

Attachment E

**RECEIVING WATERS AND ~~URBAN~~ RUNOFF MONITORING AND
REPORTING PROGRAM NO. R9-2009-002**

I. PURPOSE	2
II. MONITORING PROGRAM	2
A. Receiving Waters Monitoring Program	2
1. Mass Loading Station (MLS) Monitoring.....	3
2. Urban Stream Bioassessment (BA) Monitoring	7
3. Follow-up Analysis and Actions	9
4. Ambient Coastal Receiving Waters Monitoring (ACRW)	10
5. Coastal Storm Drain Monitoring.....	11
6. High Priority Inland Aquatic Habitats:	14
B. Wet Weather Runoff Monitoring.....	14
C. Dry Weather Non-Storm Water Effluent Limits	20
D. Special Studies	22
1. Aliso Creek Bacteria Investigation	22
2. TMDL Development and Implementation.	23
3. Stormwater Monitoring Coalition	25
4. Sediment Toxicity Study	25
5. Trash and Litter Impairment Investigation.....	26
E. Monitoring Provisions	27
III. REPORTING PROGRAM	30
A. Monitoring Reporting.....	30
B. Interim Reporting Requirements	33

I. PURPOSE

- A. This Receiving Waters and ~~Urban~~-Runoff Monitoring and Reporting Program is intended to meet the following goals:
1. Assess compliance with Order No. R9-2009-002;
 2. Measure and improve the effectiveness of the Copermittees' urban runoff management programs;
 3. Assess the chemical, physical, and biological impacts to receiving waters resulting from urban runoff discharges;
 4. Characterize ~~urban~~-runoff discharges;
 5. Identify sources of specific pollutants;
 6. Prioritize drainage and sub-drainage areas that need management actions;
 7. Detect and eliminate illicit discharges and illicit connections to the MS4; and
 8. Assess the overall health of receiving waters.
 9. Provide information to implement required BMP improvements
- B. In addition, this Receiving Waters and ~~Urban~~-Runoff Monitoring and Reporting Program is designed to answer the following core management questions¹:
1. Are conditions in receiving waters protective, or likely to be protective, of beneficial uses?
 2. What is the extent and magnitude of the current or potential receiving water problems?
 3. What is the relative ~~urban~~-runoff contribution to the receiving water problem(s)?
 4. What are the sources of ~~urban~~-runoff that contribute to receiving water problem(s)?
 5. Are conditions in receiving waters getting better or worse?

II. MONITORING PROGRAM

A. Receiving Waters Monitoring Program

Each Copermittee must collaborate with the other Copermittees to develop, conduct, and report on a year-round watershed based Receiving Waters Monitoring Program. The monitoring program design, implementation, analysis, assessment, and reporting must be conducted on a watershed basis for each of the watershed management areas. The

¹ Core management questions from "Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California: A report from the Stormwater Monitoring Coalition's Model Monitoring Technical Committee." Technical Report No. 419. August 2004.

monitoring program must be designed to meet the goals and answer the questions listed in section I above. The monitoring program must include the following components:

1. MASS LOADING STATION (MLS) MONITORING

- a. Locations: The following existing mass loading stations must continue to be monitored: Laguna Canyon, Aliso Creek, San Juan Creek, Trabuco Creek, Prima Deshecha Channel, and Segunda Deshecha Channel. The mass loading stations must be monitored at the frequency identified in Table 1.
- b. Frequency: Each mass loading station to be monitored in a given year must be monitored twice during wet weather events and twice during dry weather flow conditions. ~~The exception is the 2008-2009 monitoring year, which must include monitoring of all mass loading stations for only one wet weather flow event only if the Copermittees participate in Bight '08.~~
- c. Timing: Each mass loading station must be monitored for the first wet weather event of the season which meets the USEPA's criteria as described in 40 CFR 122.21(g)(7). Monitoring of the second wet weather event must be conducted after February 1. Dry weather mass loading monitoring events must be sampled at least three months apart between May and October. If flows are not evident in September or October for the second event, then sampling must be conducted during non-rain events in the wet weather season.

- d. Protocols: If practicable, the protocols for mass loading sampling and analysis should be SWAMP comparable. At a minimum, analytical methods, target reporting limits, and data reporting formats should be SWAMP comparable. If the mass loading sampling and analysis are determined to be impracticable with the SWAMP standards, the Copermittees must provide explanation and discussion to this effect in the Receiving Waters and ~~Urban~~-Runoff Monitoring Annual Report. Wet weather samples may be time-weighted composites, collected for the duration of the entire runoff event, where practical, consistent with methods used by the Copermittees during for the Receiving Waters Monitoring Program conducted for Regional Board Order No. R9-2002-01. Where such monitoring is not practical, such as for large watersheds with significant groundwater recharge flows, composites must be collected at a minimum during the first 3 hours of flow. Dry weather event sampling may be time-weighted composites composed of 24 discrete hourly samples, whereby the mass loads of pollutants are calculated 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.
- (1) Automatic samplers must be used to collect samples from mass loading stations.
 - (2) Grab samples must be analyzed for temperature, pH, specific conductance, biochemical oxygen demand, oil and grease, total coliform, fecal coliform, and enterococcus.
- e. Copermittees must measure or estimate flow rates and volumes for each mass loading station sampling event in order to determine mass loadings of pollutants. Data from nearby USGS gauging stations may be utilized, or flow rates may be estimated in accordance with the USEPA Storm Water Sampling Guidance Document (EPA-833-B-92-001), Section 3.2.1.
- f. In the event that the required number of events is not sampled during one monitoring year at any given station, the Copermittees must submit, with the subsequent Receiving Waters Monitoring Annual Report, a written explanation for a lack of sampling data, including streamflow data from the nearest USGS gauging station.
- g. The following constituents must be analyzed for each monitoring event at each station:

Table 1. Analytical Testing for Mass Loading, Urban Stream Bioassessment, and Ambient Coastal Receiving Waters Stations

Conventionals, Nutrients, Hydrocarbons	Pesticides	Metals (Total and Dissolved)	Bacteriological
<ul style="list-style-type: none"> • Total Dissolved Solids • Total Suspended Solids • Turbidity • Total Hardness • pH • Specific Conductance • Temperature • Dissolved Oxygen • Total Phosphorus • Dissolved Phosphorus • Nitrite ° • Nitrate ° • Total Kjeldahl Nitrogen • Ammonia • Biological Oxygen Demand, 5-day • Chemical Oxygen Demand • Total Organic Carbon • Dissolved Organic Carbon • Methylene Blue Active Substances • Oil and Grease 	<p>Diazinon Chlorpyrifos <i>Malathion</i> <i>Carbamates*</i> <i>Pyrethroids*</i></p>	<p>Arsenic Cadmium Chromium Copper Lead Nickel Selenium Zinc</p>	<p>Total Coliform Fecal Coliform Enterococcus</p>
<p>° Nitrate and nitrite may be combined and reported as nitrate + nitrite. * Carbamate and Pyrethroid pesticides must initially be monitored in Prima Deshecha and Segunda Deshecha watersheds. If carbamate and/or pyrethroid pesticides are found to correlate with observed acute or chronic toxicity, then that pesticide must be added to all stations displaying toxicity.</p>			

h. Toxicity testing must be conducted for each monitoring event at each station according to the following Table 2:

Table 2. Toxicity Testing for Mass Loading, Urban Stream Bioassessment, and Ambient Coastal Receiving Waters Stations

Program Component	Dry Weather Flows		Storm Water Flows	
	Freshwater Organisms	Estuarine & Marine Organisms	Freshwater Organisms	Estuarine & Marine Organisms
Mass Loading	2 chronic 2 acute	1 chronic**	2 acute	2 chronic 1 acute
Urban Stream Bioassessment	2 chronic* 2 acute*	n/a	n/a	n/a
Ambient Coastal Receiving Waters	n/a	2 chronic 1 acute	n/a	2 chronic 1 acute
<u>Sediment Toxicity Special Study</u>	<u>1 chronic</u> <u>1 acute</u> 1	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>

Table Notes

* Urban Stream Bioassessment on Aliso Creek must also include use of *Pimephales promelas* (fathead minnow) for chronic and acute toxicity testing.

** Dry weather toxicity monitoring at a mass loading station may be omitted if either (a) the channel flows are diverted year-round in dry weather conditions to the sanitary sewer for treatment; or (b) dry weather toxicity with marine species is occurring at an Ambient Coastal Waters Receiving station where that channel reaches the Pacific Ocean.

Species Notes:

1. Freshwater acute toxicity testing must include *Hyalella azteca*.
2. Acute toxicity for may be determined during the course of chronic toxicity monitoring per U.S. EPA protocols.
3. *Americamysis bahia* may be used as a marine test organism if *Holmesimysis costata* cannot reasonably be obtained. The use of, and justification for, of *A. bahia* must be clearly reported in each Monitoring Report.

- i. The presence of acute toxicity must be determined in accordance with USEPA protocol (EPA-821-R-02-012). The presence of chronic freshwater toxicity must be determined in accordance with USEPA protocol (EPA-821-R-02-013). The presence of chronic marine toxicity must be determined in accordance with USEPA guidance EPA 600/R95/136, except for chronic mysid tests that must be conducted in accordance with USEPA protocol EPA-821-R-02-014.

2. Urban Stream Bioassessment (BA) Monitoring

Copermittees must conduct Urban Stream Bioassessment Monitoring using a triad of indicators to assess the condition of biological communities in freshwater, urban receiving waters.

- a. Locations: At a minimum, the program shall consist of station identification, sampling, monitoring, and analysis of data for six bioassessment stations in order to determine the biological and physical integrity of urban streams within the County of Orange. At least one urban bioassessment station shall be located within each watershed management area. In addition to the urban stream bioassessment stations, three reference bioassessment stations shall be identified, sampled, monitored, and analyzed. Locations of reference stations must be identified according to protocols outlined in "A Quantitative Tool for Assessing the Integrity of Southern Coastal California Streams," by Ode, et al. 2005.²
- b. Frequency: Bioassessment stations must be monitored in May or June (to represent the influence of wet weather on the communities) and September or October (to represent the influence of dry weather flows on the communities). The timing of monitoring of bioassessment stations must coincide with dry weather monitoring of mass loading stations and Inland Aquatic Habitat stations.

² Ode, et al. 2005. "A Quantitative Tool for Assessing the Integrity of Southern Coastal California Streams." Environmental Management. Vol. 35, No. 1, pp. 1-13.

- (1) Alternative Frequency Plan / Special Studies: Upon approval of the Regional Board Executive Officer, the Copermittees may omit one of the annual bioassessment events and direct the saved resources toward specified special studies of the effects of physical habitat modification on the WARM, WILD, and/or COLD beneficial uses of inland receiving waters. Each special study must be able to produce a final report within 24 months after approval of the Executive Officer.
- c. Parameters / Methods: The triad of indicators for urban stream bioassessment monitoring must include bioassessment, aquatic chemistry, and aqueous toxicity.
- (1) Aquatic chemistry and aqueous toxicity must be conducted using the same parameters and methods as the mass loading station monitoring, with the addition of pyrethroid pesticides.
 - (2) Bioassessment analysis procedures must include calculation of the Index of Biotic Integrity (IBI) for benthic macroinvertebrates for all bioassessment stations, as outlined in "A Quantitative Tool for Assessing the Integrity of Southern Coastal California Streams," by Ode, et al. 2005.
 - (3) Monitoring of bioassessment stations must be conducted according to bioassessment procedures developed by the Surface Water Ambient Monitoring Program (SWAMP), as amended.³

³ Ode, P.R.. 2007. Standard operating procedures for collecting macroinvertebrate samples and associated physical and chemical data for ambient bioassessments in California. California State Water Resources Control Board Surface Water Ambient Monitoring Program (SWAMP) Bioassessment SOP 001.

(4) ~~Beginning no later than Spring 2010~~, Monitoring of bioassessment stations must incorporate assessment of ~~periphyton algae~~ in addition to macroinvertebrates, using the USEPA's 1999 Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers⁴ and SWAMP's Incorporating bioassessment using freshwater algae into California's Surface Water Ambient Monitoring Program (SWAMP)⁵. Assessment of freshwater algae must include algal taxonomic composition (diatoms and soft algae) and algal biomass. Future bioassessment shall incorporate algal IBI scores, when developed.

d. A qualified professional environmental laboratory must perform all sampling, laboratory, quality assurance, and analytical procedures.

3. FOLLOW-UP ANALYSIS AND ACTIONS

When results from the ~~required chemistry, toxicity, and bioassessment~~ monitoring ~~described above~~ indicate ~~urban~~-runoff-induced degradation at a mass loading station, bioassessment, or Inland Aquatic Habitat station (section II.A.6 below), Copermittees within the watershed must evaluate the extent and causes of ~~urban~~-runoff pollution in receiving waters and prioritize and implement management actions to eliminate or reduce sources. Toxicity Identification Evaluations (TIEs) must be conducted to determine the cause of toxicity as outlined in Table 3 below. Other follow-up activities, which must be conducted by the Copermittees, are also identified in Table 3. Once the cause of toxicity has been identified by a TIE, the Copermittees must perform source identification projects as needed and implement the measures necessary to reduce the pollutant discharges and abate the sources causing the toxicity.

