 303(d) listed as impaired for Indicator Bacteria within their watersheds and/or in the Pacific Ocean at the discharge points of their watersheds. These locations are included in the Bacteria Project I TMDL adopted by the Regional Board on December 12, 2007. The Copermittees, within their Watershed Action Strategy Table for Fecal Indicator Bacteria

*“Support programs to reduce or eliminate the discharge of anthropogenic dry weather nuisance flow throughout the [...] watershed. Dry weather flow is the transport medium for bacteria and other 303(d) constituents of concern”.* Additionally, they state that *“conditions in the MS4 contribute to high seasonal bacteria propagation in-pipe during warm weather. Landscape irrigation is a major contributor to dry weather flow, both as surface runoff due to over-irrigation and overspray onto pavements; and as subsurface seepage that finds its way into the MS4.”*

- In 2006, the State Water Quality Control Board (State Board) allocated Grant funding to the **SmartTimer/EdgescapE Evaluation Program (SEEP)**. Project partners include the following Copermittees: the Cities of Aliso Viejo, Dana Point, Laguna Beach, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest, Mission Viejo, Rancho Santa Margarita and San Juan Capistrano. Also included in the study were the Metropolitan Water District of Southern California, the Department of Agriculture and ten south Orange County water districts. The project targets irrigation runoff by retrofitting existing development and documenting the conservation and runoff improvements. The Grant Application states that:  
*“Irrigation runoff contributes flow & pollutant loads to creeks and beaches that are 303(d) listed for bacteria indicators.”*

Furthermore, the grant application states:

*“Regional program managers agree that the reduction and/or elimination of irrigation-related urban flows and associated pollutant loads may be key to successful attainment of water quality and beneficial use goals as outlined in the San Diego Basin Plan and Bacteria TMDL over the long term.”*

This is reinforced in the project descriptions and objectives:

*“Elevated dry-weather storm drain flows, composed primarily in the South Orange County Region of landscape irrigation water wasted as runoff, carry pollutants that impair recreational use and aquatic habitats all along Southern California’s urbanized coastline. Storm drain systems carry the wasted water, along with landscape derived pollutants such as bacteria, nutrients and pesticides, to local creeks and the ocean. Given the local Mediterranean climate, excessive perennial dry season stream flows are an unnatural hydrologic pattern, causing species shifts in local riparian communities and*

*warm, unseasonal contaminated freshwater plumes in the near-shore marine environment”.*

The basis of this grant project, conducted by the Copermittees and additional water use partners, is that over-irrigation (landscape irrigation, irrigation water and lawn watering) into the MS4 is a source and conveyance of pollutants. In addition, they indicate that this alteration of natural flows is impacting the Beneficial Uses of Waters of the State and U.S.

**Revised Finding D.1.f.** Runoff needs to be addressed during the three major phases of urban development (planning, construction, and use) in order to reduce the discharge of pollutants from storm water to the MEP, eliminate pollutants in dry weather flows and protect receiving waters. Urban development which is not guided by water quality planning policies and principles can unnecessarily result in increased pollutant load discharges, flow rates, and flow durations which can negatively impact receiving water beneficial uses. Construction sites without adequate BMP implementation result in sediment runoff rates which greatly exceed natural erosion rates of undisturbed lands, causing siltation and impairment of receiving waters. Existing urban development generates substantial pollutant loads which are discharged in urban runoff to receiving waters.

**Discussion of Finding D1.f.** This Finding has been changed to reflect storm water and non-storm water regulations. See discussion of Finding C.14 above.

**New Finding D.1.h.** This Order establishes Municipal Action Levels (MALs) for selected pollutants based on nationwide Phase I MS4 monitoring data for pollutants in storm water. The MALs were computed using the statistical based population approach, one of three approaches recommended by the State Board’s Storm Water Panel in its report, “The Feasibility of Numerical Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities (June 2006).” MALs are identified in Section D of this Order. Copermittees shall implement a timely, comprehensive, cost-effective storm water pollution control program to reduce the discharge of pollutants in storm water from the permitted areas so as not to exceed the MALs. MALs express an integration of the adequacy/inadequacy of programmatic measures and BMPs required in this Order. The exceedance of an MAL will create a presumption that MEP control requirements are not being met.

**Discussion of Finding D.1.h.** Section 402(p) of the CWA states MS4 permits for storm water 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. This includes requiring numeric effluent limits for storm water. MALs have been determined to be the appropriate regulatory measurement of achieving the Maximum Extent Practicable for reduction of

pollutants in storm water discharges.

