

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 No. 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.

Ultimately, the results of the monitoring requirements should be used to refine the Stormwater Quality Monitoring Program (SQMP) for the reduction of pollutant loadings and the protection and enhancement of the beneficial uses of the receiving water in the County of Los Angeles. The Monitoring Program was developed to address these objectives, and has several elements:

- Core monitoring, which includes mass emission, water column toxicity, tributary, shoreline, 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 (No. 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 (No. 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 (No. 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, 2005-06, 2006-07, and 2007-08 Monitoring Reports address:

- Core Monitoring Program: mass emission, tributary, water column toxicity, shoreline, 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 by comparing results to applicable standards in the Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, (Basin Plan), or the California Toxics Rule (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 2007-08 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 primarily by using flow rate estimates obtained by monitoring staff following approved methods. When conditions allow, flow rates are obtained using 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 three storm events at the Santa Clara River mass emission site; ten storm events at San Gabriel River; eleven storm events at Ballona and Malibu Creeks; twelve storm events at Dominguez Channels, and thirteen storm events at Los Angeles River and Coyote Creek 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 2007-08 season.

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 2007-08 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 is included as Appendix D of this monitoring report.

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.

Permit required trash compliance monitoring for Ballona Creek and Los Angeles River Watersheds are included in Appendices I and J, respectively.

1.2.2 Regional Monitoring

The Los Angeles County Flood Control District (LACFCD) 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

The LACFCD participated 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 were to estimate the extent and magnitude of ecological change in the Southern California Bight (SCB) and to determine the mass balance of pollutants that currently reside within the SCB. Regional monitoring components included coastal ecology, shoreline microbiology, and water quality. This project was 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 was 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 sampled were 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 were 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. The LACFCD performs stream bioassessments in the County of Los Angeles 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 combine 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 (2007) is included in Appendix H.

1.2.3 Special Studies

The LACFCD 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 Standard Urban Stormwater Mitigation Plan (SUSMP) Best Management Practices (BMP) at reducing pollutants in stormwater runoff.

The Regional Board, in a letter dated March 7, 2003, allowed the LACFCD 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. The New Development Impact Study Report was completed and submitted to the Board on April 7, 2008.

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 Southern California Coastal Water Research Project (SCCWRP) and the LACFCD 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

Sampling of all BMPs in the BMP Effectiveness Study was completed in the 2006-07 season.