State of California
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION
MONITORING AND REPORTING PROGRAM - CI 6948
FOR
ORDER No. 01-182
NPDES No. CAS004001
MUNICIPAL STORM WATER AND URBAN RUNOFF DISCHARGES WITHIN THE COUNTY OF LOS ANGELES, AND THE INCORPORATED CITIES, EXCEPT THE CITY OF LONG BEACH

Table of Contents

I. Program Reporting Requirements

The Principal Permittee shall submit, no later than October 15 of each year beginning in the year 2002, a Unified Annual Storm Water Report (Unified Annual Report) documenting the progress of Permittees' implementation of the SQMP and the requirements of this Order. The Unified Annual Report shall contain a section covering common activities conducted collectively by the Permittees, and an integrated summary of the Monitoring Program results. Each Permittee shall submit an Individual Annual Report to the Principal Permittee, by the date determined by the Principal Permittee, to be included in the Unified Annual Report. The Unified Annual Reports shall cover each fiscal year from July 1 through June 30. The first Unified Annual Report, to be submitted on October 15, 2002, shall report for the period from July 1, 2001 through June 30, 2002. Specific requirements that must be addressed in the Annual Reports are listed below.

A. Unified Annual Report

The Principal Permittee shall include the following in the Unified Annual Report:

1. A compilation of Permittee Individual Annual Reports.

2. Proposed changes to the SQMP, as recommended by the WMCs.

3. An assessment of the effectiveness of SQMP requirements to reduce storm water pollution. This assessment shall be comprised of a compilation of watershed-wide assessments conducted by each WMC. Assessments shall be based upon the specific record-keeping information requirement in each section of the permit, monitoring data, summaries of program effectiveness from each Permittee, and any other information related to program effectiveness. The program assessment shall include summaries of the following:

   a) Summary of common activities conducted by all Permittees;

   b) WMA BMP implementation;

   c) Identification of management measures proven to be effective and/or ineffective at reducing urban runoff pollutants and flow;

   d) Permittee level of effort, as indicated in their Individual Annual Report self evaluations (Attachment U-4, section VI); and

   e) Integrated summary of Monitoring Program results, including the identification of water quality improvements or degradation, and recommendations for improvements to the SQMP (including proposed BMPs) based on the results from the Monitoring Program.

4. Pursuant to Part 2 of this Order, after a determination by either a Permittee or the Regional Board that discharges are causing or contributing to an exceedance of an applicable Water Quality Standard, a Receiving Water Limitations (RWL) Compliance Report shall be attached to the subsequent Unified Annual Report. A status RWL Compliance Report shall be submitted every alternate year following the submittal of the first Report. The RWL Compliance Report shall include the following:

   a) A plan to comply with the RWL (Part 2 of this Order);

   b) Changes to the SQMP to eliminate water quality exceedances;

   c) Enhanced monitoring to demonstrate compliance; and

   d) Results of implementation.

   After all water quality exceedances have been abated, a RWL Compliance Report is not required.

B. Individual Annual Reports

Each Individual Annual Report shall document and describe all activities conducted by a Permittee to meet all requirements of this Order, during the completed annual reporting period. Individual Annual Reports shall use the attached form (Attachment U-4), or create another reporting format that includes all items on the attached form. Each Permittee shall complete the form in its entirety, except for those requirements applicable only to the Principal Permittee, as indicated on the form. Status of compliance with permit requirements including implementation dates for all time-specific deadlines should be included for each program area. If permit deadlines are not met, Permittees shall report the reasons why the requirement was not met and how the requirements will be met in the future, including projected implementation dates. A comparison of program implementation results to performance standards established in this Order and in the SQMP shall be included for each program area.

C. Monitoring Program Management

The Principal Permittee shall submit a Storm Water Monitoring Report (Monitoring Report) on August 15, 2002, and annually on August 15, thereafter. The Monitoring Report to be submitted on August 15, 2002 shall include the results of monitoring from July 1, 2001 through June 30, 2002. Each Monitoring Report shall include:

1. Status of implementation of the Monitoring Program.

2. Data, results, methods of evaluating the data, graphical summaries of the data, and an explanation/discussion of the data for each component of the monitoring program, including any specific reporting requirements included in Section II. Monitoring Program.

3. An analysis of the findings of each Monitoring Program component. The analysis shall identify and prioritize water quality problems. Based on the identification and prioritization of water quality problems, the analysis shall identify potential sources of the problems, and recommend future

monitoring and BMP implementation measures for identifying and addressing the sources. The analysis shall also include an evaluation of the effectiveness of existing control measures.

