

Section H of the Tentative Order requires the Copermittees to submit the following reports:

- Individual and Unified JURMP annual reports - September 30 of each year (July 1 – June 30)
- Individual and Unified WURMP annual reports - January 31 of each year (July 1 – June 30)

Although the Copermittees understand that the Tentative Order included these changes to allow for a longer time period between the two sets of submittals, the Copermittees would receive more benefit from keeping the two timelines for the submittals aligned. As such, the language should be revised so that the JURMPs and WURMPs are submitted January 31⁶ of each year. This will allow the Copermittees to assess their stormwater program and water quality monitoring program and conduct an integrated assessment to identify water quality improvements.

Section E.3. requires that the Copermittees submit the Aliso Creek WURMP annual report by March 1 of each year for the period January – December of the previous year. Since the Watershed Action Plan Annual Report for the Aliso Creek Watershed has historically been submitted in November of each year and has been based on the fiscal year like the other WURMP reports, it is unclear why Board staff are requiring this change. As such, the Aliso Creek WURMP submittal is now inconsistent with the other WURMP submittals both in the date for submittal and the time period for which the report covers.

The submittal date for the Aliso Creek WURMP annual report should be modified to be aligned with the other WURMP submittals. The proposed language modification is as follows:

3. Aliso Creek Watershed URMP Provisions
 - b. Each Permittee must provide annual reports by ~~March 1~~ January 31 of each year beginning in 2008~~9~~ for the preceeding annual period of ~~January~~ July 1 through ~~December~~ June 30.....

⁶ Reporting schedules will need to be aligned with the Santa Ana Permit reporting schedules.

ATTACHMENT C

ORANGE COUNTY ENVIRONMENTAL MONITORING COMMENTS ON CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SAN DIEGO REGION

**TENTATIVE ORDER No. R9-2007-0002
NPDES NO. CAS0108740**

INTRODUCTION

Attachment C contains the principal technical comments of the County of Orange (the "County") regarding the monitoring and reporting requirements of Tentative Order No. R9-2007-0002 dated February 9, 2007 ("Tentative Order").

These comments are divided into two sections: (1) General Comments, and (2) Specific Comments. The first section discusses the County's strategic concern with the Tentative Order's requirement, whereas the latter section addresses issues relating to specific requirements.

The County has endeavored to provide a complete set of comments on the Tentative Order. However, the County reserves the right to submit additional comments relating to Tentative Order No. R9-2007-0002 and the supporting Fact Sheet/Technical Report to the Regional Board in the future.

GENERAL COMMENTS

The principal goal of the Copermittees' environmental monitoring program is to support the Drainage Area Management Plan. This goal is entirely consistent with other observations on the role of monitoring. For example, "monitoring is most useful when it results in more effective management decisions, specifically management decisions that protect or rehabilitate the environment." (NAS, 1991¹). A number of the proposed modifications to the monitoring program do not appear to be supportive of this goal. Further, as changes in protocols and procedures are mandated there is a significant risk that they start to compromise the integrity and value of what is increasingly being recognized as one of the most comprehensive urban stormwater quality data sets in the United States. Finally, while the Board's interest in moving toward greater regional consistency is recognized, the Permittees are concerned that requirements are being prescribed without due consideration of the needs of south Orange County.

SPECIFIC COMMENTS

E.II.A.1.c. Timing of Mass Loading Station (MLS) Monitoring

The requirement to sample the first wet weather event of the year at each MLS needs to be considered in the context of the entire Orange County effort. Including the six MLSs

¹ Managing Troubled Waters, National Academy of Sciences, 1991

in the tentative order, there would in future be eighteen MLSs in Orange County requiring “first flush” sampling.

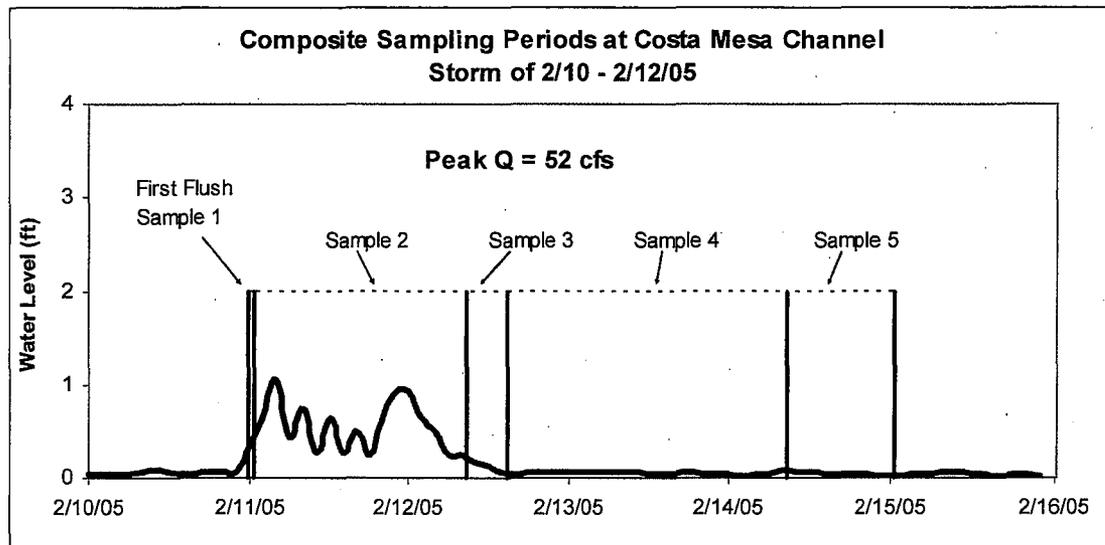
Proposed modification:

The requirement to increase the “first flush” sampling effort needs to be predicated on an assessment and finding of need.

E.II.A1.d. Flow-weighting of Wet Weather Samples

The requirement to collect flow-weighted composite stormwater samples will not allow accurate comparisons to CTR criteria for chronic toxicity due to dissolved metals. The County’s present method provides a more thorough and reliable characterization of a storm with respect to comparison to water quality standards. 3-5 time-weighted composite samples are collected during a 4-day period to characterize a storm and its subsequent effects (see example below). The first flush sample is collected over an hour period and is comprised of six discrete samplings 12 minutes apart. The subsequent composite samples are prepared from bi-hourly samples.

The analyte concentrations from each of the composite samples are combined with the respective discharge volumes during the composite samplings to calculate the individual and total stormwater loads. The dissolved metals concentrations from each of the samples are compared to the CTR acute criteria. The time-weighted average dissolved metals concentrations for the 4-day sampling period are compared to the CTR chronic criteria.



Flow-weighted compositing by field instrumentation (automatic sampler linked to portable flowmeter) has many disadvantages including:

- Since the components are linked, if one component fails the system fails.

- When programming the autosampler the operator must have a fairly accurate prediction of the size of the storm. If the magnitude is over predicted the sampler will not collect enough volume for all of the required analyses. If the magnitude is under predicted the autosampler will collect too frequently and the latter part of the storm will be missed unless the autosampler is serviced before or immediately after the time of the last sampling. Since the County will be required to monitor 18 MLSs during the first measurable rain event of the season this type of maintenance is not possible.
- The channel rating must be accurate at the time of sampling. Flow rates are calculated from the water level records using the channel rating (stage-discharge relationship). Presently, water level records are processed at the end of monitoring year (quarterly for Santa Ana Region TMDL programs). The water level records are adjusted (with shifts) to reflect changes in the stage-discharge relationship arising from sediment deposition/scouring or new instantaneous discharge measurements. These adjustments can result in significant differences in the calculated discharge rates.

If the County were required to modify its current automatic sampling procedure for stormwater, manpower limitations would dictate that the process be conducted by flow-weighted compositing in the laboratory as described in EPA 833-B-92-001 Exhibit 3-20 (constant time – volume proportional to flow rate). Aliquots from each bottle, proportional to flow rate at the time of collection would be composited into a single large container. Aliquots from the container would be submitted for the required analyses.

Advantages:

- The autosampler and the flowmeter are not linked, reducing the likelihood of sampling failure.
- Unscheduled autosampler servicing (to reprogram the collection frequency due to changes in storm magnitude) would not be required.

Disadvantages:

- The volume of a composite sample may not be great enough to accommodate all of the chemical and toxicity testing analyses. For short duration storms the volume of the composite sample would be much smaller. Presently Orange County analyzes chronic toxicity in mass emissions samples with multiple dilution tests. Some of these tests require substantial volume. Approximately 4 gallons of sample are required for toxicity tests currently conducted on stormwater samples under the third term permit.
- The space limitations of the County's laboratory would severely hinder expeditious processing of all of the samples from the first measurable event of each year.

Two automatic samplers, operating simultaneously, would be used to collect bi-hourly samples. Each sampler contains eight 1.8-liter glass bottles and the site would have to be serviced at least every 16 hours to change bottles and power supplies. The maximum volume collected in each bi-hourly sampling is $2 \times 1.8 = 3.6$ liters. The volume from each bi-hourly sampling used in the composite sample is calculated as:

$$V_i = V_L[(V_{imax}Q_i/Q_{imax}) / (V_{imax}Q_i/Q_{imax})] \text{ where}$$

V_i = volume from each bi-hourly sampling

V_L = volume required for all analyses

V_{imax} = volume of the bi-hourly sample corresponding to the greatest discharge rate

Q_i = flow rate for sample i

Q_{imax} = maximum flow rate recorded for any bi-hourly sampling

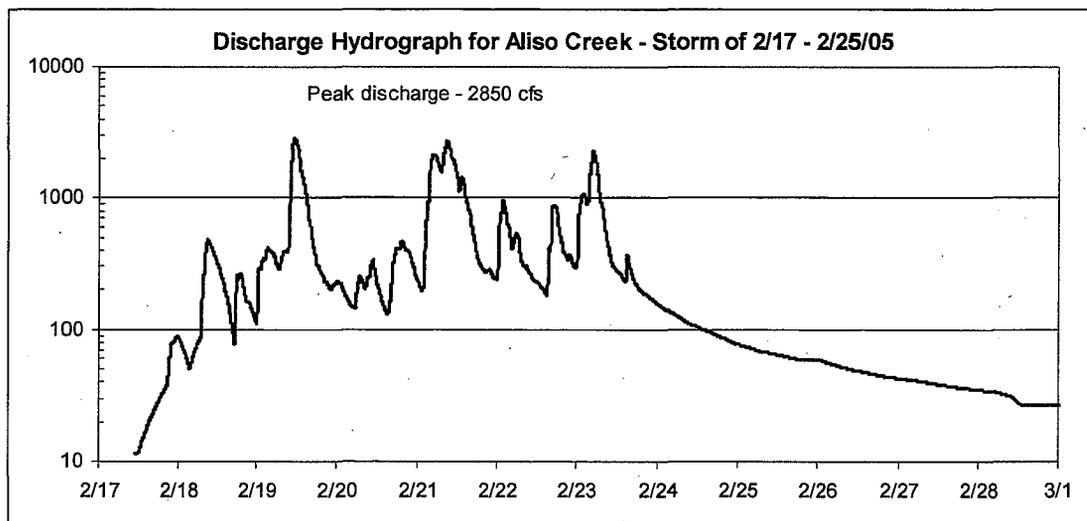
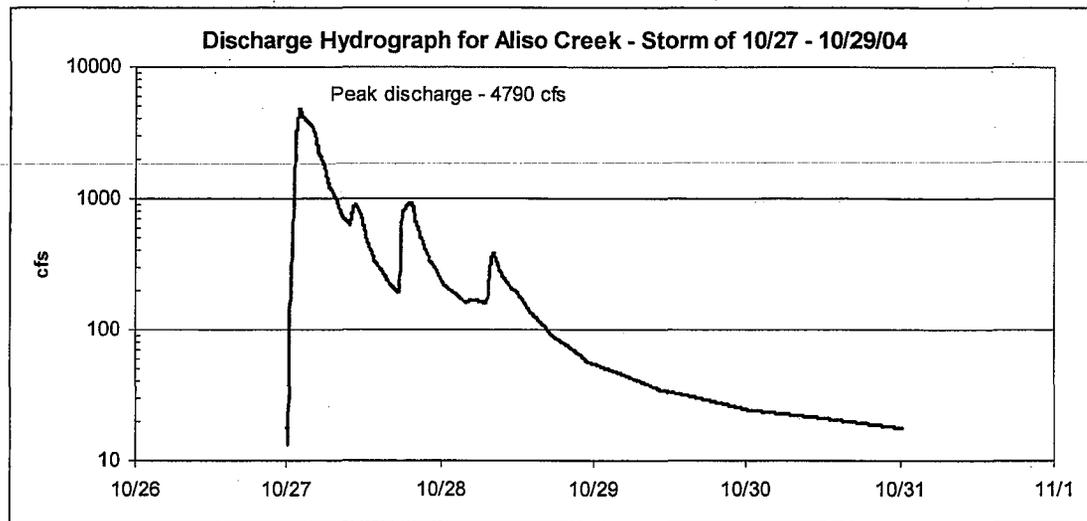
$(V_{imax}Q_i/Q_{imax})$ must first be calculated to ensure that it is greater than V_L . If it is not, the equation becomes:

$$V_i = V_{imax}Q_i/Q_{imax}$$

The following two discharge hydrographs illustrate the disadvantages of flow-composite sampling using automatic sampling and laboratory compositing. The first storm spans approximately two days and has a significant peak discharge. Assuming a maximum sample bi-hourly sample volume of 3.6 liters, the total volume of the composite sample would be just 12.9 liters. The sample volumes required for chemical and toxicity tests used in the program are tabulated below.