MALs represent the lowest 10 percent of pollutant reduction for all MS4 Phase I programs discharging to waters of the United States. For the past 4 permit cycles (19 years), Copermittees have utilized non-numerical limitations (BMPs) to control and abate the discharge of any pollutants in storm water discharges to the MEP. Copermittees have been accorded 19 years to research, develop, and deploy BMPs that are capable of reducing storm water discharges from the MS4 to levels represented in MALs. Municipal Action Levels are set at such a level that any violations of MALs will be causing or contributing to the exceedance(s) of WQOs (California Toxic Rule and Basin Plan Objectives) and are impairing the Beneficial Uses of waters of the State.

Compliance with MAL levels is considered at least compliant with the Maximum Extent Practicable (MEP) regulation for storm water. Compliance with set MALs is considered MEP as 90 percent of all Phase I MS4 samples are in compliance with the numeric MALs, including those MS4 programs which may not be in their 4<sup>th</sup> permit term. Therefore, it is feasible for Copermittees to meet MALs as the MEP.

Copermittees are required to implement ordinances to prohibit the discharge of pollutants into and from the MS4, as well as to actively enforce those existing ordinances [both of which are considered Best Management Practices (BMPs)]. Enforcement actions (e.g. stop work orders) and the enacting of new and revised ordinances can be taken by any of the Copermittees to ensure the reduction of pollutants to the MEP. Exceedance of MALs for pollutants from the MS4 indicates that the BMPs are not being implemented to the MEP.

**Revised Finding D.2.c.** Use of Low-Impact Development (LID) site design BMPs at new development, redevelopment and retrofit projects can be an effective means for minimizing the impact of runoff discharges from the development projects on receiving waters. LID is a site design strategy with a goal of maintaining or replicating the pre-development hydrologic regime through the use of design techniques. LID site design BMPs help preserve and restore the natural hydrologic cycle of the site, allowing for filtration and infiltration which can greatly reduce the volume, peak flow rate, velocity, and pollutant loads of runoff. Current runoff management, knowledge, practice and technology has resulted in the use of LID BMPs as an acceptable means of meeting the MEP standard.

**Discussion of Finding D.2.c.** The Clean Water Act (CWA) is the cornerstone of surface water quality protection in the United States. (The Act does not deal directly with ground water nor with water quantity issues.) The statute employs a variety of regulatory and nonregulatory tools to sharply reduce direct pollutant discharges into waterways, and manage polluted runoff. These tools are employed to achieve the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters so that they can support

the protection and propagation of fish, shellfish, wildlife and recreation in and on the water.

Increasing the volume, velocity, frequency and discharge duration of storm water runoff from developed areas will eventually greatly accelerate downstream erosion, impair stream habitat in natural drainages, and negatively impact beneficial uses. Development and urbanization increase pollutant loads and volume while simultaneously increasing impervious area. Impervious surfaces can neither absorb water nor remove pollutants and thus lose the purification and infiltration provided by naturally vegetated soil. Furthermore, impervious surfaces tend to concentrate pollutants on the top of the surface that are then washed off into the MS4 and waters of the State in a concentrated manner. The use of Low-Impact Development (LID) site design BMPs can be an effective means of minimizing the impact of runoff discharges on receiving waters. By reducing water pollution, reducing runoff and increasing groundwater recharge, LID helps to improve the quality of receiving surface waters, stabilize the flow rates of receiving waters (preventing downstream hydromodification), reduce downstream flooding and protect and enhance water supply sources. Current runoff management, knowledge, practice and technology has resulted in the use of LID BMPs as an acceptable means of meeting the MEP standard for storm water treatment.

Effective Impervious Area (EIA) is the portion of the impervious area or pervious area incapable of retaining, infiltrating or evaporating design storm flow that is hydrologically connected via sheet flow or a discrete hardened conveyance to a drainage system or a receiving water body. In the interim, EIA has been added as a metric to protect the Beneficial Uses of waters of the State.

Current municipal codes may oppose or hinder the design, use and implementation of specific elements of LID. These codes include, but are not limited to, emergency services access requirements, building landscape ordinances, building height limits and parking space requirements. It is essential for Copermittees to work with other responsible agencies and/or update codes that have the potential to impact the use of LID.

The Local Government Commission, a non-profit organization working to build livable communities, developed a set of principles known as the *Ahwahnee Water Principles for Resource-Efficient Land Use*<sup>14</sup> that provide the opportunity to reduce costs and improve the reliability and quality of our water resources. Implementation of LID incorporates several of the Ahwahnee principles such as:

1. "Community Design should be compact, mixed use, walkable and transit-oriented so that urban runoff pollutants are minimized and the open lands that absorb water are preserved to the maximum extent possible."