4. Identification and analysis of any long-term trends in storm water or receiving water quality.

5. An estimation of total pollutant loads due to storm water/urban runoff for each mass emission station.

6. A comparison to the applicable Water Quality Standards for each component of the Monitoring Program. The lowest applicable standard from the Basin Plan, the Ocean Plan, or the CTR shall be used for comparison. Constituents that exceed applicable Water Quality Standards shall be highlighted. When data indicate that discharges are causing or contributing to exceedances of applicable Water Quality Standards, a discussion of possible pollutant sources shall be included in the Monitoring Report and a RWL Compliance Report (Section I.A.4) shall be submitted with the subsequent Unified Annual Report.

7. For each monitoring component, maps of all monitoring station locations and descriptions of each location.

8. All Monitoring Reports shall be submitted in both electronic and paper formats.

D. Integrated Receiving Water Impacts Report

The Principal Permittee shall, not later than August 15, 2005, prepare and submit an Integrated Receiving Water Impacts Report, which may also serve as the fourth-year Monitoring Report. The Report shall include, but not be limited to, a comprehensive analysis of the results of the data from each component of the Monitoring Program, and other pertinent studies available, and feasible environmental indicators. It should also include a budget summary for each monitoring requirement and recommendations on future monitoring requirements. This report will be an integral part of the next ROWD.

E. Certification

All applications, reports, or information submitted to the Regional Board shall be signed and certified pursuant to US EPA regulations at 40 CFR 122.41 (k). Each report shall contain the following completed declaration:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted.

Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for

submitting false information, including the possibility, of a fine and imprisonment for knowing violations.

Executed on the ___ day of _____ , 20_,

at _____.

(Signature)_____(Title)_____";

Permittee submittals to the Principal Permittee shall also be signed and certified pursuant to USEPA regulations 40 CFR 122.41 (k).

The Principal Permittee shall submit the original of each Unified Annual Report to:

INFORMATION TECHNOLOGY
CALIFORNIA REGIONAL WATER QUALITY
CONTROL BOARD - LOS ANGELES REGION
320 W. 4TH STREET, SUITE 200
LOS ANGELES, CA 90013

A copy of the Unified Annual Report shall also be mailed to:

REGIONAL ADMINISTRATOR
ENVIRONMENTAL PROTECTION AGENCY
REGION 9
75 Hawthorne Street
San Francisco, CA 94105

II. **Monitoring Program**

The primary objectives of the Monitoring Program include, but are not limited to:

- Assessing compliance with this Order;
- Measuring and improving the effectiveness of the SQMPs;
- Assessing the chemical, physical, and biological impacts of receiving waters resulting from urban runoff;
- Characterization of storm water discharges;
- Identifying sources of pollutants; and
- Assessing the overall health and evaluating long-term trends in receiving water quality.

Ultimately, the results of the monitoring requirements outlined below should be used to refine the SQMP for the reduction of pollutant loadings and the protection and enhancement of the beneficial uses of the receiving waters in Los Angeles County.

The Principal Permittee and Permittees shall implement the Monitoring Program as follows:

CORE MONITORING

A. Mass Emissions

The Principal Permittee shall monitor mass emissions to accomplish the following objectives:

- Estimate the mass emissions from the MS4;
- Assess trends in the mass emissions over time; and
- Determine if the MS4 is contributing to exceedances of Water Quality Standards by comparing results to applicable standards in the Basin Plan, the Ocean Plan, or the CTR, and with emissions from other dischargers.

1. The Principal Permittee shall monitor mass emissions from the following seven mass emission stations: Ballona Creek, Malibu Creek, Los Angeles River, San Gabriel River, Coyote Creek, Dominguez Channel, and the Santa Clara River. The Principal Permittee shall monitor the first storm event and a minimum of 2 additional storm events for each season. A minimum of two dry weather samples per year at each mass emission station shall also be analyzed. Sampling at all stations shall begin no later than February 1, 2002, except for sampling in the Santa Clara River, which will begin no later than October 15, 2002.

2. All storms events, in addition to those required above, that result in at least 0.25 inches of rainfall shall be sampled and analyzed for TSS. Results shall be used to assess the variability of storm water constituents and provide a more accurate estimate of mass emissions (pollutant correlation with TSS). This requirement does not apply to manual sampling stations.

3. Samples for mass emission monitoring may be taken with the same type of automatic sampler used under Order 96-054. Grab samples shall be taken for pathogen indicators and oil and grease. The samplers shall be set to monitor storms that produce 0.25 inches or greater of rainfall.

Samples taken at mass emission stations during the first storm event of the wet season shall be analyzed for all constituents listed in Attachment U-1.

4. Manual samples shall be collected from mass emission stations where it is not feasible to install an automatic sampler (Santa Clara River). Manual samples shall be flow-weighted composites, collected during the first 3 hours, or for the duration of the storm if it is less than 3 hours. A minimum of 3 sample aliquots, separated by a minimum of 15 minutes, shall be taken within each hour of discharge[1], unless the Regional Board Executive Officer approves an alternate protocol.