⁴ USEPA, 1999. *Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers*. EPA-841-B-99-002.

⁵ Fetscher, E. A., and K. McLaughlin. 2008. Incorporating bioassessment using freshwater algae into California's Surface Water Ambient Monitoring Program (SWAMP). Southern California Coastal Water Research Project. Costa Mesa, CA

Table 3. Triad Approach to Determining Follow-Up Actions⁶

Chemistry	Toxicity	Benthic Alteration	Example Conclusions	Possible Actions or Decisions
1. Exceedance of water quality objectives	Evidence of toxicity	Indications of alteration	Strong evidence of pollution-induced degradation	Use TIE to identify contaminants of concern, based on TIE metric Initiate upstream source identification as a high priority
2. No persistent exceedances of water quality objectives	No evidence of toxicity	No indications of alteration	No evidence of current pollution-induced degradation Potentially harmful pollutants not yet concentrated enough to cause visible impact	No immediate action necessary Conduct periodic broad scans for new and/or potentially harmful pollutants
3. Exceedance of water quality objectives	No evidence of toxicity	No indications of alteration	Contaminants are not bioavailable Test organisms not sensitive to problem pollutants	TIE would not provide useful information with no evidence of toxicity Continue monitoring for toxic and benthic impacts Initiate upstream source identification as a low priority Consider whether different or additional test organisms should be evaluated
4. No persistent exceedances of water quality objectives	Evidence of toxicity	No indications of alteration	Unmeasured contaminant(s) or conditions have the potential to cause degradation Pollutant causing toxicity at very low levels	Recheck chemical analyses; verify toxicity test results Consider additional advanced chemical analyses Use TIE to identify contaminants of concern, based on TIE metric Initiate upstream source identification as a medium priority
5. No persistent exceedances of water quality objectives	No evidence of toxicity	Indications of alteration	Alteration may not be due to toxic contamination Test organisms not sensitive to problem pollutants	No action necessary due to toxic chemicals Initiate upstream source identification (for physical sources) as a high priority Consider whether different or additional test organisms should be evaluated
6. Exceedance of water quality objectives	Evidence of toxicity	No indications of alteration	Toxic contaminants are bioavailable, but in situ effects are not demonstrable Benthic analysis not sensitive enough to detect impact Potentially harmful pollutants not yet concentrated enough to change community	Determine if chemical and toxicity tests indicate persistent degradation Recheck benthic analyses; consider additional data analyses If recheck indicates benthic alteration, perform TIE to identify contaminants of concern, based on TIE metric Initiate upstream source identification as a high priority If recheck shows no effect, use TIE to identify contaminants of concern, based on TIE metric Initiate upstream source identification as a medium priority
7. No persistent exceedances of water quality objectives	Evidence of toxicity	Indications of alteration	Unmeasured toxic contaminants are causing degradation Pollutant causing toxicity at very low levels Benthic impact due to habitat disturbance, not toxicity	Recheck chemical analyses and consider additional advanced analyses Use TIE to identify contaminants of concern, based on TIE metric Initiate upstream source identification as a high priority Consider potential role of physical habitat disturbance
8. Exceedance of water quality objectives	No evidence of toxicity	Indications of alteration	Test organisms not sensitive to problem pollutants Benthic impact due to habitat disturbance, not toxicity	TIE would not provide useful information with no evidence of toxicity Initiate upstream source identification as a high priority Consider whether different or additional test organisms should be evaluated Consider potential role of physical habitat disturbance

4. AMBIENT COASTAL RECEIVING WATERS MONITORING (ACRW)

Copermittees must continue to conduct the Ambient Coastal Receiving Waters Monitoring (ACRW) program to assess the impact of ~~urban~~ runoff to ecologically-sensitive coastal areas by analyzing water chemistry and aqueous toxicity in both dry and wet weather and the magnitude of storm water discharge plumes to these areas. Copermittees must prioritize locations for further study and conduct special investigations.

⁶ Orange County Storm Water Program, 2006. Report of Waste Discharge (San Diego Region), Section 11.

- a. Locations: Copermittees must assess the existing Ambient Coastal Receiving Waters Monitoring (ACRW) stations to determine whether all ecologically-sensitive areas are represented. Stations must be established within all Areas of Special Biological Significance (ASBS) and Marine Life Refuges that receive significant MS4 discharges.
 - (1) Dana Point Harbor must continue to be monitored. ACRW monitoring in Dana Point Harbor may be suspended as long as the Harbor is being monitored pursuant to the Regional Harbor Monitoring Program⁷ and follow-up investigations are conducted when appropriate based on guidance from the Storm Water Monitoring Coalition.
- b. Parameters: Aquatic chemistry and aqueous toxicity must be conducted using the same parameters and methods as the mass loading station monitoring.
- c. ACRW monitoring must be concurrent with the mass loading station monitoring whenever feasible.
- d. Special investigations Ambient Coastal Receiving Waters: Special investigations must be designed and conducted to most effectively answer each of questions 1-5 of section I.B above, with an emphasis on answering question 4.

5. COASTAL STORM DRAIN MONITORING

The Copermittees must collaborate to develop and implement a coastal storm drain monitoring program to identify sections of the coastline that most consistently exceed water quality objectives for recreational uses as a result of MS4 discharges and then develop source identification and elimination activities. The monitoring program must include:

⁷ On July 24, 2003, the Regional Board required the County of Orange to participate in an Investigative Order to comprehensively assess the receiving water conditions of Dana Point Harbor. The Regional Harbor Monitoring Program is described in the *Regional Technical Report: Harbor Monitoring Program for San Diego Region San Diego Bay, Mission Bay, Oceanside Harbor, and Dana Point Harbor*, MEC Analytical Systems and Brock Bernstein, February 2004.

- a. An updated identification of all MS4 discharge points to coastal waters within one year of issuance of this Order.
- b. Diverted drains: Sampling of ~~urban~~-runoff discharges from a subset of coastal storm drains whose flows are diverted to the sanitary sewer during dry weather. A minimum of two ~~to three~~ storm events must be sampled at each monitoring location.
- c. Priority coastal storm drains: The Copermittees must continue existing coastal storm drain monitoring and must conduct followup investigations at sites in Table 4.