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<sup>14</sup> Local Government Commission, "The Ahwahnee Water Principles – A Blueprint for Regional Sustainability", [http://water.lgc.org/Members/tony/docs/lgc\\_water\\_guide.pdf](http://water.lgc.org/Members/tony/docs/lgc_water_guide.pdf)

3. "Water holding areas such as creek beds, recessed athletic fields, ponds, cisterns, and other features that serve to recharge groundwater, reduce runoff, improve water quality and decrease flooding should be incorporated into the urban landscape."
4. "All aspects of landscaping from the selection of plants to soil preparation and the installation of irrigation systems should be designed to reduce water demand, retain runoff, decrease flooding, and recharge groundwater."
5. "Permeable surfaces should be used for hardscape. Impervious surfaces such as driveways, streets, and parking lots should be minimized so that land is available to absorb storm water, reduce polluted urban runoff, recharge groundwater and reduce flooding."

**New Finding D.2.g.** The increased volume, velocity, frequency and discharge duration of storm water runoff from developed areas has the potential to greatly accelerate downstream erosion, impair stream habitat in natural drainages, and negatively impact beneficial uses. Development and urbanization increase pollutant loads and volume. Impervious surfaces can neither absorb water nor remove pollutants and thus lose the purification and infiltration provided by naturally vegetated soil.

**Discussion of Finding D.2.g.** Increasing the volume, velocity, frequency and discharge duration of storm water runoff from developed areas will eventually greatly accelerate downstream erosion, impair stream habitat in natural drainages, and negatively impact beneficial uses. Development and urbanization increase pollutant loads and volume while simultaneously increasing impervious area. Impervious surfaces can neither absorb water nor remove pollutants and thus lose the purification and infiltration provided by naturally vegetated soil.

Historic hydromodification impacts, such as concrete lining and channelization, have impacted the natural physical habitat of urban streams resulting in low Index of Biotic Integrity (IBI) scores. The Copermittee's 2006-2007 monitoring indicated decreased IBI scores in the urbanized watersheds. In the absence of water chemistry and toxicity impacts, these low scores were attributed to be a result of poor physical habitat conditions.<sup>15</sup>

Hydromodification impacts result in poor physical habitat conditions through streambed scour, erosion, vegetation displacement, sediment deposition, channelization and channel modifications. Increased sediment loads from hydromodification causes other impacts to physical habitats including increased turbidity which then may cause increased temperatures. In addition, an increased sediment load may have an increased biological content thereby increasing the sediment oxygen demand and lowering the dissolved oxygen

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<sup>15</sup> Orange County Copermittees, November 15, 2007. 2006-2007 Unified Annual Progress Report Program Effectiveness Assessment (San Diego Region).

available for aquatic life.<sup>16</sup>

A waiver of any hydromodification control requirements due to modified (e.g. concrete, rip rap, etc...) natural channels does not fully protect the Beneficial Uses of Waters of the State. Future restoration, stream re-naturalization, and the reduction of 303(d) listed pollutants are dependent on preventing and reducing physical impacts from hydromodification. The objective of the CWA is “to restore and maintain the chemical, *physical*, and biological integrity of the Nation’s waters (emphasis added).” Furthermore, detention basins are a common BMP but behave hydrologically differently than distributed systems used in LID. Using LID, including the storage of flows for future re-use during dry weather (e.g. landscape irrigation), is an easier method to match pre-project hydrographs, while providing for storm water pollutant load reductions.

The goal of hydromodification requirements is to restore natural flow regimes and to restore habitats not meeting Beneficial Uses. The restoration of natural flow regimes is a major component necessary to protect and restore the physical, chemical and biological integrity of Waters of the State. One storm water metric, however, is not sufficient to fully protect the Beneficial Uses of waters of the State.<sup>17</sup> A Hydromodification Management Plan (HMP) will supplant the use of Effective Impervious Area as a singular metric, and must be developed incorporating LID as the main component in storm water flow control and pollutant reduction.

**New Finding D.3.i.** Retrofitting existing development with storm water treatment controls including LID, is necessary to address storm water discharges from existing development that may cause or contribute to a condition of pollution or a violation of water quality standards. Although SSMP BMPs are required for redevelopment, the current rate of redevelopment will not address water quality problems caused by hydromodification in a timely manner. Cooperation with private landowners is necessary to effectively identify, implement and maintain retrofit projects for the preservation, restoration, and enhancement of water quality.