5. Samples from mass emission stations shall be analyzed for all constituents listed in Attachment U-1. If a constituent is not detected at the method detection limit for its respective test method listed in Attachment U-1 in more than 75 percent of the first 48 sampling events, it need not be further analyzed unless the observed occurrences show concentrations greater than state water quality standards. The Principal Permittee will also conduct annual confirmation sampling for non-detected constituents during the first storm of the wet season every year at each station.

6. The Principal Permittee shall perform an annual analysis, to be included in the Monitoring Report, of the correlation between pollutants of concern (including but not limited to metals and PAHs) and TSS loadings for the sampling events that are analyzed for the complete list of constituents.

B. Water Column Toxicity Monitoring

The Principal Permittee shall analyze mass emission samples for toxicity to evaluate the extent and causes of toxicity in receiving waters and to modify and utilize the SQMP to implement practices that eliminate or reduce sources of toxicity in storm water.

1. The Principal Permittee shall analyze samples from two storm events (including the first storm of each year) and two dry weather events from each mass emission station for toxicity every year. A minimum of one freshwater and one marine species shall be used for toxicity testing for each station event. Specifically, *Ceriodaphnia dubia* (water flea) 7-day survival/reproduction and *Strongylocentrotus purpuratus* (sea urchin) fertilization tests shall be used. These tests should include a dilution series (0.5x steps) that ranges from the undiluted sample (or the highest concentration that can be tested within the limitations of the test methods or sample type) to less than or equal to 6% sample.

2. Toxicity Identification Evaluations (TIE)

The Principal Permittee shall begin a Phase I TIE immediately on all samples that are substantially toxic (greater than or equal to 1 Toxic Unit)

[1] Required in 40 CFR 122.21(g)(7)(ii), and described in NPDES Storm Water Sampling Guidance Document EPA 833-B-92-001. Time-weighted samples may be appropriate if flow is measured during sampling.

to either test species.[2] If a sample is substantially toxic to both species, a TIE shall be performed for both species. The Phase I TIE shall include the following treatments and corresponding blanks:

a) Baseline toxicity;

b) Particle removal by centrifugation;

c) Solid phase extraction of the centrifuged sample using C18 media;

d) Complexation of metals using ethylenediaminetetraacetic acid (EDTA) addition to the raw sample;

e) Neutralization of oxidants/metals using sodium thiosulfate addition to the raw sample; and

f) Inhibition of organo-phosphate (OP) pesticide activation using piperonyl butoxide addition to the raw sample (crustacean toxicity tests only).

3. Toxicity Reduction Evaluations (TRE)

a) When the same pollutant or class of pollutants is identified through the TIE process as causing at least 50% of the toxic responses in at least 3 samples at a sampling location, a TRE shall be performed for that identified toxic pollutant. TRE development shall be performed by a neutral third party (retained by the Principal Permittee), with input from Permittees and Regional Board staff. The TRE shall include all reasonable steps to identify the source(s) of toxicity and discuss appropriate BMPs to eliminate the causes of toxicity. Once the source of toxicity and appropriate BMPs are identified, the Principal Permittee shall submit the TRE to the Regional Board Executive Officer for approval. At a minimum, it shall include a discussion of the following items:

(1) The potential sources of pollutant(s) causing toxicity;

(2) A list of municipalities that may have jurisdiction over sources of pollutant(s) causing toxicity;

(3) Recommended BMPs to reduce the pollutant(s) causing toxicity;

(4) Proposed changes to the SQMP to reduce the pollutant(s) causing toxicity; and

(5) Suggested follow-up monitoring to demonstrate that toxicity has been removed.

[2] Substantial toxicity means the amount of toxicity necessary to successfully conduct a Phase I TIE. Toxic Units are calculated by dividing 100 by the calculated median test response value (e.g., LC50 or EC50). For example, a LC50 of 50% sample equals 2 Toxic Units. Ceriodaphnia TIEs require at least 50% mortality in undiluted sample (1 Toxic Unit) at any time during the 7-day duration of the initial chronic bioassay (SCCWRP).

b) Since the Phase I TIEs may only identify a broad category of toxicants (e.g., nonpolar organics), additional TIE analyses may be required in order to identify or confirm the identity of the pollutants causing toxicity before the TRE can be completed.

c) If TRE implementation for a specific pollutant coincides with TMDL implementation for that pollutant, the efforts may be coordinated.

d) Upon approval by the Regional Board Executive Officer, the Permittee(s) having jurisdiction over sources causing or contributing to toxicity shall implement the recommended BMPs and take all reasonable steps necessary to eliminate toxicity.

e) The Principal Permittee shall be responsible for the development of a maximum of two TREs per year. If applicable, the Principal Permittee may use the same TRE for the same toxic pollutant or pollutant class in different watersheds. The TRE process shall be coordinated with TMDL development and implementation (ie. If a TMDL for zinc is being implemented when a TRE for zinc is required, the efforts shall be coordinated to avoid overlap).

f) The Principal Permittee shall report on the development, implementation, and results for each TRE in the annual Monitoring Report, beginning the year following the identification of each pollutant or pollutant class causing toxicity.