Table 4: Minimum Coastal Storm Drain Monitoring Stations

Continue Baseline Monitoring	Conduct Special Investigations
1. LINDAL (Linda Lane)	1. ACM1 (Aliso Creek Mouth)
2. MAINBC (Main Beach)	2. PEARL (Pearl Street)
3. MARIPO (Mariposa)	3. POCHE (Poche Beach)
4. BLULGN (Blue Lagoon)	4. SCM1 (Salt Creek Mouth)
5. CSBMP1 (Capistrano Beach)	5. SJC1 (San Juan Creek)
6. Others as determined by Copermittees	6. DSB-5 (North Creek, Doheny Beach)

- (1) Baseline monitoring stations: Copermittees must continue to conduct weekly sampling of flowing coastal storm drains for total coliform, fecal coliform, and enterococcus⁸. Where flowing coastal storm drains are discharging to coastal waters, paired samples from the storm drain discharge and coastal water (25 yards down current of the discharge) must be collected. If flowing coastal storm drains are not discharging to coastal waters, only the storm drain discharge needs to be sampled. Storm drains whose flows are being diverted to the sanitary sewer for treatment do not need to be sampled unless the diversion is inoperable during the sampling week. If the direction of the current or effluent plume cannot readily be distinguished, then samples must be collected from the surfzone 25 yards upcoast and downcoast of the MS4 outfall. Additional sites must be added if determined by a Copermittee or the Regional Board to likely be contributing to persistent exceedances of water quality objectives along the coast.
- (2) Special investigation stations: Copermittees must design and conduct special investigations at the identified stations to most effectively answer each of questions 1-5 of section I.B above, with an emphasis on answering question 4. At least two such investigations must be in progress during each reporting period. Each special investigation must be designed with specific benchmarks, expectations, and timelines for results. All special investigations must be concluded by June 30, 2011.
- (3) Investigations of sources of bacterial contamination must occur immediately if evidence of abnormally high flows, sewage releases, restaurant discharges, and/or similar evidence is observed during sampling.
- (4) Exceedances of public health standards for bacterial indicators must be reported to the County Department of Environmental Health as soon as possible.

⁸ Coastal storm drains where sampler safety, habitat impacts from sampling, or inaccessibility are issues need not be sampled. Such coastal storm drains shall be added to the Copermittee's dry weather field screening and analytical monitoring program where feasible.

6. HIGH PRIORITY INLAND AQUATIC HABITATS:

- a. The Copermittees must collaborate to develop and implement a Inland Aquatic Habitat monitoring program for areas supporting high priority aquatic and riparian species, including threatened and endangered species. The design of the program must be consistent with the questions in Section I.B of this Monitoring Program. The monitoring program must include:
- (1) Identification of storm drains that discharge into receiving waters that support threatened or endangered species;
 - (2) Monitoring of ambient water quality conditions within those receiving waters for constituents likely to affect the threatened and endangered species;
 - (3) Monitoring of ~~dry and~~ wet weather storm drain discharges into the outfalls;
 - (4) Assessment of the monitoring results to determine the relative contribution, if any, of storm drain discharges to factors affecting those species; and
 - (5) Follow-up studies and source identification as necessary.
- b. The Inland Aquatic Habitat monitoring program must be implemented by the beginning of the rainy season 2010 ~~Summer 2009~~.

B. Wet Weather ~~Urban~~ Runoff Monitoring

Each Copermittee must collaborate with the other Copermittees to develop, conduct, and report on a year-round watershed based Urban-Wet Weather Runoff Monitoring Program. The monitoring program design, implementation, analysis, assessment, and reporting must be conducted on a watershed basis for each of the hydrologic units. The monitoring program must be designed to meet the goals and answer the questions listed in section I above. The monitoring program must include the following components;

1. MS4 OUTFALL MONITORING

The Copermittees must collaborate to develop and implement a monitoring program to characterize pollutant discharges from MS4 outfalls in each watershed during wet and dry weather. The program must include rationale and criteria for selection of outfalls to be monitored. The ~~wet weather~~ program must, at a minimum, include collection of samples for those pollutants causing or contributing to violations of water quality standards within the watershed. This monitoring program must be implemented within each watershed and must begin no later than the 2009-2010 ~~2008-2009~~ monitoring year.

2. SOURCE IDENTIFICATION MONITORING

The Copermittees must collaborate to develop and implement a monitoring program to identify sources of pollutants causing the priority water quality problems within each watershed. The monitoring program must include focused monitoring which moves upstream into each watershed as necessary to identify sources. This monitoring program must be implemented within each watershed and must begin no later than the 2008-2009 monitoring year.

~~3. Dry Weather Field Screening and Analytical Monitoring~~

~~As part of its Jurisdictional Urban Runoff Management Program, each Copermittee must update as necessary its dry weather field screening and analytical monitoring program to meet or exceed the requirements of this section. Dry weather analytical and field screening monitoring consists of (1) field observations; (2) field screening monitoring; and (3) analytical monitoring at selected stations.~~

~~The Dry Weather Field Screening and Analytical Monitoring program is not required to be SWAMP comparable. Each Copermittee's program must be designed to detect and eliminate illicit connections and illegal discharges to the MS4 using frequent, geographically widespread dry weather discharge monitoring and follow-up investigations. Each Copermittee must conduct the following dry weather field screening and analytical monitoring tasks:~~

- ~~a. Select Dry Weather Field Screening and Analytical Monitoring Stations~~

~~Based upon a review of its past Dry Weather Monitoring Program, each Copermittee must select dry weather analytical monitoring stations within its jurisdiction. Stations must be selected according to one of the following methods:~~

~~(1) Stations must be either major outfalls or other outfall points (or any other point of access such as manholes) randomly located throughout the MS4 by placing a grid over a drainage system map and identifying those cells of the grid which contain a segment of the MS4 or major outfall. This random selection has to use the following guidelines and criteria:~~

- ~~(a) A grid system consisting of perpendicular north-south and east-west lines spaced ¼ mile apart must be overlaid on a map of the MS4, creating a series of cells;~~
- ~~(b) All cells that contain a segment of the MS4 must be identified and one dry weather analytical monitoring station must be selected in each cell.~~
- ~~(c) Each Copermittee must determine alternate stations to be sampled in place of selected stations that do not have flow.~~

~~(2) Stations may be selected non-randomly provided adequate coverage of the entire MS4 system is ensured and that the selection of stations meets, exceeds, or provides equivalent coverage to the requirements given above. The dry weather analytical and field screening monitoring stations must be established using the following guidelines and criteria:~~

- ~~(a) Stations should be located downstream of any sources of suspected illegal or illicit activity;~~
- ~~(b) Stations must be located to the degree practicable at the farthest manhole or other accessible location downstream in the system within each cell;~~
- ~~(c) Hydrological conditions, total drainage area of the site, traffic density, age of the structures or buildings in the area, history of the area, and land use types must be considered in locating stations;~~
- ~~(d) Each Copermittee must determine alternate stations to be sampled in place of selected stations that do not have flow.~~

b. Complete MS4 Map

~~Each Copermitttee must clearly identify each dry weather field screening and analytical monitoring station on its MS4 Map as either a separate GIS layer or a map overlay hereafter referred to as a Dry Weather Field Screening and Analytical Stations Map. Each Copermitttee must confirm that each drainage area within its jurisdiction contains at least one station.~~