**Discussion of Finding D.3.i.** Existing BMPs are not sufficient, as evidenced by 303(d) listings and exceedances of Water Quality Objectives from the Copermittees monitoring reports. More advanced BMPs, including the retrofitting of existing development with LID, are part of the iterative process. Based on the current rate of redevelopment compared to existing BMPs, the use of LID only on new and redevelopment will not adequately address current water quality problems, including downstream hydromodification. Retrofitting existing

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<sup>16</sup> USEPA, National Management Measures to Control Nonpoint Source Pollution from Hydromodification, EPA 841-B-07-002, July 2007.

<sup>17</sup> Brian Bledsoe, Robert Hawley and Eric D. Stein. 2008. Stream channel classification and mapping systems: implications for assessing susceptibility to hydromodification effects in southern California. Southern California Coastal Water Research Project. Costa Mesa, CA.

development is practicable for a municipality through a systematic evaluation, prioritization and implementation plan focused on impaired water bodies, pollutants of concern, areas of downstream hydromodification, feasibility and effective communication and cooperation with private property owners.

**New Finding E.9.** Copermittees have operated and have proposed to continue developing and operating facilities that extract water from waters of the U.S., subject such extracted water to treatment, then discharge the treated water back to waters of the U.S. Without sufficient treatment processes, facilities that extract, treat, and discharge (FETDs) to waters of the U.S. may discharge effluent that does not support all designated beneficial uses. This Order does not regulate the discharge of said facilities.

**Discussion of Finding E.9.** It is more appropriate to regulate FETDs through an individual or regional permit. This does not, however, preclude these facilities from any enrollment requirements under the Statewide Industrial Storm Water permit for storm water runoff, from obtaining a CWA Section 401 Water Quality Certification, or consideration as a municipal or industrial facility under the requirements of this Order. The intake and subsequent discharge from FETDs will require a separate NPDES permit.

**New Finding E.10.** Multiple water bodies in Orange County have been identified as impaired and placed on the 303(d) list. On December 12, 2007, the Regional Board adopted a Basin Plan amendment to incorporate 19 TMDLs developed in *Bacteria Impaired Waters TMDL Project I for Beaches and Creeks* in the San Diego Region. This action meets requirements of section 303(d) of the Clean Water Act (CWA). The Basin Plan amendment process is authorized under section 13240 of the California Water Code. In 2004, the Bacteria Impaired Waters TMDL Project II included six bacteria impaired shorelines in Dana Point Harbor and San Diego Bay: Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park, B Street, G Street Pier, Tidelands Park, and Chula Vista Marina in San Diego Bay. Since then, only Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in San Diego Bay can be confirmed as still impaired by indicator bacteria. On June 11, 2008 the Regional Board adopted a Basin Plan amendment to incorporate *Bacteria Impaired Waters TMDL Project II for San Diego Bay and Dana Point Harbor Shorelines*.

**New Finding E.11.** The San Diego Regional Board (Regional Board) finds storm water discharges from urban and developing areas in Orange County to be significant sources of certain pollutants that cause, may be causing, threatening to cause or contributing to water quality impairment in the waters of Orange County. Furthermore, as delineated in the CWA section 303(d) list, the Regional Board has found that there is a reasonable potential that municipal storm water and dry weather discharges from MS4s cause or may cause or contribute to an excursion above water quality standards for the following pollutants: Indicator Bacteria, Phosphorous, Toxicity and Turbidity. In accordance with CWA section

303(d), the Regional Board is required to establish Total Maximum Daily Loads (TMDLs) for these pollutants to these waters to eliminate impairment and attain water quality standards. Therefore, certain early pollutant control actions and further pollutant impact assessments by the Copermitees are warranted and required pursuant to this Order.

**New Finding E.12.** This Order incorporates MS4 WLAs developed in TMDLs that have been adopted by the Regional Water Board and have been approved by the State Board, Office of Administrative Law and U.S. EPA. The TMDL WLAs in the Order are addressed using water quality-based numeric effluent limits (WQBELs) calculated at end-of-pipe. Water quality-based effluent limits for storm water discharges have been included within this Order. Non-storm water dry weather TMDLs have been included in this Order as water quality-based effluent limits. Adopted TMDLs will be addressed as Cleanup and Abatement Orders (CAOs) subject to approval and adoption by the Regional Board. Storm water compliance date(s), schedules and monitoring to assess compliance will be included within each adopted TMDL CAO, even if said date(s) do not fall within the term of this Order.