C. Tributary Monitoring

The Principal Permittee shall monitor tributaries to identify sub-watersheds where storm water discharges are causing or contributing to exceedances of Water Quality Standards, and to prioritize drainage and sub-drainage areas that need management actions.

1. The Principal Permittee shall develop and implement a watershed-based tributary monitoring program, in which a minimum of six tributaries per year will be monitored, based on the schedule described below:

a) Monitoring station locations will be rotated so that a minimum total of six tributaries will be monitored per year. Each tributary shall be monitored for a minimum period of one year. If no exceedances of applicable water quality standards occur during one year of monitoring at a single tributary station, the Principal Permittee may move that monitoring station to another tributary, subject to the approval of the Regional Board Executive Officer. When an applicable water quality standard is exceeded in three out of four sampling events in a given monitoring year, the Permittees shall initiate a focused effort to identify sources of pollutants within that subwatershed.

b) Tributary monitoring shall begin in the Los Angeles River WMA, and shall be rotated to locations in other watersheds as monitoring at each station is complete, as approved by the Regional Board Executive Officer. The Principal Permittee shall include a

description and explanation of each proposed station location and a summary of the prior year's results of the tributary monitoring program in the annual Monitoring Report.

c) Monitoring shall begin at the following tributaries:

(1) Aliso Creek;
(2) Bull Creek;
(3) Arroyo Seco Channel;
(4) Rio Hondo Channel;
(5) Burbank West; and
(6) Verdugo Wash.

2. Tributary monitoring shall begin October 15, 2002.

3. The Principal Permittee shall monitor the first storm event and at least 3 additional storm events during each storm season. At least one dry weather flow per year will also be sampled at each station.

4. Samples shall be flow-weighted composites, collected during the first 3 hours or for the duration of the storm if it is less than 3 hours. Samples may be collected manually or automatically. A minimum of 3 sample aliquots, separated by a minimum of 15 minutes, shall be taken within each hour of discharge[3], unless the Regional Board Executive Officer approves an alternate protocol. Samples shall be taken just upstream of the tributary's confluence with the mainstem. Constituents to be analyzed for each location shall include the following:

a) pH, dissolved oxygen, temperature, conductivity, and total suspended solids;

b) Indicator bacteria;

c) All priority pollutants (Attachment U-1) for the first storm of the year;

d) All constituents for which the water body is impaired downstream of the monitoring station;[4]

e) All constituents that caused toxicity or exceeded any applicable water quality criteria at the associated mass emission station the previous year (these constituents shall be listed in each Monitoring Report); and

f) Flow (flow may be estimated using EPA methods[5] at sites where flow measurement devices are not in place).

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[3] Required in 40 CFR 122.21(g)(7)(ii), and described in NPDES Storm Water Sampling Guidance Document EPA 833-B-92-001. Time-weighted samples may be appropriate if flow is measured during sampling.

[4] The 1998 California 303(d) List and TMDL Priority Schedule lists pollutants for which each water body is impaired, www.swrcb.ca.gov/tmdl/docs/303d98.pdf#reg4

[5] NPDES Storm Water Sampling Guidance Document, EPA 833-B-92-001, July 1992

D. Shoreline Monitoring

The City of Los Angeles shall monitor shoreline stations to evaluate the impacts to coastal receiving waters and the loss of recreational beneficial uses resulting from storm water/urban runoff. This component shall be integrated and coordinated with similar monitoring programs in the region.

1. The City of Los Angeles shall monitor eighteen water quality sampling stations along the shoreline of the Pacific Ocean within the Santa Monica Bay to determine compliance with the California's bathing water standards for public beaches and ocean water-contact sport areas[6], and the related impacts of discharges from storm drains and piers. The shoreline monitoring program shall be implemented as follows:

   a) The eighteen established shoreline water quality stations listed in Attachment U-2 shall be monitored. Station locations may be modified based on recommendations from the Santa Monica Bay Restoration Project (SMBRP) and approval from the Regional Board Executive Officer;

   b) Three indicator groups shall be tested for using either membrane filtration, multiple tube fermentation, or chromogenic substrate test kits. Monitoring shall include the following types and frequencies of sampling:

Parameter	Units	Sample Frequency
Total coliforms	CFU or MPN/100 ml	6/week (Mon-Sat)[7]
Fecal coliform[8]	CFU or MPN/100 ml	6/week (Mon-Sat)[5]
Enterococcus	CFU or MPN/100 ml	6/week (Mon-Sat)[5]

   c) Shoreline monitoring shall occur during daylight hours. Samples may be omitted in the event of hazardous weather;

   d) Shoreline monitoring frequencies at certain stations may be modified based on the use of the adjacent beaches and their proximity to storm drains, as recommended by the SMBRP's Technical Advisory Committee and the Los Angeles County Department of Health Services (LA County DHS).

   e) Data collected shall be transmitted daily to the LA County DHS. The City of Los Angeles will annually assess the data and submit it to the Principal Permittee for inclusion in the Monitoring Report;

   f) When exceedances of public health standards for bacteria occur, the LA County DHS shall take the appropriate action, as described in the Regulations for Public Beaches and Ocean Water-Contact Sports Areas.[9]

[6] California Department of Health Services, Health and Safety Code §115880 (Assembly Bill 411, Statutes of 1997, Chapter 765

[7] Samples will be collected on Sundays preceding Monday holidays

[8] *Escherichia Coli (E. Coli)* may be substituted for Fecal Coliform if chromogenic substrate test kits are used

[9] Regulations for Public Beaches and Ocean Water-Contact Sports Areas, Title 17 CCR Group 10, developed in response to Health and Safety Code §115880

g) The City of Los Angeles will continue to conduct all monitoring, testing, and data transferring actions as part of the SMBRP regional program for the Santa Monica Bay.

E. Trash Monitoring

To assess the quantities of trash in receiving waters after storm events and to identify areas impaired for trash, the Principal Permittee shall conduct visual observations of trash and take a minimum of one photograph at each mass emission station after the first storm event and 3 additional storm events per year.

1. The Principal Permittee and Permittees in the Los Angeles River and Ballona Creek WMAs (listed in Permit Attachment A) shall develop and implement a trash monitoring program for the Los Angeles River and Ballona Creek watersheds no later than October 15, 2002. The monitoring program and schedule shall be consistent with and pursuant to CWC §13267 "Request for Trash Monitoring", issued by the Regional Board on December 21, 2001. For the first two years of monitoring, either of the following formats for monitoring plans may be used:

   a) For each watershed, the group of Permittees in that watershed will capture and quantify trash from an area no less than 10% of the total land area over which they have jurisdiction. The monitoring areas shall represent 10% of every land use the group of Permittees has jurisdiction over. If storm drain configuration versus land use make the representation of 10% of a land use infeasible, the Permittees can choose areas that represent their land uses as accurately as possible, as long as the extent of the surface being monitored represents 10%. This monitoring shall use full capture devices. During wet weather, all sampling devices will be emptied within 72 hours of every rain event of 0.25 inch or greater. During dry weather, sampling devices will be emptied and analyzed every three months in the absence of precipitation.

   b) For each watershed, the group of Permittees in that watershed will sample a minimum of ten representative sites for each land use monitored. For each sampling site, a minimum of five catch basins will be fitted with inserts, for a total of not less than 50 catch basin inserts per land use monitored. The existing litter removal practices that the cities implement will remain in place, so that monitoring will evaluate how much trash is washed into the system under current practices. A structural full capture device shall be installed downstream of at least one sampling site for each land use monitored. For this sampling site, all of the catch basins that are upstream of the full capture-monitoring device must be fitted with inserts. This configuration will provide information on the relative effectiveness of the catch basin inserts as opposed to the full capture systems in varying land uses and under varying weather conditions. During wet weather, all sampling devices will be emptied within 72 hours of every rain event of 0.25 inch or greater. During dry weather, sampling

devices will be emptied and analyzed every three months in the absence of precipitation.

2. Permittees shall report data in a single unit of measure that is reproducible and measures the amount of trash, irrespective of water content (e.g. compacted volume based on a standardized compaction rate, or dry weight). Permittees may select the unit, but all Permittees must use the same unit of measure.

3. Following the first two years of data collection, Permittees shall conduct compliance monitoring, which involves calculating trash loading as a running three-year average (estimated total load discharged from 2003-2006, divided by three).

4. All trash collected shall be disposed of in compliance with all applicable State, federal, and local regulations.

REGIONAL MONITORING

The Principal Permittee shall participate on regional monitoring committees to help establish on-going regional programs that address public health concerns, monitor trends in natural resources and nearshore habitats, and assess regional impacts from all pollutant sources. Regional Monitoring participation shall include, but not necessarily be limited to, the efforts described below.