Analysis		Req. Vol. (L)	
	Nutrients incl. TSS	1.5	
	Trace Metals (total)	0.25	
	Trace Metals (diss)	0.25	
	OP + Pyrethroid Pesticides	2.0	
	Carbamate Pesticides	1.0	
	DOC	0.25	
	TOC	0.25	
	TDS	0.25	
	Toxicity Tests	0-1 dilutions	5 dilutions
1	Ceriodaphnia survival/reproduction	6	10
2	Hyalella survival	1.5	3
3	Selenastrum growth	1.5	3
	Total Chem + Tox 1-3	14.75	21.75
4	Mysid survival/growth	10	14
5	Sea Urchin fertilization	1	1
6	Fathead Minnow survival	10	14
	Total Chem + Tox 1,5,6	22.75	30.75
	Total Chem + Tox 1,4,5,6	32.75	44.75

Storm 2 spans more than seven days and would generate enough volume in the composite to accommodate all analyses. However, these seven days of sampling would yield approximately 90 bi-hourly samples (90 1.8-liter bottles) which would have to be stored and refrigerated until the sampling was completed and the maximum discharge rate determined.



Proposed Modification:

Clearly the choice of automatic sampling options is not an easy one. The present method and the constant time – volume proportional to flow rate method each have advantages and disadvantages. The choice should not be solely based on costs or logistics. The County recommends that a pilot study be conducted to determine the differences between the two methods rather than making such a significant change to the direction of the monitoring program through the permit process.

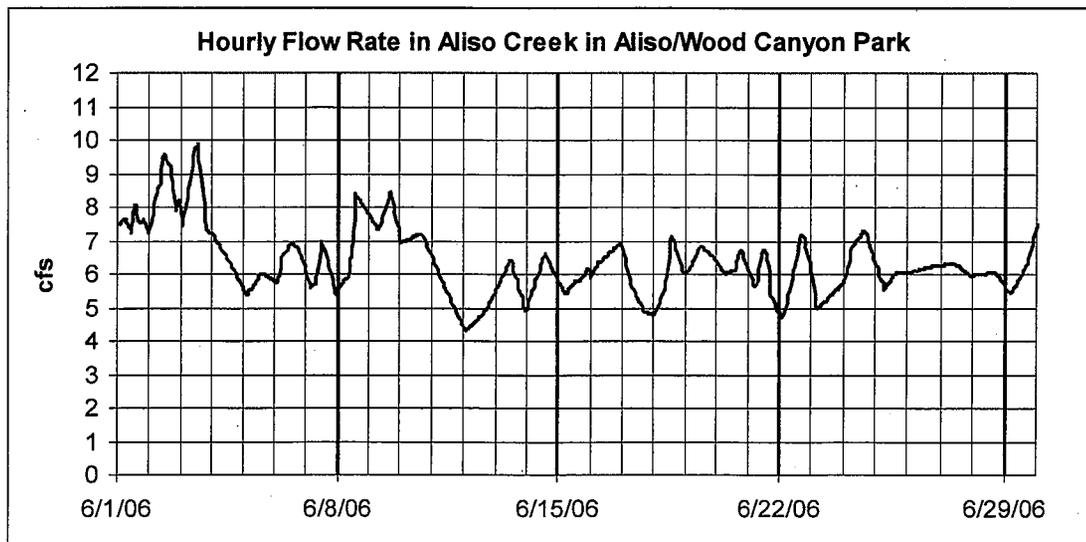
Until the study is completed, the monitoring protocols would remain the same as in the third permit.

E.II.A.1.d. Dry Weather Composite Sampling

The proposed frequency of sample collection (minimum 3 samples / hour) during dry weather monitoring at MLSs does not support the objective of identifying illegal discharges and illicit connections and presents significant technical challenges. During a "typical" 24-hour period, flow rate at an MLS does not vary significantly and the changes in water chemistry at an MLS would be muted because of the large size of the watershed and the number of stormdrain inputs.

In order to comply with this requirement these composite samples would have to be prepared using the constant time – volume proportional to flow increment method (EPA 833-B-92-001 Exhibit 3-19) or constant time – volume proportional to flow rate method (Exhibit 3-20). Either method would require that 72 discrete samples be collected during a 24-hour period and that the samples be flow-composited in the laboratory. Automatic samplers linked to flowmeters will not accommodate both constant time collection and flow-compositing during the same sampling period. To collect 3 samples/hour and produce a flow-composite sample, three automatic samplers would be required at each site for each event.

The flow rate at an MLS, as noted above, does not vary significantly during a typical 24-hour day. Below is a graphic showing the hourly flow rate in Aliso Creek at the streamgauge in Aliso/Wood Canyon Wilderness Park during June of 2006. As can be seen from the graph, the greatest difference between the maximum and minimum hourly flow rates during any 24-hour period is less than 35% of the maximum value (9.9 cfs at 13:00 on 6/3 and 6.5 cfs at 12:00 on 6/4). To produce a flow-composite sample, aliquots from each of the 72 samples collected during the 24-hour period would be combined in a single container. The volume of each of the aliquots would be proportional to the flow rate (q_i/q_t) at the time of sample collection and the volume of the sample collected at the maximum flowrate. Unless the pollutant discharge occurred over several hours or if the concentration of the pollutant was several orders of magnitude above the baseline concentration, it would be difficult to detect intermittent illegal discharges from the composite sample concentration.



Proposed Modification:

Conduct dry-weather monitoring at MLSs with time-weighted composite samples composed of 24 discrete hourly samples. Compute the mass loads of pollutants as the product of the composite sample concentration and the total volume of water discharged past the monitoring point during the time of sample collection.

E.II.A.1.g. Analytical Testing for Mass Loading, Bioassessment, and Ambient Coastal Receiving Waters

Nitrite is readily oxidized to nitrate in the natural aquatic environment. Analysis of this form of nitrogen would not provide any added benefit and would significantly increase program costs. Presently and in prior permit monitoring programs, the concentrations of nitrite + nitrate has been determined and reported as NO_3 .

Proposed Modification:

Analyze nitrite + nitrate together as in prior monitoring programs.

Pyrethroid Pesticides

Pyrethroid pesticides are very insoluble and tend to bind to sediment. They would not be detected in an aqueous sample unless the sample had a very high concentration of suspended solids.

Proposed Modification:

Analyze Pyrethroid pesticides in sediments at Bioassessment sites and in Dana Point Harbor.

E.II.A.1.h.(1) DDE Monitoring at the San Juan Creek MLS

Assuming that the requirement to add DDE monitoring was a product of the 303(d) listing of San Juan Creek for DDE, the MLS is not within the water quality limited segment defined by the 303(d) list. The listing was based on samplings conducted at SWAMP station San Juan Creek 9. The 2006 303(d) list states that the estimated size affected is 1 mile. The San Juan Creek MLS is two miles upstream of San Juan Creek 9.

Proposed Modification:

Do not add DDE monitoring at the San Juan Creek MLS.

E.II.A1.i. Toxicity Testing at MLSs

The proposed requirement would result in a change in toxicity testing organisms at MLSs. Presently toxicity of stormwater discharges is measured using multiple dilution tests with marine organisms to assess the impact of stormwater on the coastal

environment. In the Santa Ana Region monitoring program, testing with marine and freshwater organisms is used.

The TDS concentration in at least two (Prima and Segunda Deschecha Channels) of the six MLSs is great enough to negatively affect the toxicity test using *Ceriodaphnia dubia*. The seepage of local saline groundwater into these channels causes these high TDS concentrations.

Proposed Modification:

For dry-weather samples conduct toxicity testing with:

1. Chronic (7-day) survival test with *Ceriodaphnia dubia*. Measure the specific conductance of the sample first. If the conductance exceeds 2500 mhos/cm, substitute *Daphnia magna* and conduct chronic toxicity test (EPA/600/D-87/080, March 1987).
2. Chronic (96-hour) growth test with *Selenastrum capricornutum*
3. Acute survival test with *Hyalella azteca*.

For stormwater samples conduct toxicity testing with:

1. Chronic (7-day) survival test with *Ceriodaphnia dubia*. Measure the specific conductance of the sample first. If the conductance exceeds 2500 mhos/cm, substitute *Daphnia magna* and conduct chronic toxicity test (EPA/600/D-87/080, March 1987).
2. Chronic (96-hr) survival/growth test with *Americamysis bahia*.
3. Chronic (40-min exposure) fertilization test with *Stronglyocentrotus purpuratus*.
4. Chronic (96-hr) survival/growth with larval *Pimphales promelas*.

E.II.A.4.b. Toxicity Testing at ACRW Sites

The Tentative Order proposes the use of freshwater organisms for toxicity testing. Historically, the aqueous toxicity tests have been conducted with marine organisms since the intent of the program is to evaluate the impact of urban runoff on the coastal receiving waters.

Proposed Modification:

Continue to use marine organisms for toxicity testing at the ACRW sites.

E.II.A.5.c.(1) Continue Baseline Monitoring at CSDO Sites

The list of sites to continue baseline monitoring (weekly sampling of indicator bacteria in the stormdrain and the surfzone) includes four stormdrains (MAINBC, LINDAL, BLULGN and PEARL) which are diverted during the AB-411 season. There should be no requirement to sample while drains are being diverted.

E.II.A.5.c.(2) Special Investigations

The Permittees have conducted numerous bacterial source investigations in the Region including:

1. Aliso Creek 13225 Directive Monitoring Plan and J03P02 Cleanup and Abatement Order Monitoring Plan. 2001-2005. Quarterly Progress Reports can be found on the Watershed and Coastal Resources Website at: http://www.ocwatersheds.com/watersheds/Aliso_reports_studies.asp
2. San Juan Creek Microbial Source Tracking Study conducted by the Orange County Health Care Agency and the University of South Florida, 2002. The Report can be found on the Watershed and Coastal Resources Website at: http://www.ocwatersheds.com/watersheds/sanjuan_reports_studies_Qtr1_section1.asp
3. Bacterial Source Tracking Study on Prima Deshecha Channel conducted by MEC/Weston Solutions on behalf of the County and San Clemente, 2006.

These studies need to be explicitly recognized in the Tentative Order and duplicative efforts not required.

Proposed Modification:

Requirements for bacterial source investigations should be stayed pending development of emerging source tracking methodologies.

E.II.B.1 MS4 Outfall Monitoring During Wet Weather

The requirement to monitor MS4 outfalls during wet weather does not support source investigations.

Proposed Modification:

Continue to use the Dry-weather Reconnaissance data as the primary monitoring effort to identify potential sources within the watershed.



Attachment 1
Comments on Fact Sheet/Technical Report For Tentative Order R9-2007-0002

Economic Issues (p.11)

The Fact Sheet's discussion of Economic Issues considers the costs and benefits of water quality protection and management. This discussion is prefaced with a reference to the work of Ribaudo and Hellerstein (2002). These authors note that that a "knowledge of benefits and costs to water users is required in any complete assessment of policies to create incentives for water quality improving changes in agricultural practices." The paraphrasing of this work in the Fact Sheet unfortunately omits consideration of the context and scope of this work. Since their work is advocating cost-benefit analysis to initially inform policy development rather than subsequently validate its implementation, Ribaudo and Hellerstein's target audience are clearly the policy writers (or permit writers) and not the practitioners of agricultural production. This key point is missed by the Fact Sheet author.

The scope and limitations of environmental cost-benefit analysis also have to be recognized. Indeed, the beach closure studies noted in the Fact Sheet quite possibly represent the limits of meaningful cost-benefit analysis as it can be applied to water quality protection and management in Orange County. In environmental cost-benefit analysis there are no markets for environmental quality and no prices with which to completely measure environmental value. Consequently, such analyses have to determine economic effects through the measurement of observed changes in the behavior of water users (e.g. a reduction in beach use) and the determination of direct use values. However, direct use values such as those identified by Lew et. al. (2001) only capture a portion of the total economic value of an environmental asset. For example, NOAA observes that indirect use values (e.g. biological support, climate regulation etc.), non-use values (e.g. potential future use), and intrinsic values (biota has a value irrespective of usefulness to humanity) also have to be considered in the evaluation of an environmental resource

In summary, cost-benefit analysis requires that the natural environment be translated into monetary terms. The Center for Progressive Regulation (CPR) (2007) believes that this feature is one aspect of cost-benefit analysis that "makes it a terrible way to make decisions about environmental protection, for both intrinsic and practical reasons." CPR also believes that "it is not useful to keep cost-benefit analysis around as a kind of regulatory tag-along, providing information that regulators may find useful even if not decisive. Cost-benefit analysis is exceedingly time- and resource-intensive, and its flaws are so deep and so large that this time and these resources are wasted on it." Part of this latter observation is underscored by the 1998 the state of Minnesota's scoping study on a cost-benefit model to analyze water-quality standards. Its task force estimated costs of \$3.6 to \$4.4 million over four years to support model development and the project was stopped at the conclusion of the scoping study. If the Fact Sheet retains a discussion of cost benefit analyses, this discussion should be revised to explicitly recognize the limited utility of the approach when applied to environmental protection.