**Discussion of Finding E.10, E.11, E.12.** Section 303(d)(1)(A) of the Clean Water Act (CWA) requires that:

*“Each state must identify those waters within its boundaries for which the effluent limitations...are not stringent enough to implement any water quality standard (WQS) applicable to such waters.”*

The CWA also requires states to establish a priority ranking of impaired waterbodies known as Water Quality Limited Segments and to establish Total Maximum Daily Loads (TMDLs) for such waters. This priority list of impaired waterbodies is called the Section 303(d) List. The current Section 303(d) List was approved by the State Water Resources Control Board (State Board) on October 25, 2006. On June 28, 2007 the 2006 303(d) list for California was given final approval by the United States Environmental Protection Agency (USEPA). Every two years the State of California is required by CWA section 303(d) and 40 CFR(130.7) to develop and submit to the USEPA for approval an updated 303(d) list of impaired waterbodies. The Regional Board is currently undergoing the required 2 year (2008) update for submittal to the State Board.

Multiple water bodies in Orange County have been identified as impaired and placed on the Section 303(d) list. The Regional Board has 78 current 303(d) listings for which TMDLs must be prioritized and subsequently developed. The 303(d) listing of a waterbody and subsequent TMDL development is required when regulations under current permits, such as Technology Based Effluent Limitations (TBELS), are not stringent enough to meet Water Quality Standards and protect the Beneficial Uses of Waters of the State. Table 1, below, describes the status of developed Total Maximum Daily Loads in Southern Orange County, Region 9. On December 12, 2007, the Regional Board adopted a Basin Plan

amendment to incorporate 19 TMDLs developed in *TMDLs for Indicator Bacteria Project I - Beaches and Creeks in the San Diego Region*. In 2004, the *Bacteria Impaired Waters TMDL Project II* addressed six bacteria impaired shorelines including Baby Beach in Dana Point Harbor. On June 11, 2008 the Regional Board adopted a Basin Plan amendment to incorporate *TMDLs for Indicator Bacteria, Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in San Diego Bay*. The *TMDLs for Indicator Bacteria, Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in San Diego Bay* are pending approval by the State Board, State Office of Administrative Law (OAL) and USEPA. The *TMDLs for Indicator Bacteria Project I - Beaches and Creeks in the San Diego Region* have been withdrawn by the Regional Board and are tentatively scheduled to reappear before the Regional Board in June, 2009.

Table 1. Status of Developed Total Maximum Daily Loads in Southern Orange County, Region 9.

TMDL	Regional Board Approval	State Board Approval	State OAL Approval	USEPA Approval
TMDLs for Indicator Bacteria Project I - Beaches and Creeks in the San Diego Region	Adopted 12/12/2007	Withdrawn by Regional Board	n/a	n/a
TMDLs for Indicator Bacteria Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in San Diego Bay	Adopted 06/11/2008	Pending	Pending	Pending

Storm water discharges from developed and developing areas in Orange County are a significant source of certain pollutants that cause, may be causing, threatening to cause or contributing to water quality impairment in the waters of Orange County. Furthermore, the CWA section 303(d) list indicates that there is a reasonable potential that municipal storm water and dry weather discharges from MS4s cause or may cause or contribute to an excursion above water quality standards for the following pollutants: Indicator Bacteria, Phosphorous, Toxicity and Turbidity. In accordance with CWA section 303(d), the Regional Board is required to establish TMDLs for these pollutants in these waters to eliminate impairment and attain water quality standards. Per 40 CFR(130.7), WLAs are required for all point sources, including storm water and non-storm water discharges from MS4s. Therefore, focused pollutant control actions and further pollutant impact assessments by the Copermitees are warranted and required pursuant to this Order.

This Order addresses MS4 WLAs that have been adopted by the Regional Board and have been approved by the State Board, OAL and USEPA. WLAs are portions of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. The TMDL WLAs in the Order are addressed using water quality-based numeric effluent limits (WQBELs) calculated at end-of-pipe. WQBELs must be consistent with the assumptions and requirements of the WLAs.<sup>18</sup> Water quality-based effluent limits for storm

<sup>18</sup> Per 40 CFR 122.44(d)(1)(vii)(B)

water discharges have been included within this Order if the TMDL has received all necessary approvals. Non-storm water dry weather TMDLs have been included in this Order as WQBELs under Section C of the Tentative Order: Non-Storm Water Dry Weather Numeric Effluent Limits. Adopted TMDL WLAs and LAs will be addressed by Cease and Desist Orders (CDOs) approved by the Regional Board in a public process. Storm water compliance date(s), interim goals, schedules and monitoring to assess compliance will be included within each adopted TMDL CDO, even if said date(s) do not fall within the term of this Order. This Order will reference and require compliance with those CDOs and their included time schedules.