F. Estuary Sampling

The Southern California Coastal Waters Research Project (SCCWRP), in conjunction with the USEPA, the State Board, three Regional Boards, and participating dischargers, has organized an effort to implement a regional monitoring program for the southern California bight. Previous studies (in 1994 and 1998) included microbiology, water quality, sediment chemistry, sediment toxicity testing, benthic infauna, demersal fish, and bioaccumulation. A similar bight-wide monitoring effort is planned to be conducted in 2003. The Principal Permittee shall participate on the Steering Committee for this bight-wide monitoring project, and complete the estuary sampling requirement described below in parallel with this effort.

In addition to participation in the Bight-wide study, the goal of this requirement is to sample estuaries for sediment chemistry, sediment toxicity, and benthic macroinvertibrate community to determine the spatial extent of sediment fate from storm water, and the magnitude of its effects. A map of each estuary which depicts the impacted areas shall be produced. The maps shall provide the information necessary to conduct effective sediment monitoring to determine trends and accumulation, as a future permit requirement.

1. The Principal Permittee shall sample a maximum of 25 sites in each estuary/mouth (Ballona Creek, Malibu Creek, Los Angeles River, San Gabriel River, and Dominguez Channel) once during the permit term. Sediment samples shall be taken at each station by means of a $0.1m^2$ ($1.1 ft^2$) modified Van Veen sediment grab sampler.

2. The Principal Permittee shall also sample a total of 25 sites outside of the direct outfalls to assess cumulative effects.

3. All samples shall be analyzed for the following:
   a) Sediment Chemistry (priority pollutants)
   b) Total Organic Carbon (TOC)
   c) Grain size
   d) Sediment Toxicity
      (1) Amphipod survival bioassays shall be conducted on each sediment sample. Toxicity shall be indicated by an amphipod survival rate of 70% or less in a single test.
      (2) Phase I TIEs of interstitial water, using the amphipod test species, shall be conducted for samples from stations identified to be toxic in a single amphipod survival bioassay.
   e) Benthic Macroinvertibrates
      (1) All sediment samples shall be passed through a 1.0mm (0.039 in) screen to retrieve the benthic organisms. Benthic epifauna and infauna shall be analyzed to determine the structure of the benthic community.
      (2) The Principal Permittee shall identify all organisms to lowest possible taxon.
      (3) The Principal Permittee shall determine the Total Biomass of:
         (i) Mollusks;
         (ii) Echinoderms;
         (iii) Annelids/polychaetes
         (iv) Crustaceans; and
         (v) All other macroinvertebrates.
      (4) The Principal Permittee shall determine the community structure analysis, including wet weight of each taxonomic group (listed above), number of species, number of individuals per species, total numerical abundance, species abundance per grab, species richness, species diversity, species evenness and dominance, similarity analysis, cluster analyses, or other appropriate multivariate statistical techniques approved by the Regional Board Executive Officer, and the Infaunal Index[10].

4. The Principal Permittee shall create a map of each estuary depicting degraded areas and the spatial distribution of sediment from storm water. In the Integrated Monitoring Report, the Principal Permittee shall suggest appropriate locations for regular sediment monitoring, based on the results of this study.

[10] Benthic Response Index for Assessing Infaunal Communities on the Mainland Shelf of Southern California, the SCCWRP

G. Bioassessment

The Principal Permittee shall continue participation in the Stormwater Monitoring Coalition (SMC), as well as coordinate with the Surface Water Ambient Monitoring Program (SWAMP) being developed by the State Board to complete the bioassessment requirement. The Regional Board anticipates that the SMC will organize an effort to evaluate the biological index approach for southern California and to design a research project for developing an Index of Biological Integrity (IBI) for this region. The SWAMP has begun work on a statewide effort to determine how to identify reference sites with the goal of IBI development.

The purpose of the bioassessment requirement is to detect biological trends in receiving waters and to collect data for the development of an IBI for southern California. The ultimate goals of bioassessment are to assess the biological integrity of receiving waters, to detect biological responses to pollution, and to identify probable causes of impairment not detected by chemical and physical water quality analysis.

1. The Principal Permittee shall coordinate with the SMC and SWAMP to identify the most appropriate locations for bioassessment stations within Los Angeles County.

2. Station selection shall be complete within one year from the date this Order is adopted, and sampling shall begin no later than October of 2003.

3. The Principal Permittee shall monitor a minimum of 20 bioassessment stations in October of each year, beginning in 2003. A minimum of three replicate samples shall be collected at each station during each sampling event.

4. A professional environmental laboratory shall perform all laboratory, quality assurance, and analytical procedures. The Principal Permittee may collect samples when properly trained in CSBP methods. The Principal Permittee shall develop Standard Operation Procedures (SOPs) for the Bioassessment Monitoring Program that describes all procedures and responsible parties. The SOPs must contain step-by-step field, laboratory and data entry procedures, as well as, related QA/QC procedures. There must also be specific information about the bioassessment program including: assessment program description, its organization and the responsibilities of all its personnel; assessment project description and objectives; qualifications of all personnel; and the type of training each member has received. A copy of the SOPs shall be available to the Regional Board Executive Officer upon request.