Discharge Characteristics (p.21)

The Fact Sheet presents a chronological record of investigations into the environmental significance of dry and wet weather runoff from urban areas starting with Nationwide Urban Runoff Program (NURP). This discussion is overly selective in its sources and needs to temper some of the assertions predicated on NURP and the federal assessments of water quality with more recent research (see discussion below).

Illicit Connections/Discharges: NURP clearly identified illicit connections as an issue of concern with respect to dry weather processes. However, the NURP studies of this issue were predominantly from the older urban environments of the East Coast. For example, USEPA's investigative guidance cites studies from Washentaw County, Michigan; Toronto, Canada; and Inner Grays Harbor, Washington. While the Fact Sheet reports that NURP "found pollutant levels from illicit discharges were high enough to significantly degrade receiving water quality," and thereby connotes the potential significance of this issue in Orange County, the Permittees' extensive and repeated inspections of their storm drain infrastructure during the first and second term permits found very few illicit connections. Moreover the most recent annual report identified only 12 illegal discharges identified through the dry weather reconnaissance program. The Fact Sheet needs to recognize this significant regional disparity.

Fecal Indicator Bacteria: The Fact Sheet notes Haile et. al's (1996) epidemiological study conducted in the summer of 1996 to assess adverse impacts from swimming in ocean water receiving untreated urban runoff. The study presents adverse health effects as risk ratios, comparing the risk to swimming near storm drains with swimming varying distances (1-50, 51-100, and >400 yards) from storm drains. It also assessed risk by Fecal Indicator Bacteria (total coliform, fecal coliform, enterococcus, and E. coli), and by virus. The study found elevated risk for the majority of the disease symptoms, most notably for Highly Credible Gastro-intestinal Illness (HCGI) when swimming near the storm drain. However, the only statistically significant results were for a subset of symptoms: fever, chills, ear discharge, cough and phlegm, and significant respiratory disease. The correlation between health effect and FIB was poor. For HCGI, the relationship was strongest with the FIB enterococcus since the risk increases with concentration. However, this risk was not statistically significant.

The Fact Sheet is significantly remiss in not discussing Colford et al. (2005) who conducted an epidemiological study at Mission Bay, California during the summer of 2003. The study's goal was to evaluate health impacts in relation to traditional fecal indicator bacteria where non-point sources, non-human fecal sources are dominant. One important finding was that no significant correlation was observed between increased risk of illness and increased levels of traditional water quality indicators, including enterococcus, fecal coliform, or total coliform (see Table 15 in Colford et al., which summarizes health outcome and odds ratio). The Table shows a weak correlation, or an odds ratio greater than 1 for various symptoms, but the confidence intervals indicate the results are not statistically significant. On the other hand, significant associations were observed between the levels of male-specific coliphage and HCGI-1 (vomiting and

diarrhea, or fever; or cramps and fever), HCGI-2 (vomiting and fever), nausea, cough, and fever-but this was a rare circumstance, possibly indicative of the presence of human sewage, and not many swimmers were exposed.

The results from the epidemiological studies conducted both at Santa Monica and Mission Bay agree that fecal indicator bacteria do not adequately assess risk. However, it is anticipated that the results from a new epidemiological study being conducted by Southern California Coastal Water Research Project (SCCWRP) in association with the City of Dana Point will offer insight about the impact from fecal indicator bacteria reaching beaches. The Fact Sheet needs to be revised to correct its current oversimplification of epidemiological understanding and omission of both current and impending research in this area.

Environmentally Sensitive Areas (ESAs): The Fact Sheet contends that CWA 303(d) impaired waterbodies have a much lower capacity to withstand pollutant shocks than might be acceptable in other areas. This contention appears contrary to the Permittees' bioassessment data which finds degraded habitats to be characterized by diminished biological diversity and higher numbers of a limited range of pollutant tolerant taxa. CWA 303(d) impaired waterbodies might be better characterized as pollution *insensitive* areas.

Infiltration and Groundwater Protection: The Fact Sheet notes the Tentative Order's incorporation of existing guidance regarding urban runoff infiltration and groundwater quality protection. This discussion needs to be re-considered in the context of studies that suggest that the threat to groundwater may be overstated. Nightingale (1987) examined the impact of urban runoff on water quality beneath five retention/recharge basins in Fresno as part of NURP. He concluded that "no significant contamination of percolating soil water or groundwater underlying any of the five basins has occurred for the constituents monitored in the study." More recently, the Los Angeles Basin Water Augmentation Study (2005) has specifically examined the fate and transport of urban runoff-borne pollutants by monitoring storm water quality as it infiltrates through the soil to groundwater. The data collected during this study showed no immediate impacts, and no apparent trends to indicate that storm water infiltration will negatively impact groundwater.

In Summary: Regarding urban stormwater discharges, it has been observed that:

- Impacts to water quality in terms of chemistry tend to be transient and elusive, particularly in streams;
- Impacts to habitat and aquatic life are generally more profound and are easier to see and quantify than changes in water column chemistry;
- Impacts are typically complex because urban stormwater is one of several sources of adverse impact including agricultural and non-urban area runoff, and
- Impacts are often interrelated and cumulative. For example, the condition of an urban stream system's biological resources reflects both degraded water quality and hydromodification.

Prefacing the Discharge Characterization discussion with an equivalent summary would help balance the chronological presentation of information that has the effect of perhaps overly connoting the significance of urban stream chemistry.

Urban Runoff Management Programs (p.34)

Sweeping of Municipal Areas: Street sweeping was essentially discredited as a BMP after the 1983 NURP report. However, since that time technological advances, specifically the development of vacuum assisted dry sweepers, have led to street sweeping as a practice that can potentially be effective in improving water quality. For example, RWMWD (2005) reports a number of studies that show regenerative air and vacuum sweepers capable of 70% total suspended solids (TSS) removal. Higher rates of TSS recovery are reported by Bannerman (2007).

On the specific issue of effectiveness and the relative significance of street sweeping frequency, frequency is clearly subordinate to other considerations. The Center for Watershed Protection (2002) notes that “arguably the most essential factor in using street sweeping as a pollutant removal practice is to be sure to use the most sophisticated sweepers available.” The Center also notes the ability to regulate parking as another important aspect. Martinelli (2002) concludes that “...freeway sweeping with a high efficiency sweeper can be a BMP for the control of stormwater runoff pollutant...” and that his study supports the purchase and use of high efficiency sweepers. [These findings are consistent with the current and proposed 2007 DAMP.]

The significance of the technology is also a recurrent message in the extensive annotated bibliography of street sweeping studies in RWMWD (2005). RWMWD notes street sweeping effectiveness begins first with the choice of the right equipment. Other important variables include the timing of sweeping in relation to rainfall events and the speed of sweeper operation. Where frequency has been examined, the Center for Watershed Protection also observes that efficiency at greater frequencies than weekly declines because of (1) only small incremental gain and (2) higher removal could be obtained on residential streets versus heavily traveled roads. This finding contradicts CASQA’s (2002) recommendation to increase frequency in high traffic areas.

It is clear from a review of the available literature there is no robust technical justification for working to try to optimize street sweeping based on traffic counts. Consequently, while street sweeping will continue to be a focus of the Permittees efforts with respect to pollutant load reduction efforts. The requirement to try to optimize frequency based upon traffic counts needs to be deleted from the Order.



CITY OF LAGUNA HILLS

April 3, 2007

By Email and U.S. Mail

John H. Robertus
Executive Officer
California Regional Water Quality Control Board, San Diego Region
9174 Sky Park Court, Suite 100
San Diego, CA 92123-4353

Subject: Comments for Tentative Order No. R9-2007-0002; NPDES No. CAS0108740

Dear Mr. Robertus:

The City of Laguna Hills has reviewed the subject order dated February 9, 2007, Waste Discharge Requirements for Discharges of Urban 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 (Tentative Order No. R9-2007-0002) (NPDES No. CAS0108740). The City of Laguna Hills as Co-Permittee, welcomes the opportunity to provide comments on the Tentative Order. The City supports the comment letter prepared by the County of Orange (Principal Permittee) and would also like to address specific technical comments that may affect the City locally.

Overall, the Tentative Order establishes general standards of care to be met for water quality as a result of urban runoff. Hence, the permit includes specific regulations affecting City operations including development planning, construction and municipal activities, watershed urban runoff management, fiscal analysis of local NPDES funding, etc. The City of Laguna Hills believes that some of the specific regulations in the Tentative Order may adversely affect our ability to effectively deliver the water quality improvements that the Board and the City are seeking to obtain. Consequently, the City of Laguna Hills working through the Principal Permittee would like to work closely with the Regional Water Board staff to revise the Tentative Order to ensure that the most effective strategies are implemented to ensure water quality.

Throughout the Tentative Order, certain actions are directed to be taken by the Permittees. These directives limit the City's discretion and the flexibility in addressing water quality issues in our community. Some of the directives and provisions of concern are as follows:

- Section (D.1.d) of Tentative Order requires the Permittees to implement an updated local SUSMP within twelve months of adoption of the Order. The City believes this schedule for the update of the SUSMP is aggressive and does not allow sufficient time for the Permittees to

incorporate changes and implement an updated SUSMP. Since the modifications for the SUSMP will take longer than the 12 month period identified in the Tentative Order, the section should be modified to require the Permittees to implement an updated local SUSMP within 24 months of adoption of this Order.

- Section (D.1.f(2)c(iii)) of Tentative Order requires that 100% of projects with treatment control BMPs that are high priority must be inspected annually by the Permittees. This will create an intensive inspection program that is not warranted. The Provision should be amended to reduce the prescriptive nature of the program and allow the Permittees to develop an inspection program that will meet the intent of the provision while balancing the need for a variety of approaches to complete this element of the program in a cost effective manner.
- Section (D.3.a(4)c) of the Tentative Order requires an evaluation of all existing flood control devices to include identifying devices causing or contributing to a condition of pollution, identifying measures to reduce or eliminate the structure's effect on pollution, and evaluation of the feasibility of retrofitting the structural flood control device. This evaluation is to be completed by July 1, 2008. This requirement is new in that the third term NPDES permit only required the Permittees to evaluate the feasibility of retrofitting existing flood control devices where needed. The new requirement places a deadline on the City without clearly defining a "flood control device". City Staff believes the new requirement should more clearly define a flood control device and not place a deadline on performing an evaluation and should give the Permittees the flexibility to upgrade any structures only as needed over time.
- Section (D.3.a(5)a) of the Tentative Order requires that the Permittees design and implement a street sweeping program based on criteria which includes optimizing the pickup of "toxic automotive byproducts" based on traffic counts. The term "toxic automotive byproducts" is not defined and these products are not specifically known to the City as we do not regulate the automobile industry. This is a Federal and State issue. Staff postulates that such byproducts might include commonly utilized automotive products such as oil, gasoline, transmission fluid, brake fluid, brake dust and radiator fluids and could include air deposited byproducts of combustion (an air quality issue). However, none of these products are intended to be the primary refuse to be collected by street sweeping operations and their deposit on a street is not necessarily related to traffic volumes as contrasted with parked vehicles. It is also unlikely that a street sweeper could collect any liquid byproducts that have soaked into the pavements. Traffic counts also seemingly have nothing to do with the frequency of material deposited on a street such as organic plant and tree materials, litter and sediments, the primary constituents suitable for street sweeping pick up. The City of Laguna Hills believes the Tentative Order should delete this provision or propose language that provides objectives for the program instead of strictly defining the criteria. The street sweeping criteria should be determined based on local needs.
- Section (D.3.b(3)a) of the Tentative Order requires the Permittees to develop and implement a program to reduce the discharge of pollutants from Mobile Businesses; to keep a listing of Mobile Businesses within the Co-Permittees jurisdiction; to develop minimum standards and Best Management Practices (BMP's) for the various types of Mobile Businesses; to notify the Mobile Businesses known to operate within the Permittees jurisdiction of the

minimum standards and BMP's; and inspect the Mobile Businesses as needed to implement the program. This provision is problematic for several reasons as described below:

- A mobile Business is not clearly defined.
- The City does not require a business license, leaving the City without a listing of Mobile Businesses;
- The city does not have staff to roam the City looking for Mobile Businesses;
- Mobile Businesses operate in multiple jurisdictions and cannot be tracked as to time and place, and;
- Mobile Businesses may operate on private property out of the City's view.

City Staff believes the Tentative Order should include language that limits the scope of the provision until the costs and benefits of the program are better understood. As such, the Tentative Order should include language that allows the Permittees to identify a mobile business category that may be a significant source of pollutants and develop a pilot program. The pilot program would allow the Permittees to work together on a regional basis to develop an appropriate framework for addressing mobile businesses and identify if the program is effective prior to expending a significant amount of resources on multiple categories of unknown mobile businesses.

