

1.1 MONITORING PROGRAM OBJECTIVES

The major objectives of the Monitoring Program outlined in the Municipal Stormwater Permit are to:

- Assess compliance with the Los Angeles County Municipal Stormwater Permit CAS004001.
- Measure and improve the effectiveness of the Stormwater Quality Management Plans (SQMPs).
- Assess the chemical, physical, and biological impacts of receiving waters resulting from urban runoff.
- Characterize stormwater discharges.
- Identify sources of pollutants.
- Assess the overall health and evaluate long-term trends in receiving water quality.

The Monitoring Program was developed to address these objectives, and has several elements:

- Core monitoring, which includes mass emission monitoring, water column toxicity monitoring, tributary monitoring, shoreline monitoring, and trash monitoring.
- Regional monitoring, which includes estuary sampling and bioassessment; and three special studies, which include the new development impacts study in the Santa Clara Watershed, the peak discharge impact study, and the Best Management Practice (BMP) effectiveness study.

1.2 MONITORING PROGRAM STATUS

The 1994-95 storm season was the first for which stormwater monitoring was required under the 1990 Los Angeles County National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit (CA0061654). Automated and manual samplings were conducted to characterize stormwater quality and quantity during the 1994-95 and 1995-96 seasons.

The 1996-97 season was the first storm season in which stormwater monitoring was conducted under the 1996 Municipal Stormwater Permit (CAS614001). Under the 1996 Municipal Stormwater Permit, the scope of the Monitoring Program was expanded to incorporate further data collection through the mass emission, land use, and critical source monitoring programs, and new pilot studies, such as Wide Channel and Low Flow analyses.

Under the 2001 Municipal Stormwater Permit (CAS004001) adopted on December 13, 2001, the Monitoring Program eliminated land use and critical source elements and focused on core monitoring, regional monitoring, and three special studies. Due to varying compliance dates for each element, only mass emission, water column toxicity, and shoreline monitoring under the core Monitoring Program were addressed in the 2001-02 Monitoring Report.

The 2002-03, 2003-04 and 2005-06 Monitoring Reports address:

- Core Monitoring Program: mass emission monitoring, tributary monitoring, water column toxicity monitoring, shoreline monitoring, and trash monitoring.
- Regional Monitoring Program: estuary sampling and bioassessment and the progress of the three special studies.

An Integrated Receiving Water Impacts Report was created in 2004-05 that also incorporated results, analysis, and progress of the above-mentioned Monitoring Programs. That report also looked at trends for the period 1994-2005. Annual Stormwater Monitoring Reports can be found on our website at: http://dpw.lacounty.gov/wmd/NPDES/report_directory.cfm.

1.2.1 Core Monitoring

1.2.1.1 Mass Emission Monitoring

The objectives of mass emission monitoring are:

- Estimate the mass emissions from the Municipal Separate Storm Sewer System (MS4).
- Assess trends in the mass emissions over time.
- Determine if the MS4 is contributing to exceedances of water quality standards.

These objectives are achieved by comparing results to applicable standards in the Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, the Ocean Plan, or the CTR, and with emissions from other discharges.

Seven mass emission monitoring sites, Ballona Creek, Malibu Creek, Los Angeles River, Coyote Creek, San Gabriel River, Dominguez Channel, and Santa Clara River, were utilized to achieve the objectives outlined above during the 2006-07 reporting period. Mass emission stations capture runoff from major County watersheds that generally have heterogeneous land use. All mass emission sites, except the Santa Clara River site, are equipped with automated samplers with integral flow meters for collecting flow-composite samples.

Sampling at the Santa Clara River station began during the 2002-03 storm season. Although sample collections at the Santa Clara River station are performed manually, composite samples are achieved using the real-time flow measurements by a Public Works Water Resources Division stream gage near that site.

A minimum of three storm events and two dry-weather events were sampled at each mass emission site. Total Suspended Solids were collected from five storm events at the Santa Clara River mass emission site; six storm events at Malibu Creek, Dominguez Channel, and Los Angeles River mass emission sites and seven storm events at the Ballona Creek, Coyote Creek and San Gabriel River mass emission sites.