Assessment of compliance with WLAs is to be assessed at the point of discharge to the receiving water. TMDL WLAs evaluated end-of-pipe will be assessed using WQBELs. Determination of compliance may also be assessed within the receiving waters to evaluate program effectiveness and to assess overall water quality.

Cease and Desist Orders (CDOs) are adopted pursuant to CWC Sections 13301-13303. CDOs may be issued to dischargers violating or threatening to violate Waste Discharge Requirements (WDRs) or prohibitions prescribed by the Regional Board or the State Board. CDOs may be issued to dischargers with chronic non-compliance problems that are rarely amenable via a short-term solution. Compliance may involve extensive capital improvements and/or operational changes. The CDO will contain a compliance schedule, including interim deadlines, interim effluent limits, and a final compliance date.

Please note that the version of the Tentative Order released on March 13, 2009 stated that Clean-up and Abatement Orders (CAOs) will be the primary regulatory tool containing the majority of TMDL Implementation information. While CAOs may be used, Cease and Desist Orders (CDOs) with time schedules are expected to be the central regulatory instrument for TMDL Implementation.

**New Finding E.13.** Basin Plan Prohibition 5 in Attachment A of the Permit states "The discharge of waste to inland surface waters, except in cases where the quality of the discharge complies with applicable receiving water quality objectives, is prohibited." Taken together with Finding C.1 and Discharge Prohibition 4, the Copermittees discharge from the MS4 is required to meet receiving water limitations.

**Discussion of Finding E.13.** Since runoff from an MS4 contains waste, as defined in the CWC, and pollutants that adversely affect the quality of the waters of the State, the discharge of MS4 runoff is a "discharge of pollutants from a point source" into waters of the U.S. as defined in the CWA. Under the San Diego Region Basin Plan, the discharge of waste to inland surface waters is prohibited unless the discharge meets the water quality objectives of the receiving waters. Thus, pursuant to the Basin Plan, MS4 discharges are required to meet water

quality objectives as outlined in the Basin Plan for the receiving water of the discharge.

### **III. DIRECTIVES**

This section discusses significant changes which have been made to the requirements of the Tentative Order from the requirements which were previously included in Tentative Order No. R9-2008-0001. For each section of the Order that has been changed there is a discussion which describes the change that was made and provides the rationale and/or description of the change.

#### **Prohibitions and Receiving Water Limitations**

**A.3:** The State Policy with respect to maintaining high quality waters has been added to clarify that discharges from the MS4 that cause or contribute to a violation of the Policy for high quality waters is prohibited.

**A.3.a:** Section removed for clarity.

**A.3.a.1:** Section modified for clarity.

**A.3.b:** Section modified to ensure the iterative process for storm water discharges is being met.

**A.5:** Section has been added to ensure that MS4 prohibitions are in compliance with the regulations of the California Ocean Plan for the portion of the MS4 that discharges directly to the Pacific Ocean.

#### **Non-Storm Water Discharges**

**B.2:** Section has been modified by the removal of landscape irrigation, irrigation water and lawn watering from the list of non-storm water discharges that are not prohibited, i.e. landscape irrigation, irrigation water and lawn watering discharges into and from the MS4 are now prohibited. Saline swimming pool discharges have been added to the list provided the discharge is directly to a saline water body (see Finding C.14 and Discussion).

**B.5:** Section has been removed (see Finding E.9)

**B.5:** Section has been added to ensure that MS4 prohibitions are in compliance with the regulations of the California Ocean Plan.

#### **Non-Storm Water Dry Weather Numeric Effluent Limits**

**C:** Section has been added to establish non-storm water dry weather numeric effluent limitations (see Finding C.14 and Discussion).

Non-exempted, non-storm water discharges are to be effectively prohibited from entering the MS4 or become subject to another NPDES permit (see Federal

Register, Vol. 55, No. 222, pg. 47995). Conveyances which continue to accept non-exempt, non-storm water discharges do not meet the definition of MS4 and are not subject to section 402(p)(3)(B) of the CWA unless the discharges are issued separate NPDES permits. Instead, conveyances that continue to accept non-exempt, non-storm water discharges that do not have a separate NPDES permit are subject to sections 301 and 402 of the CWA (see Federal Register, Vol. 55, No. 222, pg. 48037).