- Section (D.3.b(4)c) of the Tentative Order includes new, prescriptive requirements for food facility inspections including the maintenance of roof vents and identification of outdoor sewer and MS4 connections. These are new requirements and the City does not see any justification for these additional requirements. In addition, it is completely infeasible and of a safety concern for staff to access building roofs. The City's current food facility inspection program through the Orange County Health Care Agency has been conducted successfully over the past few years and the inspection program focuses on the critical Stormwater issues including maintenance of trash/disposal areas, floor mat cleaning, disposal methods for food wastes, fats oils and greases, etc. The City believes that the current program is a successful and effective program and does not need to be amended.

- Section (D.3.c(5)a) of the Tentative Order requires the Permittees to force the implementation of specific management measures within common interest area (CIA) developments and home owner associations (HOA) to ensure compliance with the order. The CIA/HOA component of the permit has been modified to become more prescriptive than the third term permit. Section D.3.c(5)b of the Tentative Order requires the Permittees to review their existing water quality ordinance and determine the most appropriate method to implement and enforce urban runoff and management measures within CIA/HOA areas within two years of the adoption of the new permit. City staff believes the requirement should not identify specific measures to enforce, but rather should give the Permittees the flexibility to develop and implement a plan to ensure urban runoff from CIA/HOA activities meets the objectives of the permit.

- Section (D.4.e(2)b) of the Tentative Order imposes new requirements that the Permittees conduct an investigation or document why a discharge does not require an investigation, within

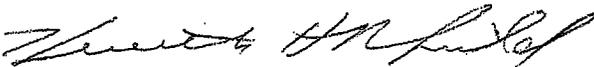
two business days of receiving dry weather field screening results that exceed action levels. City Staff believes two days to begin an investigation is not sufficient and is not warranted. Performing an investigation of dry weather data requires analyzing the data, pulling together the resources, analyzing maps, etc. City Staff suggests that this language be amended to advise Co-Permittees to initiate an investigation rather than to conduct one within two businesses days for both field screen data and analytical data.

- Section (D.4.f) of the Tentative Order requires the Permittees to immediately eliminate illegal discharges that pose a threat to the public's health or environment. As it takes some time to gather resources and respond to illegal discharges/illegal connections, this language should be amended to allow flexibility as to eliminate illegal discharges in a timely manner, rather than immediately.

- Section (F.2.b) of the Tentative Order requires that the Permittees annually explain any budget changes to Stormwater operations of 25% or more and Section F.3. of the Order requires the submission of a "Municipal Stormwater Funding Business Plan" by the end of the permit term. The Plan is to identify the long term funding strategy for program evolution and funding decisions. The Business Plan must identify planned funding methods and mechanisms for Municipal Stormwater Management. Staff believes these requirements are inappropriate. The fact is that the City has consistently funded its Stormwater Management Obligations. The proposed Business Plan becomes subject to review and approval by the Board, a function that is only appropriately a budget function of the City Council. The City believes that the Regional Water Quality Control Board should not be an integral part of the City's budget process.

The Tentative Order will place undue financial burden and prescriptive technical requirements on the City's Stormwater Program, without necessarily achieving the desired water quality improvements. The City believes that a revised Order addressing the City and County comments would assist the City in carrying out a more effective and successful Stormwater Program.

Sincerely,



Kenneth H. Rosenfield, P.E.
Director of Public Services

cc: Bruce Channing, City Manager
Chris Compton, County of Orange, PF&RD

PROOF OF SERVICE

STATE OF CALIFORNIA, COUNTY OF ORANGE

I am over the age of 18 and not a party to the within action; I am employed by WOODRUFF, SPRADLIN & SMART in the County of Orange at 555 Anton Boulevard, Suite 1200, Costa Mesa, CA 92626-7670.

On January 14, 2010, I served the foregoing document(s) described as **PETITION FOR REVIEW (Re: CITY OF LAGUNA HILLS FOR REVIEW OF ACTION BY THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SAN DIEGO REGION, IN ADOPTING ORDER NO. R9-2009-0002, NPDES PERMIT NO. CAS0108740)**

by placing the true copies thereof enclosed in sealed envelopes addressed as stated on the attached mailing list;

(BY MAIL) I placed said envelope(s) for collection and mailing, following ordinary business practices, at the business offices of WOODRUFF, SPRADLIN & SMART, and addressed as shown on the attached service list, for deposit in the United States Postal Service. I am readily familiar with the practice of WOODRUFF, SPRADLIN & SMART for collection and processing correspondence for mailing with the United States Postal Service, and said envelope(s) will be deposited with the United States Postal Service on said date in the ordinary course of business.

(BY OVERNIGHT DELIVERY) I placed said documents in envelope(s) for collection following ordinary business practices, at the business offices of WOODRUFF, SPRADLIN & SMART, and addressed as shown on the attached service list, for collection and delivery to a courier authorized by WOODRUFF, SPRADLIN & SMART to receive said documents, with delivery fees provided for. I am readily familiar with the practices of WOODRUFF, SPRADLIN & SMART for collection and processing of documents for overnight delivery, and said envelope(s) will be deposited for receipt by WOODRUFF, SPRADLIN & SMART on said date in the ordinary course of business.

(BY FACSIMILE) I caused the above-referenced document to be transmitted to the interested parties via facsimile transmission to the fax number(s) as stated on the attached service list.

(State) I declare under penalty of perjury under the laws of the State of California that the above is true and correct.

(Federal) I declare that I am employed in the office of a member of the bar of this court at whose direction the service was made. I declare under penalty of perjury that the above is true and correct.

Executed on January 14, 2010 at Costa Mesa, California.


Priscilla Gaida

WOODRUFF, SPRADLIN
& SMART
ATTORNEYS AT LAW
COSTA MESA

SERVICE LIST

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<p>State Water Resources Control Board Office of Chief Counsel Jeannette L. Bashaw, Legal Analyst 1001 "I" Street, 22nd Floor Sacramento, CA 95814 Telephone: (916) 341-5155 Facsimile: (916) 341-5199 Email: jbashaw@waterboards.ca.gov</p>	<p><i>VIA FACSIMILE AND OVERNITE EXPRESS</i></p>
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WOODRUFF, SPADLIN
& SMART
ATTORNEYS AT LAW
COSTA MESA

**California Regional Water Quality Control Board
San Diego Region**

**Waste Discharge Requirements for
Discharges of Runoff from the
Municipal Separate Storm Sewer Systems
(MS4s)**

**Draining the Watershed of the County of Orange,
The Incorporated Cities of Orange County, and
The Orange County Flood Control District
Within the San Diego Region**

**Order No. R9-2009-0002
NPDES NO. CAS0108740**

December 16, 2009

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

9174 Sky Park Court, Suite 100, San Diego, California 92123-4340

Phone • (858) 467-2952 • Fax (858) 571-6972

<http://www.waterboards.ca.gov/sandiego>

To request copies of the Orange County Municipal Storm Water Permit, please contact Ben Neill, Water Resources Control Engineer at (858) 467 – 2983, bneill@waterboards.ca.gov

Documents also are available at: <http://www.waterboards.ca.gov/sandiego>

**WASTE DISCHARGE REQUIREMENTS FOR
DISCHARGES OF RUNOFF FROM THE
MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s)
DRAINING THE WATERSHED OF
THE COUNTY OF ORANGE, THE INCORPORATED CITIES OF
ORANGE COUNTY, AND THE ORANGE COUNTY FLOOD
CONTROL DISTRICT WITHIN THE SAN DIEGO REGION**

Adopted by the
California Regional Water Quality Control Board
San Diego Region
on December 16, 2009

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
9174 Sky Park Court, Suite 100
San Diego, California 92123-4340**

Telephone (858) 467-2952

STATE OF CALIFORNIA
ARNOLD SCHWARZENEGGER, Governor
LINDA S. ADAMS, Agency Secretary, California Environmental Protection Agency



**California Regional Water Quality Control Board
San Diego Region**

David King <i>Vice Chair</i>	Recreation / Wildlife
Eric Anderson	Irrigated Agriculture
Wayne Rayfield	Water Quality
Grant Destache	Industrial Water Use
George Loveland	Water Supply
Marc Luker	Undesignated (Public)

David W. Gibson, *Executive Officer*
Michael P. McCann, *Assistant Executive Officer*

This permit was prepared under the direction of

David T. Barker P.E., *Chief, Water Resource Protection Branch*

by

Jimmy G. Smith, *Senior Environmental Scientist*
Ben Neill, *Water Resource Control Engineer*
Chad Lofen, *Environmental Scientist*

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Attachment F – Data

The California Regional Water Quality Control Board, San Diego Region (hereinafter Regional Board), finds that:

A. BASIS FOR THE ORDER

1. This Order is based on the federal Clean Water Act (CWA), the Porter-Cologne Water Quality Control Act (Division 7 of the Water Code, commencing with Section 13000), applicable State and federal regulations, all applicable provisions of statewide Water Quality Control Plans and Policies adopted by the State Water Resources Control Board (State Board), the Water Quality Control Plan for the San Diego Basin adopted by the Regional Board, the California Toxics Rule, and the California Toxics Rule Implementation Plan.
2. This Order reissues National Pollutant Discharge Elimination System (NPDES) Permit No. CAS0108740, which was first adopted by the Regional Board on July 16, 1990 (Order No. 90-38), and then reissued on August 8, 1996 (Order No. 96-03) and February 13, 2002 (Order No. R9-2002-01). On August 21, 2006, in accordance with Order No. R9-2002-01, the County of Orange, as the Principal Copermittee, submitted a Report of Waste Discharge (ROWD) for reissuance of the municipal separate storm sewer system (MS4) Permit.
3. This Order is consistent with the following precedential Orders adopted by the State Water Resources Control Board (State Board) addressing MS4 NPDES Permits: Order 99-05, Order WQ-2000-11, Order WQ 2001-15, Order WQO 2002-0014, and Order WQ-2009-0008 (*SWRCB/OCC FILE A-1780*).
4. The Fact Sheet / Technical Report for the 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 includes cited regulatory and legal references and additional explanatory information and data in support of the requirements of this Permit. This information, including any supplements thereto, and any response to comments on the Tentative Orders, is hereby incorporated by reference into these findings.

B. REGULATED PARTIES

1. Each of the persons in Table 1 below, hereinafter called Copermittees or dischargers, owns or operates an MS4, through which it discharges runoff into waters of the United States within the San Diego 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 United States (waters of the U.S).

Table 1. Municipal Copermittees

1. City of Aliso Viejo	8. City of Mission Viejo
2. City of Dana Point	9. City of Rancho Santa Margarita
3. City of Laguna Beach	10. City of San Clemente
4. City of Laguna Hills	11. City of San Juan Capistrano
5. City of Laguna Niguel	12. County of Orange
6. City of Laguna Woods	13. Orange County Flood Control District
7. City of Lake Forest	

C. DISCHARGE CHARACTERISTICS

1. Runoff discharged from an MS4 contains waste, as defined in the California Water Code (CWC), and pollutants that adversely affect the quality of the waters of the State. 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 CWA.
2. MS4 storm water and non-storm water discharges are likely to contain pollutants that cause or threaten to cause a violation of water quality standards, as outlined in the Regional Board's Water Quality Control Plan for the San Diego Basin (Basin Plan). Storm water and non-storm water discharges from the MS4 are subject to the conditions and requirements established in the San Diego Basin Plan for point source discharges. These surface water quality standards must be complied with at all times, irrespective of the source and manner of discharge.
3. The most common categories of pollutants in runoff include total suspended solids, sediment, pathogens (e.g., bacteria, viruses, protozoa); heavy metals (e.g., copper, lead, zinc and cadmium); petroleum products and polynuclear aromatic hydrocarbons; synthetic organics (e.g., pesticides, herbicides, and PCBs); nutrients (e.g., nitrogen and phosphorus fertilizers); oxygen-demanding substances (decaying vegetation, animal waste); detergents; and trash.
4. The discharge of pollutants and/or increased flows from MS4s may cause or threaten to cause the concentration of pollutants to exceed applicable receiving water quality objectives and/or impair or threaten to impair designated beneficial uses resulting in a condition of pollution (i.e., unreasonable impairment of water quality for designated beneficial uses), contamination, or nuisance.
5. Pollutants in runoff can threaten and adversely affect human health. Human illnesses have been clearly linked to recreating near storm drains flowing to coastal waters. Also, runoff pollutants in receiving waters can bioaccumulate in the tissues of invertebrates and fish, which may be eventually consumed by humans.

6. Runoff discharges from MS4s often contain pollutants that cause toxicity to aquatic organisms (i.e., adverse responses of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies). Toxic pollutants impact the overall quality of aquatic systems and beneficial uses of receiving waters.
7. The Copermitttees discharge runoff into lakes, drinking water reservoirs, rivers, streams, creeks, bays, estuaries, coastal lagoons, the Pacific Ocean, and tributaries thereto within one of the eleven hydrologic units (San Juan Hydrologic Unit) comprising the San Diego Region as shown in Tables 2a and 2b. Some of the receiving water bodies have been designated as impaired by the Regional Board and the United States Environmental Protection Agency (USEPA) in 2006 pursuant to CWA section 303(d). Also shown in the Tables are the watershed management areas (WMAs) as defined in the Regional Board report, Watershed Management Approach, January 2002.