1.2.1.2 Water Column Toxicity Monitoring

The objectives of water column toxicity monitoring are 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 stormwater. Composite samples were taken at the mass emission monitoring stations. Two storm events and two dry-weather events were sampled at each mass emission site during the 2006-07 season. Due to the sporadic nature of the storms this past season and the ease of grab sampling, one extra wet-weather sample was taken at the San Gabriel River and Santa Clara River mass emission stations.

1.2.1.3 Tributary Monitoring

The objectives of tributary monitoring are to identify subwatersheds where stormwater discharges are causing or contributing to exceedances of water quality standards, and to prioritize drainage and subdrainage areas that need management actions.

Sampling for the 2006-07 season was conducted at six tributary monitoring stations in the San Gabriel River Watershed. The tributaries monitored included Big Dalton\Walnut Creek, Puente Creek, Upper San Jose Creek, Maplewood Channel, North Fork Coyote Creek and SD 21 (Artesia-Norwalk Drain). Automatic flow weighted composite samples were taken from each tributary location. Grab samples were also taken at these locations. A minimum of four storm events and two dry events were sampled at each tributary monitoring site.

1.2.1.4 Shoreline Monitoring

The City of Los Angeles is required to monitor shoreline stations. The purpose is to evaluate the impacts to coastal receiving waters and the impacts to recreational beneficial uses resulting from stormwater/urban runoff. Also, the Municipal Stormwater Permit requires the City of Los Angeles to annually assess shoreline water quality data and submit it to the Principal Permittee for inclusion in the monitoring report. The City of Los Angeles' assessment will be included as Appendix D of this monitoring report as soon as their final changes and quality control checks are completed.

1.2.1.5 Trash Monitoring

The objectives of trash monitoring are to assess the quantities of trash in receiving waters after storm events and to identify areas impaired for trash. Visual observations of trash were made and a minimum of one photograph at each mass emission station was taken after four storm events, including the first storm event.

Additionally, a baseline trash monitoring program in Los Angeles River and Ballona Creek Watersheds was created. A minimum of 10 representative sites for each land-use monitored were sampled. On average, each sampling site contained a minimum of five catch basins fitted with inserts with a total of 256 inserts within the Los Angeles Watershed Management Area and 309 inserts within the Ballona Creek Watershed Management Area. A total of five structural full capture devices or Continuous Deflective System (CDS) units were installed. However, one of the CDS units was decommissioned at the end of the 2003-04 season due to operating issues. All of the upstream catch basins were fitted with inserts. Each insert and CDS unit was emptied within 72 hours of every rain event of 0.25 inches or greater, additionally being emptied every three months during dry weather. Results from implementation of the final portion of the contractual agreement for this program are presented in this report.

Permit required trash compliance monitoring for Ballona Creek Watershed is included in Appendix I. Los Angeles River Watershed is not reporting on trash compliance monitoring as its Trash TMDL is not legally in effect.

1.2.2 Regional Monitoring

Public Works, representing the Los Angeles County Flood Control District, is participating in regional monitoring programs. These programs address public health concerns, monitor trends in natural resources and near shore habitats, and assess regional impacts from stormwater pollutant sources. The regional programs include the following:

1.2.2.1 Estuary Sampling

Public Works is participating in the coastal ecology committee of the Bight 2003 project coordinated by SCCWRP, in compliance with Section II.F of the Monitoring and Reporting Program of the stormwater monitoring requirements. The two primary objectives of Bight 2003 are to estimate the extent and magnitude of ecological change in the SCB and to determine the mass balance of pollutants that currently reside within the SCB. Regional monitoring components include coastal ecology, shoreline microbiology, and water quality. This project has been conducted in collaboration with various organizations including regulators, wastewater and stormwater permittees, and citizen volunteers under the coordination of SCCWRP.

The goal of the Estuary Sampling program required under Section II.F is to supplement the regional monitoring of the SCB estuarine habitats by sampling estuaries for sediment chemistry, sediment toxicity, and benthic macro invertebrate diversity to

determine the spatial extent of sediment fate from stormwater, and the magnitudes of its effects. In the County, the estuaries being sampled are those of: Malibu Creek, Ballona Creek, Los Angeles River, San Gabriel River, and Dominguez Channel.