### **Municipal Action Levels**

**D:** Section has been added to establish municipal action levels (see Finding D.1.h and Discussion).

### **Legal Authority**

**E.1.b:** Duplicative language has been removed.

### **Development Planning Component**

**F.1.a:** Section has been modified to include redevelopment projects in the General Plan. This change requires Copermittees to update their General Plan to include water quality and watershed protection for all new development and redevelopment projects.

**F.1.c:** Section has been modified to reflect the prohibition of over-irrigation runoff to the MS4, as well as LID requirements. Additionally, this section requires the use of native and/or low water use plants for landscaping, where feasible.

**F.1.d(4):** This Section has been modified to clarify some elements of low impact development.

**F.1.h:** This Section has been extensively modified. The waiver for discharges into degraded stream channels has been removed. If requirements for currently degraded channels are removed, there will be a diminished opportunity for future restoration of Beneficial Uses of that receiving water due to the lack of hydromodification controls.

The Hydromodification Criteria section has been modified to require a Hydromodification Plan, which is consistent with other Southern California MS4 permits. This is in direct response to comments from the USEPA on Tentative Order R9-2008-001.

For interim projects, a limit on the effective impervious area of 5 percent has been added. This is in direct response to comments from the USEPA on Tentative Order R9-2008-001. Additionally, the size of interim projects has been changed to include all Priority Development Projects. This has been modified to reflect the scale of development and redevelopment that occurs in Orange County.

### **Construction**

**F.2:** This section has additions to ensure the protection of threatened and endangered species and requires the consideration of potential impacts from the use of Active Treatment Systems. These requirements were added to ensure additional protection of the Beneficial Uses of waters of the State.

An additional requirement for notification to the Regional Board regarding construction sites has been added to this section. Copermittees are required to annually notify the Regional Board of construction sites that have potential violations. This was added to enhance Regional Board and Permittee communication and coordination in regulating construction sites.

### **Existing Development**

**F.3:** This Section has been modified with changes clarifying storm water and non-storm water discharges for all existing development and an additional reporting requirement for existing facilities subject to the General State Industrial Storm Water Permit or an individual NPDES permit.

A section has been added to require the retrofit of existing development (see Finding D.3.i and Discussion). This section contains specific requirements for the retrofit process.

An additional notification to the Regional Board regarding industrial sites has been added. Copermittees are required to annually notify the Regional Board of construction sites that have potential violations. This was added to enhance Regional Board and Permittee communication and coordination in regulating construction sites.

### **Illicit Discharge Detection and Elimination**

**F.4:** A requirement has been added requiring submittal of the GIS layers of the MS4 map within 365 days of Order adoption.

### **Watershed Runoff Management Program (WRMP)**

**G.1:** Multiple changes have been made to the WRMP Section. Section G.1.b has added requirements that Environmentally Sensitive Areas (ESAs) be added to the WRMP map, and that GIS layers of the map be provided to the Regional Board. The addition of ESAs is required to ensure WRMP planning and activities do not just consider receiving waters that are 303(d) listed when making decisions. Note that ESAs are inclusive of all 303(d) listed waters.

**Section G.1.c:** This section has been modified so that Copermittees are required to use the watershed assessment to set priorities and to provide BMP implementation and updates that are effective and in response to assessment results. The assessment protocol has been updated so Copermittees are required to consider degraded biological conditions, violations of permit prohibitions, and significant exceedances of the State Policy for maintaining high

quality waters. This has been added to ensure that the assessment considers additional potentially significant water quality problems when setting priorities. These annual assessments must also now consider monitoring, modeling and source identification.

**Section G.1.d.(3):** Section has been removed because it is unnecessary.

**Section G.1.e.:** Education activities have been removed as a Watershed Activity. While education is considered a vital component in improving water quality, measurable improvements from education are often difficult to ascertain. A requirement has been added to this section so that the Watershed Water Quality Activity must be put into effect as part of the iterative process for reducing storm water pollutants to the MEP and/or eliminating non-storm water runoff and pollutants. Results from Watershed Activities are now required to be used in the design and implementation of future Watershed Activities as part of the iterative process. Except for retrofitting existing development sites, Watershed Activities do not include projects that are otherwise required by the Regional Board. These requirements have been added to ensure the MEP standard for storm water is being met.

**G.2:** The annual water quality assessment must be reported with inclusion of the following additional requirements: 1) the identification of highest priorities, 2) a record of watershed meetings and collaborative progress, 3) the timeframe on selected WRMP activities and 4) the estimated pollutant reductions from proposed and implemented Watershed Activities. Additional reporting requirements have been added to articulate what is necessary in the iterative process.