Table 2a. Common Watersheds and CWA Section 303(d) Impaired Waters

Regional Board Watershed Management Area (WMA)	Hydrologic Area (HA) or Hydrologic Subarea (HSA) of the San Juan Hydrologic Unit	Major Receiving Water Bodies	303(d) Pollutant(s)/stressor or Water Quality Effect ¹
Laguna Coastal Streams	Laguna HA, excluding Aliso HSA and Dana Point HSA	Laguna Canyon Creek, Pacific Ocean	Bacterial indicators Sediment toxicity
Aliso Creek	Aliso HSA	Aliso Creek, English Canyon, Pacific Ocean	Toxicity Phosphorus Bacterial indicators Benzo[b]fluoranthene Dieldrin Sediment Toxicity
Dana Point Coastal Streams	Dana Point HSA	Dana Point Harbor, Salt Creek, Pacific Ocean	Bacterial indicators
San Juan Creek	Mission Viejo HA	San Juan Creek, Trabuco Creek, Oso Creek, Canada Gobernadora, Bell Canyon, Verdugo Canyon, Pacific Ocean	Bacterial indicators DDE Chloride Sulfates Total dissolved solids

¹ The listed 303(d) pollutant(s) do not necessarily reflect impairment of the entire corresponding WMA or all corresponding major surface water bodies. The specific impaired portions of each WMA are listed in the State Water Resources Control Board's 2006 Section 303(d) List of Water Quality Limited Segments.

Table 2a. Common Watersheds and CWA Section 303(d) Impaired Waters

Regional Board Watershed Management Area (WMA)	Hydrologic Area (HA) or Hydrologic Subarea (HSA) of the San Juan Hydrologic Unit	Major Receiving Water Bodies	303(d) Pollutant(s)/stressor or Water Quality Effect ¹
San Clemente Coastal Streams	San Clemente HA	Prima Deshecha, Segunda Deshecha, Pacific Ocean	Bacterial indicators Phosphorus Turbidity
San Mateo Creek	San Mateo HA	San Mateo Creek, Christianitos Creek, Pacific Ocean	

Table 2b. Common Watersheds and Municipalities

Municipality	Laguna Coastal Streams	Aliso Creek	Dana Point Coastal Streams	San Juan Creek	San Clemente Coastal Streams	San Mateo Creek
Aliso Viejo	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
Dana Point			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Laguna Beach	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
Laguna Hills *		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
Laguna Niguel		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Laguna Woods *		<input checked="" type="checkbox"/>				
Lake Forest *		<input checked="" type="checkbox"/>				
Mission Viejo		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
Rancho Santa Margarita				<input checked="" type="checkbox"/>		
San Clemente					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
San Juan Capistrano				<input checked="" type="checkbox"/>		
County of Orange *	<input checked="" type="checkbox"/>					
Orange County Flood Control District *	<input checked="" type="checkbox"/>					

* Municipality also includes areas within watersheds of the Santa Ana Regional Board that are outside the scope of this Order

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.
9. The Copermittees' water quality monitoring data submitted to date documents persistent violations of Basin Plan water quality objectives for various runoff-related pollutants (fecal coliform bacteria, total suspended solids, turbidity, metals; etc.) at

various watershed monitoring stations. Persistent toxicity has also been observed at some watershed monitoring stations. In addition, bioassessment data indicates that the majority of urbanized receiving waters have Poor to Very Poor Index of Biotic Integrity ratings. In sum, the above findings indicate that runoff discharges are causing or contributing to water quality impairments, and are a leading cause of such impairments in Orange County.

10. When natural vegetated pervious ground cover is converted to impervious surfaces such as paved highways, streets, rooftops, and parking lots, the natural absorption and infiltration abilities of the land are lost. Therefore, runoff leaving a developed area is significantly greater in runoff volume, velocity, and peak flow rate than pre-development runoff from the same area. Runoff durations can also increase as a result of flood control and other efforts to control peak flow rates. Increased volume, velocity, rate, and duration of runoff, and decreased natural clean sediment loads, greatly accelerate the erosion of downstream natural channels. Significant declines in the biological integrity and physical habitat of streams and other receiving waters have been found to occur with as little as a 3-5 percent conversion from natural to impervious surfaces. The increased runoff characteristics from new development must be controlled to protect against increased erosion of channel beds and banks, sediment pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force.
11. Development creates new pollution sources as human population density increases and brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc. which can either be washed or directly dumped into the MS4. As a result, the runoff leaving the developed urban area is significantly greater in pollutant load than the pre-development runoff from the same area. These increased pollutant loads must be controlled to protect downstream receiving water quality.
12. Development and urbanization especially threaten environmentally sensitive areas (ESAs), such as water bodies designated as supporting a RARE beneficial use (supporting rare, threatened or endangered species) and CWA 303(d)-impaired water bodies. Such areas have a much lower capacity to withstand pollutant shocks than might be acceptable in other areas. In essence, development that is ordinarily insignificant in its impact on the environment may become significant in a particularly sensitive environment. Therefore, additional control to reduce storm water pollutants from new and existing development may be necessary for areas adjacent to or discharging directly to an ESA.
13. Although dependent on several factors, the risks typically associated with properly managed infiltration of runoff (especially from residential land use areas) are not significant. The risks associated with infiltration can be managed by many techniques, including (1) designing landscape drainage features that promote infiltration of runoff, but do not "inject" runoff (injection bypasses the natural processes of filtering and transformation that occur in the soil); (2) taking reasonable

steps to prevent the illegal disposal of wastes; (3) protecting footings and foundations; (4) ensuring that each drainage feature is adequately maintained in perpetuity; and (5) pretreatment.

14. Non-storm water (dry weather) discharge from the MS4 is not considered a storm water (wet weather) discharge and therefore is not subject to regulation under the Maximum Extent Practicable (MEP) standard from CWA 402(p)(3)(B)(iii), which is explicitly for "Municipal ... *Stormwater Discharges* (emphasis added)" from the MS4. Non-storm water discharges, per CWA 402(p)(3)(B)(ii), are to be effectively prohibited. Such dry weather non-storm water discharges have been shown to contribute significant levels of pollutants and flow in arid, developed Southern California watersheds and are to be effectively prohibited under the Clean Water Act.
15. Non-storm water discharges to the MS4 granted an influent exception [i.e., which are exempt from the effective prohibition requirement set forth in CWA section 402(p)(3)(B)(ii)] under 40 CFR 122. 26 are included within this Order. Any exempted discharges identified by Copermitees as a source of pollutants are subsequently required to be *addressed* (emphasis added) as illicit discharges through prohibition and incorporation into existing IC/ID programs. The Copermitees 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.

D. RUNOFF MANAGEMENT PROGRAMS

1. General

- a. This Order specifies requirements necessary for the Copermitees to reduce the discharge of pollutants in storm water runoff to the maximum extent practicable (MEP). However, since MEP is a dynamic performance standard, which evolves over time as runoff management knowledge increases, the Copermitees' runoff management programs must continually be assessed and modified to incorporate improved programs, control measures, best management practices (BMPs), etc. in order to achieve the evolving MEP standard. Absent evidence to the contrary, this continual assessment, revision, and improvement of runoff management program implementation is expected to ultimately achieve compliance with water quality standards in the Region.
- b. The Copermitees have generally been implementing the jurisdictional runoff management programs required pursuant to Order No. 2002-01 since February 13, 2003. Prior to that, the Copermitees were regulated by Order No. 96-03 since August 8, 1996. Runoff discharges, however, continue to cause or contribute to violations of water quality standards as evidenced by the Copermitees monitoring results.

- c. This Order contains new or modified requirements that are necessary to improve Copermittees' efforts to reduce the discharge of pollutants in storm water runoff to the MEP and achieve water quality standards. Some of the new or modified requirements, such as the revised Watershed Runoff Management Program section, are designed to specifically address high priority water quality problems. Other new or modified requirements address program deficiencies that have been noted during audits, report reviews, and other Regional Board compliance assessment activities.
- d. Updated Jurisdictional Runoff Management Plans (JRMPs) and Watershed Runoff Management Plans (WRMPs), which describe the Copermittees' runoff management programs in their entirety, are needed to guide the Copermittees' runoff management efforts and aid the Copermittees in tracking runoff management program implementation. It is practicable for the Copermittees to update the JRMPs and WRMPs within one year, since significant efforts to develop these programs have already occurred.
- e. Pollutants can be effectively reduced in storm water runoff by the application of a combination of pollution prevention, source control, and treatment control BMPs. Pollution prevention is the reduction or elimination of pollutant generation at its source and is the best "first-line of defense." Source control BMPs (both structural and non-structural) minimize the contact between pollutants and flows (e.g., rerouting run-on around pollutant sources or keeping pollutants on-site and out of receiving waters). Treatment control BMPs remove pollutants that have been mobilized by wet-weather or dry-weather flows.
- 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, effectively prohibit non-storm water discharges and protect receiving waters. 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 development generates substantial pollutant loads which are discharged in runoff to receiving waters.
- g. Annual reporting requirements included in this Order are necessary to meet federal requirements and to evaluate the effectiveness and compliance of the Copermittees' programs.
- h. This Order establishes Storm Water Action Levels (SALs) for selected pollutants based on USEPA Rain Zone 6 (arid southwest) Phase I MS4 monitoring data for pollutants in storm water. The SALs were computed as the 90th percentile of the data set, utilizing the statistical based population approach, one of three

approaches recommended by the California Water 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). SALs are identified in Section D of this Order. Copermitttees 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 SALs. Exceedance of SALs may indicate inadequacy of programmatic measures and BMPs required in this Order.

2. Development Planning

- a. The Standard Storm Water Mitigation Plan (SSMP) requirements contained in this Order are consistent with Order WQ-2000-11 adopted by the State Water Resources Control Board (State Board) on October 5, 2000. In the precedential order, the State Board found that the design standards, which essentially require that runoff generated by 85 percent of storm events from specific development categories be infiltrated or treated, reflect the MEP standard. The order also found that the SSMP requirements are appropriately applied to the majority of the Priority Development Project categories contained in Section D.1 of this Order. The State Board also gave Regional Water Quality Control Boards the needed discretion to include additional categories and locations, such as retail gasoline outlets (RGOs), in SSMPs.
- b. Controlling runoff pollution by using a combination of onsite source control and site design BMPs augmented with treatment control BMPs before the runoff enters the MS4 is important for the following reasons: (1) Many end-of-pipe BMPs (such as diversion to the sanitary sewer) are typically ineffective during significant storm events. Whereas, onsite source control BMPs can be applied during all runoff conditions; (2) End-of-pipe BMPs are often incapable of capturing and treating the wide range of pollutants which can be generated on a sub-watershed scale; (3) End-of-pipe BMPs are more effective when used as polishing BMPs, rather than the sole BMP to be implemented; (4) End-of-pipe BMPs do not protect the quality or beneficial uses of receiving waters between the pollutant source and the BMP; and (5) Offsite end-of-pipe BMPs do not aid in the effort to educate the public regarding sources of pollution and their prevention.
- 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 storm water 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 storm water runoff. Current runoff management, knowledge, practices and technology have

resulted in the use of LID BMPs as an acceptable means of meeting the storm water MEP standard.

- d. Retail Gasoline Outlets (RGOs) are significant sources of pollutants in storm water runoff. RGOs are points of convergence for motor vehicles for automotive related services such as repair, refueling, tire inflation, and radiator fill-up and consequently produce significantly higher loadings of hydrocarbons and trace metals (including copper and zinc) than other developed areas.
- e. Industrial sites are significant sources of pollutants in runoff. Pollutant concentrations and loads in runoff from industrial sites are similar or exceed pollutant concentrations and loads in runoff from other land uses, such as commercial or residential land uses. As with other land uses, LID site design, source control, and treatment control BMPs are needed at industrial sites in order to meet the MEP standard. These BMPs are necessary where the industrial site is larger than 10,000 square feet. The 10,000 square feet threshold is appropriate, since it is consistent with requirements in other Phase I NPDES storm water regulations throughout California.
- f. If not properly designed or maintained, certain BMPs implemented or required by municipalities for runoff management may create a habitat for vectors (e.g. mosquitoes and rodents). Proper BMP design and maintenance to avoid standing water, however, can prevent the creation of vector habitat. Nuisances and public health impacts resulting from vector breeding can be prevented with close collaboration and cooperative effort between municipalities, the Orange County Vector Control District, and the California Department of Public Health during the development and implementation of runoff management programs.
- 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 in storm water runoff and the volume of storm water runoff. Impervious surfaces can neither absorb water nor remove pollutants and thus lose the purification and infiltration provided by natural vegetated soil. Hydromodification measures for discharges to hardened channels are needed for the future restoration of the hardened channels to their natural state, thereby restoring the chemical, physical, and biological integrity and Beneficial Uses of local receiving waters.