~~c. Develop Dry Weather Field Screening and Analytical Monitoring Procedures~~

~~Each Copermitttee must develop and/or update written procedures for dry weather field screening and analytical monitoring (for analytical monitoring only, these procedures must be consistent with 40 CFR part 136), including field observations, monitoring, and analyses to be conducted. At a minimum, the procedures must meet the following guidelines and criteria:~~

- ~~(1) Determining Sampling Frequency: Dry weather field screening and analytical monitoring must be conducted at each identified station at least three times between May 1st and September 30th of each year or as more frequently as the Copermitttee determines is necessary to comply with the requirements of section D.4 of this Order.~~
- ~~(2) If flow or ponded runoff is observed at a dry weather field screening or analytical monitoring station and there has been at least seventy-two (72) hours of dry weather, make observations and collect at least one (1) grab sample. Record general information such as time since last rain, quantity of last rain, site descriptions (i.e., conveyance type, dominant watershed land uses), flow estimation (i.e., width of water surface, approximate depth of water, approximate flow velocity, flow rate), and visual observations (i.e., odor, color, clarity, floatables, deposits/stains, vegetation condition, structural condition, and biology).~~
- ~~(3) At a minimum, collect samples for analytical laboratory analysis of the following constituents for at least twenty five percent (25%) of the dry weather monitoring stations where water is present:
 - (a) Total Hardness
 - (b) Oil and Grease
 - (c) Diazinon and Chlorpyrifos
 - (d) Cadmium (Dissolved)~~

- ~~(e) Copper (Dissolved)~~
- ~~(f) Lead (Dissolved)~~
- ~~(g) Nickel (Dissolved)~~
- ~~(h) Zinc (Dissolved)~~
- ~~(i) Enterococcus bacteria⁹~~
- ~~(j) Total Coliform bacteria⁸~~
- ~~(k) Fecal Coliform bacteria⁸~~

~~(4) At a minimum, conduct field screening analysis of the following constituents at all dry weather monitoring stations where water is present:~~

- ~~(a) Specific conductance (calculate estimated Total Dissolved Solids).~~
- ~~(b) Turbidity~~
- ~~(c) pH~~
- ~~(d) Reactive Phosphorous~~
- ~~(e) Nitrate Nitrogen~~
- ~~(f) Ammonia Nitrogen~~
- ~~(g) Surfactants (MBAS)~~

~~(5) If the station is dry (no flowing or ponded runoff), make and record all applicable observations and select another station from the list of alternate stations for monitoring.~~

~~(6) Develop and/or update criteria for dry weather field screening and analytical monitoring results whereby exceedance of the criteria will require follow-up investigations to be conducted to identify and eliminate the source causing the exceedance of the criteria.~~

- ~~(a) Criteria must include evaluation of the California Toxics Rule, U.S. EPA National Recommended Ambient Water Quality Criteria, the San Diego Region Basin Water Quality Control Plan (Basin Plan), LC₅₀ levels for toxicity to appropriate test organisms, and statistical evaluations of existing data from south Orange County.~~

⁹ Colilert and Enterolert may be used as alternative methods with Fecal Coliform determined by calculations.

~~(7) Assess the presence of trash in receiving waters and urban runoff at each dry weather field screening or analytical monitoring station. Assessments of trash must provide information on the spatial extent and amount of trash present, as well as the nature of the types of trash present.~~

~~(8) Dry weather field screening and analytical monitoring stations identified to exceed dry weather monitoring criteria for any constituents must continue to be screened in subsequent years.~~

~~(9) Develop and/or update procedures for source identification follow up investigations in the event of exceedance of dry weather field screening and analytical monitoring result criteria. These procedures must be consistent with procedures required in section D.4.d and D.4.e. of this Order.~~

~~(1) Develop and/or update procedures to eliminate detected illicit discharges and connections. These procedures must be consistent with each Copermittees' Illicit Discharge and Elimination component of its Jurisdictional Urban Runoff Management Plan as discussed in section D.4 and D.4.e. of this Order.~~

~~(a) Conduct Dry Weather Field Screening and Analytical Monitoring~~

~~The Copermittees must commence implementation of dry weather field screening and analytical monitoring under the requirements of this Order by May 1, 2009. Each Copermittee must conduct dry weather analytical and field screening monitoring in accordance with its storm water conveyance system map and dry weather analytical and field screening monitoring procedures as described in section II.B.3 above. If monitoring indicates an illicit connection or illegal discharge, conduct the follow up investigation and elimination activities as described in submitted dry weather field screening and analytical monitoring procedures and sections D.4.d and D.4.e of Order No. R9-2008-0001.~~

~~Until the dry weather field screening and analytical monitoring program is implemented under the requirements of this Order, each Copermittee must continue to implement dry weather field screening and analytical monitoring as it was most recently implemented pursuant to Order No. 2002-01.~~

C. Dry Weather Non-Storm Water Effluent Limits

Each Copermittee must collaborate with the other Copermittees to conduct, and report on a year-round watershed based Dry Weather Runoff Monitoring Program. The monitoring program implementation, analysis, assessment, and reporting must be conducted on a watershed basis for each of the hydrologic units. The monitoring program must be designed to assess compliance with numeric effluent limits in section C of this Order, adopted dry weather Total Maximum Daily Loads Waste Load Allocations and assessment of the contribution of dry weather flows to 303(d) listed impairments. The monitoring program must include the following components:

Each Copermittee's program must be designed to determine levels of pollutants in effluent discharges from the MS4 into receiving waters. Each Copermittee must conduct the following dry weather field screening and analytical monitoring tasks:

a. Dry Weather Effluent Analytical Monitoring Stations

(1) Stations must be all major outfalls. Other outfall points (or any other point of access such as manholes) identified by the Copermittees as potential high risk sources polluted effluent shall be sampled

(2) Each Copermittee must clearly identify each dry weather effluent analytical monitoring station on its MS4 Map as either a separate GIS layer or a map overlay hereafter referred to as a Dry Weather Effluent Analytical Stations Map.

b. Develop Dry Weather Effluent Analytical Monitoring Procedures

Each Copermittee must develop and/or update written procedures for dry weather effluent analytical monitoring (these procedures must be consistent with 40 CFR part 136), including field observations, monitoring, and analyses to be conducted. At a minimum, the procedures must meet the following guidelines and criteria:

- (1) Determining Sampling Frequency: Dry weather effluent analytical monitoring must be conducted at each major outfall and identified station at least once between May 1st and September 30th of each year and at least once between October 1st and April 30th. Monitoring between October 1st and April 30th must be preceded by a minimum of 72 hours of dry weather.
- (2) If ponded runoff is observed at a dry weather effluent analytical monitoring station, make observations and collect at least one (1) grab sample. If flow is evident composite samples must be taken. Record flow estimation (i.e., width of water surface, approximate depth of water, approximate flow velocity, flow rate).
- (3) Effluent samples shall undergo analytical laboratory analysis for constituents in: *Table 1. Analytical Testing for Mass Loading, Urban Stream Bioassessment, and Ambient Coastal Receiving Waters Stations*. Additional analytical laboratory analysis on the effluent shall be done for all 303(d) listed pollutants for which the receiving water of the effluent is impaired.
- (4) If the station is dry (no flowing or ponded runoff), make and record all applicable observations.
- (5) Develop and/or update criteria for dry weather effluent analytical monitoring results where exceedances are detected and eliminate the source causing the exceedance of the criteria:
 - (a) Criteria must include numeric limits in Section C, Table 3 of this Order.
 - (b) Criteria must include evaluation of LC₅₀ levels for toxicity to appropriate test organisms
- (6) Develop and/or update procedures for source identification follow up investigations in the event of exceedance of dry weather effluent analytical monitoring result criteria. These procedures must be consistent with procedures required in section D.4.d and D.4.e. of this Order.

(7) Develop and/or update procedures to eliminate detected illicit discharges and connections. These procedures must be consistent with each Copermittees' Illicit Discharge and Elimination component of its Jurisdictional Runoff Management Plan as discussed in section D.4 and D.4.e. of this Order.

c. Conduct Dry Weather Effluent Analytical Monitoring

The Copermittees must commence implementation of dry weather effluent analytical monitoring under the requirements of this Order no later than the 3rd year following adoption of this Order. If monitoring indicates an illicit connection or illegal discharge, conduct the follow-up investigation and elimination activities as described in submitted dry weather field screening and analytical monitoring procedures and sections D.4.d and D.4.e of Order No. R9-2009-002.

Until the dry weather field effluent analytical monitoring program is implemented under the requirements of this Order, each Copermittee must continue to implement dry weather field screening and analytical monitoring as it was most recently implemented pursuant to Order No. 2002-01.

D. Special Studies

1. Aliso Creek bacteria investigation: Each Copermittee within the Aliso Creek watershed must implement the Aliso Creek 13225 Directive Revised Monitoring Program Design – Integration with NPDES Program¹⁰ (December 2004). The Copermittees must include that monitoring program into the overall monitoring and reporting program.

~~2. Bight '08~~

¹⁰ On October 12, 2005, the Regional Board accepted the revised Aliso Creek watershed bacteria monitoring plan proposal from the MS4 Copermittees. The Regional Board concluded that the scope of the current bacteria monitoring in the watershed was no longer warranted and that the proposed changes would constitute an effective interim program until adoption in the future of a Total Maximum Daily Load, requiring a bacteria reduction and assessment program for the watershed. In addition, the Regional Board recognized that as a result of reduced monitoring costs, the municipalities expect to direct additional resources toward implementation of management practices to reduce indicator bacteria and pathogens.

~~During the 2008-2009 monitoring year monitoring year, the Copermittees may participate in the Bight '08 study. The Copermittees must ensure that such participation results in collection and analysis of data useful in addressing the goals and management questions of the Receiving Waters Monitoring Program. Any participation must include the contribution of all funds, not otherwise spent on full implementation of mass loading station, ambient coastal waters, and bioassessment monitoring, to Bight '08. All other monitoring must continue during the 2008-2009 monitoring year as required. If the Copermittees partially participate in Bight '08, monitoring all regular must be conducted, with the exception of any monitoring offset by the contribution of funds to Bight '08.~~

3.2. The Copermittees must conduct special studies, including any monitoring required for TMDL development and implementation, as directed by the Executive Officer.

- ~~4. Facilities that Extract, Treat, and Discharge (FETDs): Projects that extract water from waters of the U.S., submit the water to treatment processes, then discharge the treated effluent to waters of the U.S. must implement the following monitoring program:~~
- ~~a. Locations: Monitoring stations must include the influent, effluent, and downstream receiving water conditions in a manner sufficient to characterize effectiveness of the treatment process.~~
 - ~~b. Frequency: Monitoring must be implemented monthly from April through September and bimonthly from September through March during months discharges occur. Monitoring frequency for any parameter listed below may be reduced upon written authorization from the Regional Board Executive Officer, at the request of the Copermittee, if it is demonstrated that there is low variability and a low threat to beneficial uses for at least three consecutive months.~~
 - ~~c. Protocol: Sampling, analysis, and quality assurance/quality control must be conducted in accordance with the Quality Assurance Management Plan for the State of California's Surface Water Ambient Monitoring Program (SWAMP), adopted by the State Water Resources Control Board.~~
 - ~~d. Parameters: The following parameters must be monitored:

(1) Indicator fecal bacteria, if the purpose is to improve recreational beneficial uses in waters of the U.S.~~

~~(2)Metals: Metals (dissolved) must be monitored if existing water quality data demonstrates total or dissolved metal concentrations in the receiving waters likely exceed (before treatment) or would likely exceed (following treatment) the numeric criteria in U.S. EPA National Recommended Ambient Water Quality, the California Toxics Rule, or if appropriate, the California Ocean Plan.~~

~~(3)Pesticides: Monitoring must be conducted for chlorpyrifos and pyrethroids if the water contains runoff from urban, golf course, or agricultural land uses.~~

~~(4)Turbidity (or total suspended solids), pH, dissolved oxygen, and temperature.~~

~~(5)Any constituent for which the water body (extraction or discharge location) is listed as impaired pursuant to Clean Water Act Section 303(d).~~

~~(6)Toxicity: Testing for chronic toxicity must be initiated at the next sampling event if two consecutive sampling results display concentrations of metals or pesticides in excess of numerical criteria for the California Toxics Rule, or if appropriate, the California Ocean Plan. Toxicity testing must continue until results from three consecutive sampling events display no toxic effects or upon initiation of a TMDL implementation plan for toxicity in the water body. A toxicity identification evaluation must be conducted if three consecutive monitoring events display toxicity to the same species.~~

~~e. Based on results of a toxicity identification evaluation, the Copermitees within the source watershed must collaborate to develop and implement an upstream source identification program to identify sources of pollutants causing toxicity. This source identification program must begin within six months following results of the toxicity identification evaluation. The source identification program must include water quality monitoring and other source identification methods.~~

~~f. Results and data from the FETD monitoring programs must be submitted with the annual monitoring reports in accordance with Section III of this monitoring and reporting program.~~

5.3. Stormwater Monitoring Coalition Regional Monitoring of Southern California's Coastal Watersheds:

The Copermittees must implement the monitoring program developed by the Stormwater Monitoring Coalition for Regional Monitoring of the Southern California's Coastal Watersheds within the San Juan Hydrologic Unit. Each Copermittee must evaluate the results of the monitoring program within and downstream of its jurisdiction and integrate the results into program assessments and modifications.