All reports pertinent to the Bight 2003 Project have been completed by SCCWRP and will be released on their website in the Summer 2007. Their website is www.sccwrp.org/regional/03bight/03docs.html.

1.2.2.2 Bioassessment

Bioassessments aid in evaluating a water body's qualitative integrity through the detection of biological responses and trends resulting from exposure to pollution within watersheds. An ultimate goal is to identify probable causes of impairment not detected by chemical and physical water quality analysis. Public Works performs stream bioassessments in the County in October every year as required in Section II.G of the Monitoring and Reporting Program of the Municipal Stormwater Monitoring Permit. Sampling sites are spread throughout each of the six major watersheds and are selected to represent the diverse environments of the Los Angeles region. Table 1-1 lists the sampling station locations and Figure 1-1 is a map showing the geographical location of the sampling stations.

The State's Surface Water Ambient Monitoring Program will take information gathered from the biological surveys in the County and combined it with data collected from surrounding counties to refine an index of biological indicators for the Southern California region. The final report for the most recent year of the Bioassessment Monitoring Program (2006) is included in Appendix H of this annual report.

1.2.3 Special Studies

Public Works is conducting the following special monitoring programs as required by the 2001 Municipal Stormwater Permit:

1.2.3.1 New Development Impacts Study in the Santa Clara Watershed

The objective of the New Development Impacts Study in the Santa Clara Watershed is to evaluate the effectiveness of the SUSMP BMP at reducing pollutants in stormwater runoff.

The Regional Board, in a letter dated March 7, 2003, allowed the County and the City of Santa Clarita to fulfill this permit requirement by simulating the expected improvements from implementation of SUSMP through a mathematical modeling. On November 13, 2003, we submitted a work plan to the Regional Board. The EPA's Storm Water Management Model was used to conduct a deterministic hydrological modeling coupled with a stochastic Monte Carlo approach for modeling stormwater runoff water quality.

A small watershed tributary to the Santa Clara River in the western side of the City of Santa Clarita was selected for monitoring and modeling. The 126-acre drainage area of this pre-SUSMP site includes a mix of residential and commercial land uses; therefore, meeting both the drainage area sizing and land-use criteria for the modeling project.

A monitoring station and rain gage were installed at the outlet of the watershed. The station included a flow meter and automatic sampler. The equipment was able to monitor remotely through a cell phone connection and hydrologic data was downloaded on a weekly basis.

The final report for this project will be forwarded as soon as quality control checks are completed, anticipated to be Fall 2007.

1.2.3.2 Peak Discharge Impact Study

This study was conducted to fulfill the requirement to develop numeric criteria for peak flow control by assessing the potential cause and effect relationships between urbanization in watersheds and stream erosion in the County.

The SCCWRP and Los Angeles County Flood Control District jointly conducted the study through a consultant contract. The study results were previously reported. An Executive Summary can be found in Appendix B of the 1994-2005 Integrated Receiving Water Impacts Report.

1.2.3.3 BMP Effectiveness Study

The Municipal Stormwater Permit requires a study of the effectiveness of various BMPs. Five different types of BMPs have been chosen for this study. These BMPs included:

- Five catch basin inserts connected in series with a hydrodynamic separator downstream of these inserts in the City of South Pasadena.
- Enhanced manhole in a Public Works maintenance yard, in the City of Los Angeles.
- Bioswale located in the City of Los Angeles inside a small public park.
- Treatment train consisting of a wet vault for oil and sediments separation followed by an infiltration trench inside a metal recycling facility in the City of Los Angeles.

Monitoring started during the 2004-05 season. Current activities included continued monitoring at the bioswale site in the City of Los Angeles and the catch basin insert and hydrodynamic separator device in the City of South Pasadena. Efforts also continued in the design and construction of flow measuring devices, installation of water samplers,

and development of monitoring plans for the metals filtration units at the Sun Valley Park Project. Due to technical issues, monitoring of that project has not yet begun. The selected BMPs will be evaluated for effectiveness of removing various pollutants from stormwater runoff.

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