**Section G.2.h-k:** requires that the Copermittees describe BMP implementation, analysis and documented pollutant reduction, as well as a schedule for adding or modifying BMPs. These requirements have been added to assess Permittee compliance with the iterative process and addressing storm water pollutants to the MEP.

**G.3:** The section includes a requirement for the Watershed Copermittees to develop and implement a workplan identifying and addressing the highest priority issues in the watershed identified in the water quality assessment. The workplan requirement has been added to ensure Copermittees are allocating resources and effort to address priority problems and document measurable gains in reducing storm water pollution to the MEP and in prohibiting illicit non-storm water discharges.

### **Total Maximum Daily Loads**

**I:** This section has been added to address any TMDLs that are adopted by the Regional Board. See Finding E.10 and Discussion.

### **Program Effectiveness Assessment and Reporting**

**J:** This section includes a requirement for the Copermittees to develop and implement a workplan identifying and addressing the highest priority issues in the watershed. The workplan requirement in the JRMP section has been added to ensure Copermittees are allocating resources and effort to address priority problems and pollutants identified in the watershed analysis. This section has been added to ensure Copermittees use the annual watershed water quality assessment to assess, adjust and tailor their JRMP programs.

### **Reporting**

**K:** The reporting requirements include two significant additions. The first addition is a summary reporting checklist which has been added to the reporting requirements. The checklist has been added to ensure that Copermittees evaluate and demonstrate compliance with all requirements in the Order. The second addition is that the table of annual reporting requirements is now required on a watershed basis. This is consistent with WRMP requirements in which assessment is done on a watershed basis. The table has been modified to include more specific reporting requirements.

## **IV. ATTACHMENTS**

### **Attachment C**

An additional section which includes acronyms and abbreviations has been added. This is to ensure clarity and prevent confusion of terms. Definitions have been added for new terms used in the permit to provide a clear understanding of their meaning and use.

### **Attachment D**

A Jurisdictional Runoff Management Program (JRMP) Annual Report Checklist has been added to the reporting requirements. This addition is to determine and ensure that all requirements of the permit are being met.

### **Attachment E**

Changes in the Monitoring and Reporting section have been made to provide additional information on improvement of runoff management efforts as required in this Order or through voluntary efforts by the Copermittees.

**Mass Loading Stations:** The frequency of monitoring has been modified with the removal of the Bight 2008-2009 exception year.

**Urban Stream Bioassessment:** Requirements for conducting bioassessment must now use SWAMP guidelines. This change is required to provide quality assurance and control when comparing MS4 required monitoring to SWAMP data. Bioassessment must now include algal taxonomic composition and

biomass. Additionally, future bioassessment must include IBI scores that incorporate algae. This addition has been made to improve assessment of the environmental response to pollutants and impacts to Beneficial Uses of waters of the State. Algal species can be used as an indicator of degraded or changes in water quality.

**Dry Weather Non-Storm Water Numeric Effluent Limits Monitoring:** This section has been changed by removal of the Dry Weather Field Screening and Analytical Monitoring and subsequent replacement with Dry Weather Non-Storm Water Numeric Effluent Limits Monitoring. This change is required to assess compliance with numeric limits for non-storm water discharges from the MS4 into receiving waters.

**Bight '08 Special Study:** Study has been removed. All other Bight '08 references have been removed.

**Facilities that Extract Treat and Discharge (FETDs) Special Study:** Study has been removed (see Finding E.9 and Discussion).

**Sediment Toxicity Special Study:** This study has been added to the Monitoring and Reporting requirements to assess the quality of urban stream sediments and possible contamination due to runoff from the MS4. Toxicity tests focusing on aqueous toxicity may not account for the full toxicity of receiving waters if constituents, such as heavy metals or pesticides, are bound to sediments. Southern California studies have shown that stream sediments can exhibit significant levels of toxic metals and pesticides.<sup>19,20</sup>

**Trash and Litter Special Study:** A Trash and Litter Impairment Investigation has been added to the Monitoring requirements (see Finding C.8 and Discussion).

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<sup>19</sup> Holmes, R.W., Anderson, B.S., Phillips, B.M., Hunt, J.W., Crane, D.B., Mekebri, A. and V. Connor. 2008. Statewide Investigation of the Role of Pyrethroid Pesticides in Sediment Toxicity in California's Urban Waterways. *Environmental Science Technology* 42: 7003-7009..

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