5. Field sampling must conform to the SOP established for the California Stream Bioassessment Procedure (CSBP) when appropriate. For sampling of aquatic environments where the CSBP is not appropriate (i.e., an estuary or unwadable stream), California Department of Fish and Game and the Regional Board Executive Officer shall be consulted in order to determine the most appropriate protocol to be implemented. Field crews shall be trained on aspects of the protocol and appropriate safety issues. All field data and sample Chain of Custody (COC) forms must be examined for completion and gross errors by the field crews, the

receiving laboratory, and the Principal Permittee. These forms shall be available to California Department of Fish and Game or the Regional Board Executive Officer upon request. Field inspections should be planned with random visits and should be performed by the Principal Permittee, if properly trained in CSBP methods, or an independent auditor. These visits should report on all aspects of the field procedure with corrective action occurring immediately.

6. Taxonomic identification laboratories process the biological samples that usually consist of subsampling organisms, enumerating and identifying taxonomic groups and entering the information into an electronic format. There should be intra-laboratory QA/QC results for subsampling, taxonomic validation and corrective actions. Biological laboratories should also maintain reference collections, vouchered specimens (the Principal Permittee can request return of their sample voucher collections) and remnant collections. Biological laboratories shall participate in an inter-laboratory (external) taxonomic validation program at a recommended level of 20% for the first two years of the program. If there are no substantial QA/QC problems, the level of external validation may be decreased to 10% in year three upon approval from the Regional Board. External QA/QC should be arranged through the California Department of Fish and Game's Aquatic Bioassessment Laboratory in Rancho Cordova.

7. Sampling, laboratory, quality assurance, and analysis procedures shall follow the standardized "Non-point Source Bioassessment Sampling Procedures" for professional bioassessment as set forth in the California Department of Fish and Game California Stream Bioassessment Procedure (CSBP)[11]. The following results and information shall be included in the annual Monitoring Report:

   a) All physical, chemical and biological data collected in the assessment;

   b) Photographs and GPS locations of all stations;

   c) Documentation of quality assurance and control procedures;

   d) Analysis that shall include calculation of the metrics used in the CSBP;

   e) Comparison of mean biological and habitat assessment metric values between stations and year-to-year trends;

   f) Electronic data formatted to the California Department of Fish and Game Aquatic Bioassessment Laboratory for inclusion in the Statewide Access Bioassessment Database; and

   g) Copies of all QA/AC documents from laboratories.

[11] California Stream Bioassessment Procedure (Protocol Brief for Biological and Physical/Habitat Assessment in Wadeable Streams), California Department of Fish and Game - Aquatic Bioassessment Laboratory, May 1999. Located at www.dfg.ca.gov/cabw/protocols.html.

SPECIAL STUDIES

H. New Development Impacts Study in the Santa Clara Watershed

The Principal Permittee, with support from the City of Santa Clarita, shall monitor tributaries in the Santa Clara watershed to determine impacts from new development and to compare storm water quality between subwatersheds with and without SUSMPs.

1. The Principal Permittee, in cooperation with the City of Santa Clarita, shall select one station that is representative of a subwatershed in which the majority of development has occurred without SUSMP implementation, and one station (SUSMP station) in a subwatershed in which the majority of the development has/will include SUSMP implementation. Other inputs to runoff, such as septic systems, in the two subwatersheds should be similar.

2. The Principal Permittee shall coordinate with the City of Santa Clarita and the Regional Board to develop a proposed study design, including a description of the drainage areas to be monitored and sampling locations, no later than August 1, 2002. If appropriate, this study may be conducted in conjunction with the Peak Discharge Impact Study, described below.

3. The Principal Permittee shall monitor the first storm event and at least 2 additional storm events during each storm season. At least one dry weather event per year will also be sampled at each station.

4. Samples shall be flow-weighted composites, collected during the first 3 hours, or for the duration of the storm if it is less than 3 hours. Samples may be collected manually or automatically. A minimum of 3 sample aliquots, separated by a minimum of 15 minutes, shall be taken within each hour of discharge[12], unless the Regional Board Executive Officer approves alternate protocol. Constituents to be analyzed for each location shall include the following:

   a) pH, dissolved oxygen, temperature, conductivity, chloride, nitrogen, and TSS;

   b) Metals: aluminum, arsenic, beryllium, cadmium, chromium, copper, iron, lead, mercury, nickel, selenium, silver, and zinc;

   c) Pathogen Indicators (Coliform);

   d) PAHs; and

   e) Flow (flow may be estimated using EPA methods at sites where flow measurement devices are not in place).