3. Construction and Existing Development

- a. In accordance with federal NPDES regulations and to ensure the most effective oversight of industrial and construction site discharges, discharges of runoff from industrial and construction sites are subject to dual (State and local) storm water regulation. Under this dual system, each Copermitttee is responsible for enforcing its local permits, plans, and ordinances, and the Regional Board is

responsible for enforcing the General Construction Activities Storm Water Permit, State Board Order 99-08 DWQ, NPDES No. CAS000002 (General Construction Permit) and the General Industrial Activities Storm Water Permit, State Board Order 97-03 DWQ, NPDES No. CAS000001 (General Industrial Permit) and any reissuance of these permits. NPDES municipal regulations require that municipalities develop and implement measures to address runoff from industrial and construction activities. Those measures may require the implementation of additional BMPs than are required under the statewide general permits for activities subject to both State and local regulation.

- b. Identification of sources of pollutants in runoff (such as municipal areas and activities, industrial and commercial sites/sources, construction sites, and residential areas), development and implementation of BMPs to address those sources, and updating ordinances and approval processes are necessary for the Copermitees to ensure that discharges of pollutants from its MS4 in storm water are reduced to the MEP and that non-storm water discharges are not occurring. Inspections and other compliance verification methods are needed to ensure minimum BMPs are implemented. Inspections are especially important at high risk areas for pollutant discharges.
- c. Historic and current development makes use of natural drainage patterns and features as conveyances for runoff. Urban streams used in this manner are part of the municipalities MS4 regardless of whether they are natural, anthropogenic, or partially modified features. In these cases, the urban stream is both an MS4 and receiving water.
- d. As operators of the MS4s, the Copermitees cannot passively receive and discharge pollutants from third parties. By providing free and open access to an MS4 that conveys discharges to waters of the U.S., the operator essentially accepts responsibility for discharges into the MS4 that it does not prohibit or control. These discharges may cause or contribute to a condition of contamination or a violation of water quality standards.
- e. Waste and pollutants which are deposited and accumulate in MS4 drainage structures will be discharged from these structures to waters of the U.S. unless they are removed. These discharges may cause or contribute to, or threaten to cause or contribute to, a condition of pollution in receiving waters. For this reason, pollutant discharges from storm water into MS4s must be reduced using a combination of management measures, including source control, and an effective MS4 maintenance program must be implemented by each Copermitee.
- f. Enforcement of local runoff related ordinances, permits, and plans is an essential component of every runoff management program and is specifically required in the federal storm water regulations and this Order. Each Copermitee is individually responsible for adoption and enforcement of ordinances and/or policies, implementation of identified control measures/BMPs needed to prevent

or reduce pollutants in storm water runoff, and for the allocation of funds for the capital, operation and maintenance, administrative, and enforcement expenditures necessary to implement and enforce such control measures/BMPs under its jurisdiction. Education is an important aspect of every effective runoff management program and the basis for changes in behavior at a societal level. Education of municipal planning, inspection, and maintenance department staffs is especially critical to ensure that in-house staffs understand how their activities impact water quality, how to accomplish their jobs while protecting water quality, and their specific roles and responsibilities for compliance with this Order. Public education, designed to target various urban land users and other audiences, is also essential to inform the public of how individual actions affect receiving water quality and how adverse effects can be minimized.

- g. Public participation during the development of runoff management programs is necessary to ensure that all stakeholder interests and a variety of creative solutions are considered.
- h. 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 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.

4. Watershed Runoff Management

- a. Since runoff within a watershed can flow from and through multiple land uses and political jurisdictions, watershed-based runoff management can greatly enhance the protection of receiving waters. Such management provides a means to focus on the most important water quality problems in each watershed. By focusing on the most important water quality problems, watershed efforts can maximize protection of beneficial use in an efficient manner. Effective watershed-based runoff management actively reduces pollutant discharges and abates pollutant sources causing or contributing to watershed water quality problems. Watershed-based runoff management that does not actively reduce pollutant discharges and abate pollutant sources causing or contributing to watershed water quality problems can necessitate implementation of the iterative process outlined in section A.3 of the Tentative Order. Watershed management of runoff does not require Copermittees to expend resources outside of their jurisdictions. Watershed management requires the Copermittees within a watershed to develop a watershed-based management strategy, which can then be implemented on a jurisdictional basis.

- b. Some runoff issues, such as general education and training, can be effectively addressed on a regional basis. Regional approaches to runoff management can improve program consistency and promote sharing of resources, which can result in implementation of more efficient programs.
- c. It is important for the Copermittees to coordinate their water quality protection and land use planning activities to achieve the greatest protection of receiving water bodies. Copermittee coordination with other watershed stakeholders, especially the State of California Department of Transportation, the United States Department of Defense, and water and sewer districts, is also important.

E. STATUTE AND REGULATORY CONSIDERATIONS

1. The Receiving Water Limitations (RWL) language specified in this Order is consistent with language recommended by the USEPA and established in State Board Water Quality Order 99-05, *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 Board on June 17, 1999. The RWL in this Order require compliance with water quality standards, which for storm water discharges is to be achieved through an iterative approach requiring the implementation of improved and better-tailored BMPs over time. Compliance with receiving water limits based on applicable water quality standards is necessary to ensure that MS4 discharges will not cause or contribute to violations of water quality standards and the creation of conditions of pollution.
2. The Water Quality Control Plan for the San Diego Basin (Basin Plan), identifies the following beneficial uses for surface waters in Orange County: Municipal and Domestic Supply (MUN)², Agricultural Supply (AGR), Industrial Process Supply (PROC), Industrial Service Supply (IND), Ground Water Recharge (GWR), Contact Water Recreation (REC1), Non-contact Water Recreation (REC2), Warm Freshwater Habitat (WARM), Cold Freshwater Habitat (COLD), Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Freshwater Replenishment (FRSH), Hydropower Generation (POW), and Preservation of Biological Habitats of Special Significance (BIOL). The following additional beneficial uses are identified for coastal waters of Orange County: Navigation (NAV), Commercial and Sport Fishing (COMM), Estuarine Habitat (EST), Marine Habitat (MAR), Aquaculture (AQUA), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), and Shellfish Harvesting (SHELL).
3. This Order is in conformance with State Board Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality Waters in California*, and the federal Antidegradation Policy described in 40 CFR 131.12.

² Subject to exceptions under the "Sources of Drinking Waters" Policy (Resolution No. 89-33)

4. 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 pollution impacting or threatening coastal water quality. CZARA addresses five sources of non-point pollution: agriculture, silviculture, urban, marinas, and hydromodification. This NPDES permit addresses the management measures required for the urban category, with the exception of septic systems. The adoption and implementation of this NPDES permit relieves the Copermittee from developing a non-point source plan, for the urban category, under CZARA. The Regional Board addresses septic systems through the administration of other programs.
5. Section 303(d)(1)(A) of the 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 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 Section 303(d) List. The current Section 303(d) List was approved by the 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).
6. This Order does not constitute an unfunded local government mandate subject to subvention under Article XIII B, Section (6) of the California Constitution for several reasons, including, but not limited to, the following. First, this Order implements federally mandated requirements under federal Clean Water Act section 402. (33 U.S.C. § 1342(p)(3)(B).) Second, the local agency Copermittees' obligations under this Order are similar to, and in many respects less stringent than, the obligations of non-governmental and new dischargers who are issued NPDES permits for storm water and non-storm water discharges. Third, the local agency Copermittees have the authority to levy service charges, fees, or assessments sufficient to pay for compliance with this Order. Fourth, the Copermittees have requested permit coverage in lieu of compliance with the complete prohibition against the discharge of pollutants contained in federal Clean Water Act section 301, subdivision (a) (33 U.S.C. § 1311(a)) and in lieu of numeric restrictions on their storm water discharges. Fifth, the local agencies' 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 XIII B, Section (6) of the California Constitution. Likewise, the provisions of this Order to implement total maximum daily loads (TMDLs) are federal mandates. The federal Clean Water Act requires TMDLs to be developed for water bodies that do not meet federal water quality standards. (33 U.S.C. sec. 1313(d).) Once the U.S. Environmental Protection Agency or a state develops a TMDL, federal law requires that permits must contain effluent limitations consistent with the assumptions of any applicable wasteload allocation. (40 C.F.R. sec. 122.44(d)(1)(vii)(B).)

7. Runoff treatment and/or mitigation must occur prior to the discharge of runoff into receiving waters. Treatment BMPs must not be constructed in waters of the U.S. or State unless the runoff flows are sufficiently pretreated to protect the values and functions of the water body. Federal regulations at 40 CFR 131.10(a) state that 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 an runoff treatment facility within a water of the U.S., or using the water body itself as a treatment system or for conveyance to a treatment system, would be tantamount to accepting waste assimilation as an appropriate use for that water body. Furthermore, the construction, operation, and maintenance of a pollution control facility in a water body can negatively impact the physical, chemical, and biological integrity, as well as the beneficial uses, of the water body. Without federal authorization (e.g., pursuant to Clean Water Act Section 404), waters of the U.S. may not be converted into, or used as, waste treatment or conveyance facilities. Similarly, waste discharge requirements pursuant to California Water Code Section 13260 are required for the conversion or use of waters of the State as waste treatment or conveyance facilities. Diversion from waters of the U.S./State to treatment facilities and subsequent return to waters of the U.S. is allowable, provided that the effluent complies with applicable NPDES requirements.
8. The issuance of waste discharge requirements and an 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 the CWC section 13389.
9. Multiple water bodies in Orange County have been identified as impaired and placed on the 303(d) list. In 2004, 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, Tideland 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*. On June 16, 2009, the State Board approved the Basin Plan amendment. 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 Water Code. The State's Office of Administrative Law (OAL) approved the TMDLs on September 15, 2009. The effective date of the TMDLs is the date of OAL approval. USEPA approved the TMDLs on October 26, 2009.
10. Storm water discharges from developed and developing areas in Orange County are 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 in Table 3, the Regional Board has found that there is a reasonable potential that municipal storm water and non-storm water 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.

Table 3. 2006 Section 303(d) Listed Waterbodies in So. Orange County

Waterbody	Pollutant
Aliso Creek	Indicator Bacteria, Phosphorus, Toxicity
Aliso Creek Mouth	Indicator Bacteria
Dana Point Harbor	Indicator Bacteria
English Canyon Creek	Benzo[b]fluoranthene, Dieldrin, Sediment Toxicity
Laguna Canyon Channel	Sediment Toxicity
Oso Creek (at Mission Viejo Golf Course)	Chloride, Sulfates, Total Dissolved Solids
Pacific Ocean Shoreline, Aliso HSA	Indicator Bacteria
Pacific Ocean Shoreline, Dana Point HSA	Indicator Bacteria
Pacific Ocean Shoreline, Laguna Beach HSA	Indicator Bacteria
Pacific Ocean Shoreline, Lower San Juan HSA	Indicator Bacteria
Pacific Ocean Shoreline, San Clemente HA	Indicator Bacteria
Pacific Ocean Shoreline, San Joaquin Hills HSA	Indicator Bacteria
Prima Deshecha Creek	Phosphorus, Turbidity
San Juan Creek	DDE, Indicator Bacteria
San Juan Creek (mouth)	Indicator Bacteria
Segunda Deshecha Creek	Phosphorus, Turbidity

11. This Order incorporates only those MS4 Waste Load Allocations (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. Approved TMDL WLAs are to be addressed using water quality-based effluent limitations (WQBELs) calculated as numeric limitations (either in the receiving waters and/or at the point of MS4 discharge) and/or as BMPs. In most cases, the numeric limitation must be achieved to ensure the adequacy of the BMP program. Waste load

allocations for storm water and non-storm water discharges have been included within this Order only if the TMDL has received all necessary approvals. This Order establishes WQBELs and conditions consistent with the requirements and assumptions of the WLAs in the TMDLs as required by 40 CFR 122.44(d)(1)(vii)(B).

A TMDL is the total amount of a particular pollutant that a water body can receive and still meet Water Quality Standards (WQSs), which are comprised of Water Quality Objectives (WQOs), Beneficial Uses and the States Policy on Maintaining High Quality Waters³. The WQOs serve as the primary basis for protecting the associated Beneficial Use. The Numeric Target of a TMDL interprets and applies the numeric and/or narrative WQOs of the WQSs as the basis for the WLAs. This Order addresses TMDLs through Water Quality Based Effluent Limitations (WQBELs) that must be consistent with the assumptions and requirements of the WLA⁴. Federal guidance⁵ states that when adequate information exists, storm water permits are to incorporate numeric water quality based effluent limitations. In most cases, the numeric target(s) of a TMDL are a component of the WQBELs. When the numeric target is based on one or more numeric WQOs, the numeric WQOs and underlying assumptions and requirements will be used in the WQBELs as numeric effluent limitations by the end of the TMDL compliance schedule, unless additional information is required. When the numeric target interprets one or more narrative WQOs, the numeric target may assess the efficacy and progress of the BMPs in meeting the WLAs and restoring the Beneficial Uses by the end of the TMDL compliance schedule.