4. Sediment Toxicity Study

Copermittees must develop, submit to the Regional Board for review, and implement an approved special study which will investigate the toxicity of sediment in urban streams. The Study must be submitted within 24 months of adoption of Order R9-2009-002. After Regional Board review, the Sediment Toxicity Study must be implemented in conjunction with the Urban Stream Bioassessment Monitoring and, at a minimum, contain the following:

- a. Locations: At a minimum, 4 bioassessment locations must be sampled, including 1 reference site.
- b. Frequency: At a minimum, sampling must occur once per year at each site for at least 2 years. Sampling must be done in conjunction with the bioassessment sampling required under Section II.A.2 of the Monitoring and Reporting Program of this Order.
- c. Parameters/Methods: At a minimum, sediment toxicity analysis shall include the measurement of metals, pyrethroids and organochlorine pesticides. Analysis must include estimates of bioavailability based upon sediment grain size, organic carbon and receiving water temperature. Acute and chronic toxicity testing must be done using *Hyalella azteca* in accordance with Table 2.
- d. Results: Results and a Discussion shall be included in the Monitoring Annual Report. The Discussion must include an assessment of the relationship between observed IBI scores under Section II.A.2 and all variables measured.

5. Trash and Litter Impairment Investigation

Copermittees must develop and implement a special investigation beginning no later than 2 years following the adoption of this Order to assess trash (including litter) as a pollutant within receiving waters on a watershed based scale. Litter is defined in California Government Code 68055.1g as "litter means all improperly discarded waste material, including, but not limited to, convenience food, beverage, and other product packages or container constructed of steel, aluminum, glass, paper, plastic and other natural and synthetic materials, thrown or deposited on lands and waters of the state, but not including the properly discarded waste of the primary processing of agriculture, mining, logging, sawmilling, or manufacturing." A lead Copermittee may be selected for each watershed, and will be responsible for the following:

- a. Locations: The lead Copermittee will identify suitable sampling locations within each watershed.
- b. Frequency: Trash at each location shall be monitored a minimum of twice during the wet season following a qualified monitoring storm event (minimum of 0.1 inches preceded by 72 hours of dry weather) and twice during the dry season.
- c. Protocol: The lead Copermittee for each watershed shall use the Final Monitoring Workplan for the Assessment of Trash in San Diego County Watersheds and A Rapid Trash Assessment Method Applied to Waters of the San Francisco Bay Region to develop a monitoring protocol for each Watershed. The draft monitoring protocol, including sampling locations and frequency, shall be submitted to the Regional Board for review no later than 365 days following the adoption of this Order. Although sampling must occur on a watershed basis, a County-wide protocol may be developed that incorporates each individual watershed.
- d. Results and Discussion from the Trash and Litter Impairment Study shall be included in the Monitoring Annual Report.

E. Monitoring Provisions

All monitoring activities must meet the following requirements:

1. Where procedures are not otherwise specified in this Receiving Waters Monitoring and Reporting Program ~~(e.g., Dry Weather Field Screening and Analytical Monitoring)~~, sampling, analysis and quality assurance/quality control must be conducted in accordance with the Quality Assurance Management Plan (QAMP) for the State of California's Surface Water Ambient Monitoring Program (SWAMP), adopted by the State Water Resources Control Board (SWRCB).
2. Samples and measurements taken for the purpose of monitoring must be representative of the monitored activity [40 CFR 122.41(j)(1)].
3. The Copermittees must retain records of all monitoring information, including all calibration and maintenance of monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the Report of Waste Discharge and application for this Order, for a period of at least five (5) years from the date of the sample, measurement, report, or application. This period may be extended by request of the Regional Board or USEPA at any time and must be extended during the course of any unresolved litigation regarding this discharge. [40 CFR 122.41(j)(2), CWC section 13383(a)]
4. Records of monitoring information must include [40 CFR 122.41(j)(3)]:
 - a. The date, exact place, and time of sampling or measurements;
 - b. The individual(s) who performed the sampling or measurements;
 - c. The date(s) analyses were performed;
 - d. The individual(s) who performed the analyses;
 - e. The analytical techniques or methods used; and
 - f. The results of such analyses.
5. All sampling, sample preservation, and analyses must be conducted according to test procedures approved under 40 CFR part 136, unless other test procedures have been specified in this Receiving Waters Monitoring and Reporting Program or approved by the Executive Officer [40 CFR 122.41(j)(4)].

6. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this Order must, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than two years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than four years, or both. [40 CFR 122.41(j)(5)]
7. Calculations for all limitations which require averaging of measurements must utilize an arithmetic mean unless otherwise specified in this Receiving Waters Monitoring and Reporting Program. [40 CFR 122.41(l)(4)(iii)]
8. All chemical, bacteriological, and toxicity analyses must be conducted at a laboratory certified for such analyses by the California Department of Health Services or a laboratory approved by the Executive Officer.
9. For priority toxic pollutants that are identified in the California Toxics Rule (CTR) (65 Fed. Reg. 31682), the Copermittees must instruct its laboratories to establish calibration standards that are equivalent to or lower than the Minimum Levels (MLs) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP). If a Copermittee can demonstrate that a particular ML is not attainable, in accordance with procedures set forth in 40 CFR 136, the lowest quantifiable concentration of the lowest calibration standard analyzed by a specific analytical procedure (assuming that all the method specified sample weights, volumes, and processing steps have been followed) may be used instead of the ML listed in Appendix 4 of the SIP. The Copermittee must submit documentation from the laboratory to the Regional Board for approval prior to raising the ML for any priority toxic pollutant.
10. The Regional Board Executive Officer or the Regional Board may make revisions to this Receiving Waters and ~~Urban~~ Runoff Monitoring and Reporting Program at any time during the term of Order No. R9-~~2008-001~~2009-002 and may include a reduction or increase in the number of parameters to be monitored, locations monitored, the frequency of monitoring, or the number and size of samples collected.