5. The Principal Permittee shall submit an analysis of the data, including a description of each subwatershed, year-to-year changes compared to the amount of development that occurred in each, comparisons between

[12] Required in 40 CFR 122.21(g)(7)(ii), and described in NPDES Storm Water Sampling Guidance Document EPA 833-B-92-001. Time-weighted samples may be appropriate if flow is measured during sampling.

stations, and an analysis of SUSMP effectiveness, with the fourth year Monitoring Report.

I. Peak Discharge Impact Study

The Principal Permittee shall conduct a study to evaluate peak flow control and to determine numeric criteria to prevent or minimize erosion of natural stream channels and banks caused by urbanization.[13] The Principal Permittee may partner with the Ventura County Flood Control District to expand the stream erosion study to the Santa Clara River watershed. The study shall begin no later than August 1, 2002.

J. BMP Effectiveness Study

The Principal Permittee shall conduct or participate in studies to evaluate the effectiveness of structural and treatment control BMPs. The objective of this study shall include the following:

- Monitor the reduction of pollutants of concern in storm water (including, but not limited to: trash, suspended sediment, pathogen indicators, nutrients, heavy metals, and oil and grease) from five or more different types of BMPs that have been properly installed within the year preceding monitoring. Monitoring shall be continued until the effectiveness of the BMP can be determined.
- Evaluate the requirements, feasibility and cost of maintenance for each BMP.
- Develop recommendations for appropriate BMPs for the reduction of pollutants of concern in storm water in Los Angeles County.

The Principal Permittee may participate in the SMBRP's, "Performance Evaluation of Structural BMPs for Storm Water Pollution Control in the Santa Monica Bay Watershed" study to meet this requirement. Participation includes collaboration and fund contribution to cover the scope of the proposed study.

K. Standard Monitoring Provisions

All monitoring activities shall meet the following requirements:

1. Monitoring and Records [40 CFR 122.41(j)(1)]

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

2. Monitoring and Records [40 CFR 122.41(j)(2)] [CWC §13383(a)]

   The Principal Permittee and Permittees shall 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

[13] Permit, Part 4.D.2 (Development Planning Program) requires the development of numerical criteria for peak flow control in natural drainage systems.

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 shall be extended during the course of any unresolved litigation regarding this discharge.

3. Monitoring and Records [40 CFR 122.21(j)(3)]

   Records of monitoring information shall include:

   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.

4. Monitoring and Records [40 CFR 122.21(j)(4)]

   All sampling, sample preservation, and analyses must be conducted according to test procedures under 40 CFR Part 136, unless other test procedures have been specified in this Order.

5. Monitoring and Records [40 CFR 122.21(j)(5)]

   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 shall, 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.

6. All chemical, bacteriological, and toxicity analyses shall be conducted at a laboratory certified for such analyses by an appropriate governmental regulatory agency.

7. For priority toxic pollutants that are identified in the CTR (65 *Fed. Reg.* 31682), the MLs published in Appendix 4 of the SIP shall be used for all analyses, unless otherwise specified. The MLs from the SIP are incorporated into the Constituent List (Attachment U-1).

8. The Monitoring Report shall specify the analytical method used, the MDL and the ML for each pollutant. For the purpose of reporting compliance with numerical limitations, performance goals, and receiving water limitations, analytical data shall be reported with one of the following methods, as appropriate:

a) An actual numerical value for sample results greater than or equal to the ML;

b) "Not-detected (ND)" for sample results less than the laboratory's MDL with the MDL indicated for the analytical method used; or

c) "Detected, but Not Quantified (DNQ)" if results are greater than or equal to the laboratory's MDL but less than the ML. The estimated chemical concentration of the sample shall also be reported. This is the concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

9. For priority toxic pollutants, if the Principal Permittee or Permittee 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 Principal Permittee must submit documentation from the laboratory to the Regional Board Executive Officer for approval prior to raising the ML for any constituent.

10. Monitoring Reports [40 CFR 122.41(l)(4)(ii)]

If the Principal Permittee 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 shall be included in the calculation and reporting of the data submitted in the annual Monitoring Reports.

11. Monitoring Reports [40 CFR 122.41(l)(4)(iii)]

Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this Order.

12. If no flow occurred during the reporting period, the Monitoring Report shall so state.

13. The Regional Board Executive Officer or the Regional Board, consistent with 40 CFR 122.41, may approve changes to the Monitoring Program, after providing the opportunity for public comment, either:

a) By petition of the Principal Permittee or by petition of interested parties after the submittal of the annual Monitoring Report. Such petition shall be filed not later than 60 days after the Monitoring Report submittal date, or

b) As deemed necessary by the Regional Board Executive Officer following notice to the Principal Permittee.

Ordered by:

Dennis A. Dickerson
Executive Officer
Date: December 13, 2001