This Order fulfills a component of the TMDL Implementation Plan adopted by this Regional Board on June 11, 2008 for indicator bacteria in Baby Beach by establishing WQBELs expressed as both BMPs to achieve the WLAs and as numeric limitations⁶ for the City of Dana Point and the County of Orange. The establishment of WQBELs expressed as BMPs should be sufficient to achieve the WLA specified in the TMDL. The Waste Load Allocations (WLAs) and Numeric Targets are the necessary metrics to ensure that the BMPs achieve appropriate concentrations of bacterial indicators in the receiving waters.

³ State Water Resources Control Board, Resolution No. 68-16

⁴ 40 CFR 122.44(d)(1)(vii)(B)

⁵ USEPA, *Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits*, 61 FR 43761, August 26, 1996

⁶ The Waste Load Allocations are defined in Resolution No. R9-2008-0027, A Resolution to Adopt an Amendment to the *Water Quality Control Plan for the San Diego Basin (9)* to Incorporate Total Maximum Daily Loads for Indicator Bacteria, Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in San Diego Bay.

12. This Order requires each Copermittee to effectively prohibit all types of unauthorized discharges of non-storm water into its MS4. However, historically pollutants have been identified as present in dry weather non-storm water discharges from the MS4s through 303(d) listings, monitoring conducted by the Copermittees under Order No. R9-2002-0001, and there are others expected to be present in dry weather non-storm water discharges because of the nature of these discharges. This Order includes action levels for pollutants in non-storm water, dry weather, discharges from the MS4 designed to ensure that the requirement to effectively prohibit all types of unauthorized discharges of non-storm water in the MS4 is being complied with. Action levels in the Order are based upon numeric or narrative water quality objectives and criteria as defined in the Basin Plan, the Water Quality Control Plan for Ocean Waters of California (Ocean Plan), and the State Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP). An exceedance of an action level requires specified responsive action by the Copermittees. This Order describes what actions the Copermittees must take when an exceedance of an action level is observed. Exceedances of non-storm water action levels do not alone constitute a violation of this Order but could indicate non-compliance with the requirement to effectively prohibit all types of unauthorized non-storm water discharges into the MS4 or other prohibitions established in this Order. Failure to undertake required source investigation and elimination action following an exceedance of 2a non-storm water action level (NAL or action level) is a violation of this Order. The Regional Board recognizes that use of action levels will not necessarily result in detection of all unauthorized sources of non-storm water discharges because there may be some discharges in which pollutants do not exceed established action levels. However, establishing NALs at levels appropriate to protect water quality standards is expected to lead to the identification of significant sources of pollutants in dry weather non-storm water discharges.
13. In addition to federal regulations cited in the Fact Sheet / Technical Report for the Order NO. R9-2009-0002, monitoring and reporting required under Order No. R9-2009-0002 is required pursuant to authority under CWC section 13383.

F. PUBLIC PROCESS

1. The Regional Board has notified the Copermittees, all known interested parties, and the public of its intent to consider adoption of an Order prescribing waste discharge requirements that would serve to renew an NPDES permit for the existing discharge of runoff.
2. The Regional Board has held public hearings on April 11, 2007, February 13, 2008, July 1, 2009, and November 18, 2009 and heard and considered all comments pertaining to the terms and conditions of this Order.

IT IS HEREBY ORDERED that the Copermittees, in order to meet the provisions contained in Division 7 of the California Water Code (CWC) and regulations adopted thereunder, and the provisions of the Clean Water Act (CWA) and regulations adopted thereunder, must each comply with the following:

A. PROHIBITIONS AND RECEIVING WATER LIMITATIONS

1. Discharges into and from municipal separate storm sewer systems (MS4s) in a manner causing, or threatening to cause, a condition of pollution, contamination, or nuisance (as defined in CWC section 13050), in waters of the state are prohibited.
2. Storm water discharges from MS4s containing pollutants which have not been reduced to the maximum extent practicable (MEP) are prohibited.⁷
3. Discharges from MS4s that cause or contribute to the violation of water quality standards (designated beneficial uses, water quality objectives developed to protect beneficial uses, and the State policy with respect to maintaining high quality waters) are prohibited.
 - a. ~~Each Copermittee must comply with section A.3 and section A.4 as it applies to Prohibition 5 in Attachment A of this Order through timely implementation of control measures and other actions to reduce pollutants in storm water discharges in accordance with this Order, including any modifications. If exceedance(s) of water quality standards persist notwithstanding implementation of this Order, the Copermittee must assure compliance with section A.3 and section A.4 as it applies to Prohibition 5 in Attachment A of this Order by complying with the following procedure:~~
 - (1) Upon a determination by either the Copermittee or the Regional Board that storm water MS4 discharges are causing or contributing to an exceedance of an applicable water quality standard, the Copermittee must notify the Regional Board within 30 days and thereafter submit a report to the Regional Board that describes best management practices (BMPs) that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedance of water quality standards. The report may be incorporated in the Annual Report unless the Regional Board directs an earlier submittal. The report must include an implementation schedule. The Regional Board may require modifications to the report;

⁷ This prohibition does not apply to MS4 discharges which receive subsequent treatment to reduce pollutants to the MEP prior to entering receiving waters (e.g., low flow diversions to the sanitary sewer).

- (2) Submit any modifications to the report required by the Regional Board within 30 days of notification;
 - (3) Within 30 days following approval of the report described above by the Regional Board, the Copermittee must revise its Jurisdictional Runoff Management Program and monitoring program to incorporate the approved modified BMPs that have been and will be implemented, the implementation schedule, and any additional monitoring required; and
 - (4) Implement the revised Jurisdictional Runoff Management Program and monitoring program in accordance with the approved schedule.
- b. The Copermittee must repeat the procedure set forth above to comply with the receiving water limitations for continuing or recurring exceedances of the same water quality standard(s) unless directed to do otherwise by the Regional Board Executive Officer.
 - c. Nothing in section A.3 must prevent the Regional Board from enforcing any provision of this Order while the Copermittee prepares and implements the above report.
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4. In addition to the above prohibitions, discharges from MS4s are subject to all Basin Plan prohibitions cited in Attachment A to this Order.

B. NON-STORM WATER DISCHARGES

1. Each Copermittee must effectively prohibit all types of non-storm water discharges into its MS4 unless such discharges are either authorized by a separate National Pollutant Discharge Elimination System (NPDES) permit; or not prohibited in accordance with sections B.2 and B.3 below.
2. The following categories of non-storm water discharges are not prohibited unless a Copermittee or the Regional Board identifies the discharge category as a source of pollutants to waters of the U.S. Where the Copermittee(s) have identified a category as a source of pollutants, the category shall be addressed as an illicit discharge and prohibited through ordinance, order or similar means. The Regional Board may identify categories of discharge that either requires prohibition or other controls. For such a discharge category, the Copermittee, under direction of the Regional Board, must either prohibit the discharge category or develop and implement appropriate control measures to prevent the discharge of pollutants to the MS4 and report to the Regional Board pursuant to Section K.1 and K.3 of this Order.
 - a. Diverted stream flows;
 - b. Rising ground waters;
 - c. Uncontaminated ground water infiltration [as defined at 40 CFR 35.2005(20)] to

- MS4s;
- d. Uncontaminated pumped ground water⁸;
 - e. Foundation drains⁸;
 - f. Springs;
 - g. Water from crawl space pumps⁸;
 - h. Footing drains⁸;
 - i. Air conditioning condensation;
 - j. Flows from riparian habitats and wetlands;
 - k. Water line flushing^{9,10};
 - l. Discharges from potable water sources not subject to NPDES Permit No. CAG679001, other than water main breaks;
 - m. Individual residential car washing; and
 - n. Dechlorinated swimming pool discharges¹¹.
3. Emergency fire fighting flows (i.e., flows necessary for the protection of life or property) do not require BMPs and need not be prohibited. As part of the Jurisdictional Runoff Management Plan (JRMP), each Copermittee must develop and implement a program to address pollutants from non-emergency fire fighting flows (i.e., flows from controlled or practice blazes and maintenance activities) identified by the Copermittee to be significant sources of pollutants to waters of the United States.
- a. Building fire suppression system maintenance discharges (e.g. sprinkler line flushing) contain waste. Therefore, such discharges are to be prohibited by the Copermittees as illicit discharges through ordinance, order, or similar means.
4. Each Copermittee must examine all dry weather effluent analytical monitoring results collected in accordance with section F.4 of this Order and Receiving Waters and MS4 Discharge Monitoring and Reporting Program No. R9-2009-0002 to identify water quality problems which may be the result of any non-prohibited discharge category(ies) identified above in section B.2. Follow-up investigations must be conducted as necessary to identify and control, pursuant to section B.2, any non-prohibited discharge category(ies) listed above.

⁸ Requires enrollment under Order R9-2008-002. Discharges into the MS4 require authorization from the owner and operator of the MS4 system.

⁹ This exemption does not include fire suppression sprinkler system maintenance and testing discharges. Those discharges may be regulated under Section B.3.

¹⁰ Requires enrollment under Order R9-2002-0020.

¹¹ Including saline swimming pool discharges directly to a saline water body.

C. NON-STORM WATER DRY WEATHER ACTION LEVELS

1. Each Copermitttee, beginning no later than May 1, 2011, shall implement the non-storm water dry weather action level (NAL) monitoring as described in Attachment E of this Order.
2. In response to an exceedance of an NAL, each Copermitttee must investigate and identify the source of the exceedance in a timely manner. However, if any Copermitttee identifies exceedances of NALs that prevent them from adequately conducting source investigations in a timely manner, then the Copermitttees may submit a prioritization plan and timeline that identifies the timeframe and planned actions to investigate and report their findings on all of the exceedances. Following the source investigation and identification, the Copermitttees must submit an action report dependant on the source of the pollutant exceedance as follows:
 - a. If the Copermitttee identifies the source of the exceedance as natural (non-anthropogenically influenced) in origin and in conveyance into the MS4; then the Copermitttee shall report their findings and documentation of their source investigation to the Regional Board within fourteen days of the source identification.
 - b. If the Copermitttee identifies the source of the exceedance as an illicit discharge or connection, then the Copermitttees must eliminate the discharge to their MS4 and report the findings, including any enforcement action(s) taken, and documentation of the source investigation to the Regional Board within fourteen days of the source identification. If the Copermitttee is unable to eliminate the source of discharge within fourteen days, then the Copermitttee must submit, as part of their action report, their plan and timeframe to eliminate the source of the exceedance. Those dischargers seeking to continue such a discharge must become subject to a separate NPDES permit prior to continuing any such discharge.
 - c. If the Copermitttee identifies the source of the exceedance as an exempted category of non-storm water discharge, then the Copermitttees must determine if this is an isolated circumstance or if the category of discharges must be addressed through the prevention or prohibition of that category of discharge as an illicit discharge. The Copermitttee must submit their findings in including a description of the steps taken to address the discharge and the category of discharge, to the Regional Board for review with the next subsequent annual report. Such description shall include relevant updates to or new ordinances, orders, or other legal means of addressing the category of discharge. The Copermitttees must also submit a summary of their findings with the Report of Waste Discharge.
 - d. If the Copermitttee identifies the source of the exceedance as a non-storm water discharge in violation or potential violation of an existing separate NPDES permit

(e.g. the groundwater dewatering permit), then the Copermittee must report, within three business days, the findings to the Regional Board including all pertinent information regarding the discharger and discharge characteristics.

- e. If the Copermittee is unable to identify the source of the exceedance after taking and documenting reasonable steps to do so, then the Copermittee must identify the pollutant as a high priority pollutant of concern in the tributary subwatershed, perform additional focused sampling and update their programs within a year to reflect this priority. The Copermittee's annual report shall include these updates to their programs including, where applicable, updates to their watershed workplans (Section G.2), retrofitting consideration (Section F.3.d) and program effectiveness work plans (Section J.4).
 - f. The Copermittees or any interested party, may evaluate existing NALs and propose revised NALs for future Board consideration.
3. An exceedance of an NAL does not alone constitute a violation of the provisions of this Order, but an exceedance of an NAL may indicate lack of compliance with the requirement that Copermittees effectively prohibit all types of unauthorized non-storm water discharges into the MS4 or other prohibitions set forth in Sections A and B of this Order. Failure to timely implement required actions specified in this Order following an exceedance of an NAL constitutes a violation of this Order. However, neither compliance with NALs nor compliance with required actions following observed exceedances, excuses any non-compliance with the requirement to effectively prohibit all types of unauthorized non-storm water discharges into the MS4s or any non-compliance with the prohibitions in Sections A and B of this Order. NALs provide an assessment of the effectiveness of the prohibition of non-storm water discharges and of the appropriateness of exempted non-storm water discharges. During any annual reporting period in which one or more exceedances of NALs have been documented the Copermittee must submit with their next scheduled annual report, a report describing whether and how the observed exceedances did or did not result in a discharge from the MS4 that caused, or threatened to cause or contribute to a condition of pollution, contamination, or nuisance in the receiving waters.
4. Monitoring of effluent will occur at the end-of-pipe prior to discharge into the receiving waters, with a focus on Major Outfalls, as defined in 40 CFR 122.26(B 5-6) and Attachment E of this Order. The Copermittees must develop their monitoring plans to sample a representative percentage of major outfalls and identified stations within each hydrologic subarea. At a minimum, outfalls that exceed any NALs once during any year must be monitored in the subsequent year. Any station that does not exceed an NAL for 3 years may be replaced with a different station.