11. The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance must, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or by both. [40 CFR 122.41(k)(2)]
12. Monitoring must be conducted according the USEPA test procedures approved under 40 CFR 136, "Guidelines Establishing Test Procedures for Analysis of Pollutants under the Clean Water Act" as amended, unless other test procedures have been specified in this Receiving Waters and ~~Urban~~ Runoff Monitoring and Reporting Program, in Order No. R9-~~2008-001~~2009-002, or by the Executive Officer.
13. If the discharger monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR part 136, unless otherwise specified in the Order, the results of this monitoring must be included in the calculation and reporting of the data submitted in the reports requested by the Regional Board. [40 CFR 122.41(l)(4)(ii)]

III. REPORTING PROGRAM

A. Monitoring Reporting

1. Planned Monitoring Program: The Principal Copermittee must submit a description of the Receiving Waters and ~~Urban~~-Runoff Monitoring Program to be implemented for every monitoring year. The submittals must begin on September 1, 2008~~9~~, and continue every year thereafter. The submittals must describe all monitoring to be conducted during the upcoming monitoring year. For example, the September 1, 2008~~9~~ submittal must describe the monitoring to be conducted from October 1, 2008~~9~~ through September 30, 2009~~10~~.

~~If the Copermittees participate in Bight '08, their submittal for the 2008-2009 monitoring year must describe the monitoring to be conducted for Bight '08 and exhibit how the monitoring will result in collection and analysis of data useful in addressing the goals and management questions of the Receiving Waters and Urban-Runoff Monitoring Program.~~

2. Monitoring Annual Report: The Principal Copermittee must submit the Receiving Waters and ~~Urban~~-Runoff Monitoring Annual Report to the Regional Board on ~~April~~October 1 of each year, beginning on ~~April~~October 1, 2009~~10~~. Receiving Waters and ~~Urban~~-Runoff Monitoring Annual Reports must meet the following requirements:
 - a. Annual monitoring reports must include the data/results, methods of evaluating the data, graphical summaries of the data, and an explanation/discussion of the data for each monitoring program component.
 - b. Annual monitoring reports must include a watershed-based analysis of the findings of each monitoring program component. Each watershed-based analysis must include:
 - (1) Identification and prioritization of water quality problems within each watershed.
 - (2) Identification and description of the nature and magnitude of potential sources of the water quality problems within each watershed.
 - (3) Exhibition of pollutant load and concentration increases or decreases at each mass loading and temporary watershed assessment station.

- (4) Evaluation of pollutant loads and concentrations at mass loading and temporary watershed assessment stations with respect to land use, population, sources, and other characteristics of watersheds using tools such as multiple linear regression, factor analysis, and cluster analysis.
 - (5) Identification of links between source activities/conditions and observed receiving water impacts.
 - (6) Identification of recommended future monitoring to identify and address sources of water quality problems.
 - (7) Results and discussion of any TIE conducted, together with actions that will be implemented to reduce the discharge of pollutants and abate the sources causing the toxicity.
- c. Aliso Creek Bacteria Investigation: Annual monitoring reports for the Aliso Creek Bacteria Investigation must contain the following information:
- (1) Water quality data and assessment. The report must contain all data collected and an assessment of compliance with applicable water quality standards for each monitoring station;
 - (2) Program Assessment. A description and assessment of each municipality's program implemented within the high-priority storm drain locations to reduce storm water discharges of indicator fecal bacteria/pathogens. Water quality monitoring alone is not sufficient to assess progress of the municipal programs. Municipalities must demonstrate each year that their programs are effective and resulting in a reduction of bacteria sources.
 - (a) For structural and nonstructural management practices implemented, the assessment must contain a description of the practice, capital and maintenance costs, expectations for effectiveness, date implemented, and any observed results.
 - (b) For structural and nonstructural management practices implemented, the assessment must contain a description of the practice, capital and maintenance costs, expectations for effectiveness, date implemented, and any observed results

- d. Annual monitoring reports must include discussions for each watershed which answer each of the management questions listed in section I.B of this Receiving Waters Monitoring and Reporting Program.
- e. Annual monitoring reports must identify how each of the goals listed in section I.A of this Receiving Waters Monitoring and Reporting Program has been addressed by the Copermittees' monitoring.
- f. Annual monitoring reports must include identification and analysis of any long-term trends in storm water or receiving water quality. Trend analysis must use nonparametric approaches, such as the Mann-Kendall test, including exogenous variables in a multiple regression model, and/or using a seasonal nonparametric trend model, where applicable.
- g. Annual monitoring reports must provide an estimation of total pollutant loads (wet weather loads plus dry weather loads) due to ~~urban~~-runoff for each of the watersheds specified in Table 3 of Order No. R9-2009-002.
- h. Annual monitoring reports must, for each monitoring program component listed above, include an assessment of compliance with applicable water quality standards.
- i. Annual monitoring reports must describe monitoring station locations by latitude and longitude coordinates, frequency of sampling, quality assurance/quality control procedures, and sampling and analysis protocols.
- j. Annual monitoring reports must use a standard report format and must include the following:
 - (1) A stand alone comprehensive executive summary addressing all sections of the monitoring report;
 - (2) Comprehensive interpretations and conclusions; and
 - (3) Recommendations for future actions.
- k. All monitoring reports submitted to the Principal Copermittee or the Regional Board must contain the certified perjury statement described in Attachment B of this Order No. R9-2009-002.

- I. Annual monitoring reports must be reviewed prior to submittal to the Regional Board by a committee of the Copermittees (consisting of no less than three members).
- m. Annual monitoring reports must be submitted in both electronic and paper formats. Electronic formats must be CEDEN or SWAMP-uploadable.¹¹
3. The Principal Copermittee must submit by July 1, 2008, a detailed description of the monitoring programs to be implemented under requirement II.B.2 of Receiving Waters and ~~Urban~~-Runoff Monitoring and Reporting Program No. R9-2009-002. The description must identify and provide the rationale for the constituents monitored, locations of monitoring, frequency of monitoring, and analyses to be conducted with the data generated.
4. Monitoring programs and reports must comply with section II.D of Receiving Waters and ~~Urban~~-Runoff Monitoring and Reporting Program No. R9-2009-002 and Attachment B of Order No. R9-2009-002.
5. Following completion of an annual cycle of monitoring in October, the Copermittees must make the monitoring data and results available to the Regional Board at the Regional Board's request.

B. Interim Reporting Requirements

For the October 2008 to October 2009 ~~October 2007-October 2008~~ monitoring period, the Principal Copermittee must submit the Receiving Waters Monitoring Annual Report by January 31, 2010 ~~on January 31, 2009~~. The Receiving Waters Monitoring Annual Report must address the monitoring conducted to comply with the requirements of Order No. 2002-01.

¹¹ For updates to the SWAMP templates and formats, see <http://www.waterboards.ca.gov/swamp>.