5. Each Copermittee shall monitor for the non-storm water dry weather action levels, which are incorporated into this Order as follows:

a. Action levels for discharges to inland surface waters:

Table 4.a.1: General Constituents

Parameter	Units	AMAL	MDAL	Instantaneous Maximum	Basis
Fecal Coliform	MPN/ 100 ml	200 ^A 400 ^B	-		BPO
Enterococci	MPN/ 100 ml	33	-	104 ^C	BPO/OP
Turbidity	NTU	-	20		BPO
pH	Units	Within limit of 6.5 to 8.5 at all times			BPO
Dissolved Oxygen	mg/L	Not less than 5.0 in WARM waters and not less than 6.0 in COLD waters			BPO
Total Nitrogen	mg/L	-	1.0	See MDEL	BPO
Total Phosphorus	mg/L	-	0.1	See MDEL	BPO
Methylene Blue Active Substances	mg/L	-	0.5	See MDEL	BPO

A – Based on a minimum of not less than five samples for any 30-day period

B – No more than 10 percent of total samples may exceed 400 per 100 ml during any 30 day period

C – This Value has been set to Ocean Plan Criteria for Designated Beach Areas

BPO – Basin Plan Objective

OP – Ocean Plan

MDAL – Maximum Daily Action Level

AMAL – Average Monthly Action Level

Table 4.a.2: Priority Pollutants

Parameter	Units	Freshwater (CTR)		Saltwater (CTR)	
		MDAL	AMAL	MDAL	AMAL
Cadmium	ug/L	*	*	16	8
Copper	ug/L	*	*	5.8	2.9
Chromium III	ug/L	*	*	-	-
Chromium VI (hexavalent)	ug/L	16	8.1	83	41
Lead	ug/L	*	*	14	2.9
Nickel	ug/L	*	*	14	6.8
Silver	ug/L	*	*	2.2	1.1
Zinc	ug/L	*	*	95	47

CTR – California Toxic Rule

* - Action Levels developed on a case-by-case basis (see below)

The NALs for Cadmium, Copper, Chromium (III), Lead, Nickel, Silver and Zinc will be developed on a case-by-case basis because the freshwater criteria are based on site-specific water quality data (receiving water hardness). For these priority pollutants, the following equations (40 CFR 131.38.b.2) will be required:

$$\begin{aligned} \text{Cadmium (Total Recoverable)} &= \exp(0.7852[\ln(\text{hardness})] - 2.715) \\ \text{Chromium III (Total Recoverable)} &= \exp(0.8190[\ln(\text{hardness})] + .6848) \\ \text{Copper (Total Recoverable)} &= \exp(0.8545[\ln(\text{hardness})] - 1.702) \\ \text{Lead (Total Recoverable)} &= \exp(1.273[\ln(\text{hardness})] - 4.705) \end{aligned}$$

$$\begin{aligned} \text{Nickel (Total Recoverable)} &= \exp(.8460[\ln(\text{hardness})] + 0.0584) \\ \text{Silver (Total Recoverable)} &= \exp(1.72[\ln(\text{hardness})] - 6.52) \\ \text{Zinc (Total Recoverable)} &= \exp(0.8473[\ln(\text{hardness})] + 0.884) \end{aligned}$$

b. Action levels for discharges to bays, harbors and lagoons/estuaries:

Table 4.b: General Constituents

Parameter	Units	AMAL	MDAL	Instantaneous Maximum	Basis
Total Coliform	MPN/100 ml	1,000	-	10,000	BPO
Fecal Coliform	MPN/100 ml	200 ^A , 400 ^B	-		BPO
Enterococci	MPN/100 ml	35	-	104 ^C	BPO
Turbidity	NTU	75	-	225	OP
pH	Units	Within limit of 6.0 to 9.0 at all times			OP
Priority Pollutants	ug/L	See limitations in Table 4.a.2			

A – Based on a minimum of not less than five samples for any 30-day period

B – No more than 10 percent of total samples may exceed 400 per 100 ml during any 30 day period

C – Designated Beach Areas

OP – California Ocean Plan 2005

BPO – Basin Plan Objective

MDAL – Maximum Daily Action Level

AMAL – Average Monthly Action Level

c. Action levels for discharges to the surf zone:

Table 4.c: General Constituents

Parameter	Units	AMAL	MDAL	Instantaneous Maximum	Basis
Total Coliform	MPN/100 ml	1,000	-	10,000 1,000 ^A	OP
Fecal Coliform	MPN/100 ml	200 ^B	-	400	OP
Enterococci	MPN/100 ml	35	-	104 ^C	OP

A – Total coliform density shall not exceed 1,000 per 100 ml when the ratio of fecal/total coliform exceeds 0.1

B – During any 30 day period

C – Designated Beach Areas

OP – California Ocean Plan 2005

D. STORM WATER ACTION LEVELS

1. Beginning Year 3 after Order adoption date, a running average of twenty percent or greater of exceedances of any discharge of storm water from the MS4 to waters of the United States that exceed the Storm Water Action Levels (SALs) for the pollutants listed in Table 5 (below) will require each Copermitttee to affirmatively augment and implement all necessary storm water controls and measures to reduce the discharge of the associated class of pollutants(s) to the MEP standard. The Copermitttees must utilize the exceedance information when adjusting and executing annual work plans, as required by this Order. Copermitttees shall take the magnitude, frequency, and number of constituents exceeding the SAL(s), in addition to receiving water quality data and other information, into consideration when reacting to SAL exceedances in an iterative manner. Failure to appropriately consider and react to SAL exceedances in an iterative manner creates a presumption that the Copermitttee(s) have not complied with the MEP standard.

Table 5. Storm Water Action Levels

Pollutant	Action Level
Turbidity (NTU)	126
Nitrate & Nitrite total (mg/L)	2.6
P total (mg/L)	1.46
Cd total (µg/L)	3.0
Cu total (µg/L)	127
Pb total (µg/L)	250
Ni total (µg/L)	54
Zn total (µg/L)	976

2. The end-of-pipe assessment points for the determination of SAL compliance are all major outfalls, as defined in 40 CFR 122.26(b)(5) and (b)(6). The Copermitttees must develop their monitoring plans to sample a representative percent of the major outfalls within each hydrologic subarea. At a minimum, outfalls that exceed SALs must be monitored in the subsequent year. Any station that does not exceed an SAL for 3 years may be replaced with a different station. SAL samples must be 24 hour time weighted composites.
3. The absence of SAL exceedances does not relieve the Copermitttees from implementing all other required elements of this Permit.
4. This Permit does not regulate natural sources and conveyances of constituents listed in Table 5. To be relieved of the requirements to prioritize pollutant/watershed combinations for BMP updates and to continue monitoring a station, the Copermitttee must demonstrate that the likely and expected cause of the SAL exceedance is not anthropogenic in nature.
5. The SALs will be reviewed and updated at the end of every permit cycle. The data collected pursuant to D.2 above can be used to create SALs based upon local data.

It is the goal of the SALs, through the iterative and MEP process, to have outfall storm water discharges meet all applicable water quality standards.

E. LEGAL AUTHORITY

1. Each Copermitttee must establish, maintain, and enforce adequate legal authority to control pollutant discharges into and from its MS4 through ordinance, statute, permit, contract or similar means. Nothing herein shall authorize a Co-Permitttee or other discharger regulated under the terms of this order to divert, store or otherwise impound water if such action is reasonably anticipated to harm downstream water right holders in the exercise of their water rights. This legal authority must, at a minimum, authorize the Copermitttee to:
 - a. Control the contribution of pollutants in discharges of runoff associated with industrial and construction activity to its MS4 and control the quality of runoff from industrial and construction sites. This requirement applies both to industrial and construction sites which have coverage under the statewide general industrial or construction storm water permits, as well as to those sites which do not. Grading ordinances must be updated and enforced as necessary to comply with this Order;
 - b. Prohibit all identified illicit discharges not otherwise allowed pursuant to section B.2;
 - c. Prohibit and eliminate illicit connections to the MS4;
 - d. Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4;
 - e. Require compliance with conditions in Copermitttee ordinances, permits, contracts or orders (i.e., hold dischargers to its MS4 accountable for their contributions of pollutants and flows);
 - f. Utilize enforcement mechanisms to require compliance with Copermitttee storm water ordinances, permits, contracts, or orders;
 - g. Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Copermitttees. Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as the State of California Department of Transportation, the United States Department of Defense, or Native American Tribes is encouraged;
 - h. Carry out all inspections, surveillance, and monitoring necessary to determine compliance and noncompliance with local ordinances and permits and with this Order, including the prohibition on illicit discharges to the MS4. This means the Copermitttee must have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from industrial facilities discharging into its MS4, including construction sites;
 - i. Require the use of BMPs to prevent or reduce the discharge of pollutants into MS4s from storm water to the MEP; and

F. JURISDICTIONAL RUNOFF MANAGEMENT PROGRAM (JRMP)

Each Copermittee must implement all requirements of section F of this Order no later than 365 days after adoption of the Order, unless otherwise specified in this Order. Prior to 365 days after adoption of the Order, each Copermittee must at a minimum implement its Jurisdictional RMP document, as the document was developed and amended to comply with the requirements of Order No. R9-2002-001.

Each Copermittee must develop and implement an updated JRMP for its jurisdiction. Each updated JRMP must meet the requirements of section F of this Order, reduce the discharge of storm water pollutants from the MS4 to the MEP, and prevent runoff discharges from the MS4 from causing or contributing to a violation of water quality standards.

1. DEVELOPMENT PLANNING COMPONENT

Each Copermittee must implement a program which meets the requirements of this section and (1) reduces Development Project discharges of storm water pollutants from the MS4 to the MEP; (2) prevents Development Project discharges from the MS4 from causing or contributing to a violation of water quality standards; (3) prevents illicit discharges into the MS4; and (4) manages increases in runoff discharge rates and durations from Development Projects that are likely to cause increased erosion of stream beds and banks, silt pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force.

a. GENERAL PLAN

Each Copermittee must revise as needed its General Plan or equivalent plan (e.g., Comprehensive, Master, or Community Plan) for the purpose of providing effective water quality and watershed protection principles and policies that direct land-use decisions and require implementation of consistent water quality protection measures for all development and redevelopment projects.

b. ENVIRONMENTAL REVIEW PROCESS

Each Copermittee must revise as needed its current environmental review processes to accurately evaluate water quality impacts and cumulative impacts and identify appropriate measures to avoid, minimize and mitigate those impacts for all Development Projects.

c. APPROVAL PROCESS CRITERIA AND REQUIREMENTS FOR ALL DEVELOPMENT PROJECTS

For all proposed Development Projects, each Copermittee during the planning process, and prior to project approval and issuance of local permits, must prescribe the necessary requirements so that Development Project discharges of storm water pollutants from the MS4 will be reduced to the MEP, will not cause or

contribute to a violation of water quality standards, and will comply with Copermittee's ordinances, permits, plans, and requirements, and with this Order. Performance Criteria: Discharges from each approved development project must be subject to the following management measures:

- (1) Source control BMPs that reduce storm water pollutants of concern in runoff, including prevention of illicit discharges into the MS4; prevention of irrigation runoff; storm drain system stenciling or signage; properly designed outdoor material storage areas; properly designed outdoor work areas; and properly designed trash storage areas;
- (2) The following LID BMPs listed below shall be implemented at all Development Projects where applicable and feasible.
 - (a) Conserve natural areas, including existing trees, other vegetation, and soils.
 - (b) Construct streets, sidewalks, or parking lot aisles to the minimum widths necessary, provided that public safety is not compromised.
 - (c) Minimize the impervious footprint of the project.
 - (d) Minimize soil compaction to landscaped areas.
 - (e) Minimize disturbances to natural drainages (e.g., natural swales, topographic depressions, etc.)
 - (f) Disconnect impervious surfaces through distributed pervious areas.
- (3) Buffer zones for natural water bodies, where feasible. Where buffer zones are infeasible, require project proponent to implement other buffers such as trees, access restrictions, etc;
- (4) Measures necessary so that grading or other construction activities meet the provisions specified in section F.2 of this Order; and
- (5) Submittal of proof of a mechanism under which ongoing long-term maintenance of all structural post-construction BMPs will be conducted.
- (6) Infiltration and Groundwater Protection

To protect groundwater quality, each Copermittee must apply restrictions to the use of treatment control BMPs that are designed to primarily function as centralized infiltration devices (such as large infiltration trenches and infiltration basins). Such restrictions must be designed so that the use of such infiltration treatment control BMPs must not cause or contribute to an exceedance of groundwater quality objectives. At a minimum, each treatment control BMP designed to primarily function as a centralized infiltration device must meet the restrictions below, unless it is demonstrated that a restriction is not necessary to protect groundwater quality. The Copermittees may collectively or individually develop alternative restrictions on the use of