

## EXECUTIVE SUMMARY

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The Orange County Stormwater Program (the Program) is a cooperative municipal regulatory compliance initiative focused on the management of urban and stormwater runoff for the protection and enhancement of Orange County's creeks, rivers, streams, and coastal waters. The primary objective of the Program is to fulfill the commitment of the County of Orange, the Orange County Flood Control District and the cities of Orange County (collectively, the "Permittees"), to develop and implement a program that satisfies the requirements of area-wide municipal National Pollutant Discharge Elimination System (NPDES) permits (specifically, Regional Water Quality Control Board Orders R8-2009-0030 (Santa Ana Regional Board) and R9-2009-0002 (San Diego Regional Board), subsequently referred to as the Fourth Term Permits).

The purpose of this document is to comply with the requirement for an annual submittal of a progress report. This report discusses the Permittees' Fourth Term Permit compliance activities over the period July 1, 2011 to June 30, 2012, and includes a description of all activities that were conducted during the reporting period and an assessment of program effectiveness. These compliance activities include program development activities to address significant new permit requirements, notably the required integration of Low Impact Development (LID) and hydromodification control strategies into local land development regulation, and concurrent implementation of the programs established under the Third Term Permits and which continue to be required under the Fourth Term Permits, notably local regulation of existing development, public education and outreach and environmental monitoring.

Programmatic accomplishments in 2011-12 include:

- California Legislature recognition for the land development Technical Guidance Document for engineering excellence (**Section C-2.0**);
- Continuing development and implementation of the County Area Spill Containment (CASC) Program and CASC activation to address significant sewage spills (**Section C-3.0** and **Section C-10.0**);
- Coordination with Orange County Transportation Authority (OCTA) on development of a Structural BMP Prioritization and Analysis Tool (SBPAT) to support disbursement of Measure M2 funding for water quality projects. SBPAT is a GIS-based decision support tool that will be used to identify and prioritize potential structural BMP retrofit projects throughout Orange County (**Section C-3.0**);
- Continuing implementation of *Baseline BMPs* and further implementation of the Program's Integrated Pest Management (IPM) policy (**Section C-5.0**);
- APWA recognition of the Orange County Stormwater Program's Project Pollution Prevention Public Education website as a "model practice" (**Section 6.0**);
- The production of nearly 196 million public education impressions, compared to 127 million public education impressions in the prior reporting period (**Section C-6.0**);
- Delivery of six educational workshops for various residential and business sectors (**Section 6.0**);
- Implementation of an Interim Hydromodification Standard for south Orange County;
- Submittal of a new Model Water Quality Management Plan (WQMP) and supporting Technical Guidance Document (TGD) and Hydromodification Management Plan (HMP) to the San Diego Regional Water Quality Control Board Executive Officer on December 16, 2011 (**Section C-7.0**);

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- Implementation of the new Low Impact Development (LID) based Model Water Quality Management Plan (WQMP) and supporting Technical Guidance Document (TGD) in north Orange County (**Section C-7.0**).
- Updating of infiltration feasibility and hydromodification susceptibility mapping of the area of Orange County under the jurisdiction of the Santa Ana Regional Board and expansion of the mapping effort into south Orange County (**Section C-7.0**);
- Completion of a LID Cost Study (**Section C-7.0**);
- Processing of 317 Project WQMPs covering 9,114 acres of development (**Section C-7.0**);
- 8,966 construction sites inspected and 671 formal enforcement actions taken (**Section C-8.0**);
- Completion of 6,858 commercial/industrial facility inspections and 1,241 formal enforcement actions (**Section C-9.0**);
- Completion of 10,399 food service establishment inspections and 2,665 follow-up investigations/actions (**Section C-9.0**);
- Implementation of a countywide mobile business database (**Section C-9.0**);
- Investigation of 2,884 complaints and 2,877 enforcement actions regarding illegal discharges or illicit connections (**Section C-10.0**);
- Continued implementation of innovative water quality monitoring programs and the development of new insights regarding the chemical, biological and physical impacts of urban dry and wet weather runoff (**Section C-11.0**);
- Continued implementation of Stormwater Action Level (SAL) based outfall monitoring program element for wet weather discharges in South Orange County (**Section C-11.0**);
- Full implementation of Dry Weather Reconnaissance Monitoring Program in North Orange County and implementation of Non-stormwater Action Level (NAL) Program in south county areas (**Section C-11.0**);
- Continued implementation of metals, sediment, selenium, nutrients, toxics and bacteria Total Maximum Daily Load (TMDL) programs and attainment of targets in the Newport Bay, San Gabriel River-Coyote Creek, Aliso Creek and San Juan Creek watersheds (**Section C-12.0**), and
- Implementation of Watershed Workplans for six South Orange County watersheds and ongoing development of the Watershed Master Plan approach for North Orange County (**Section C-12.0**).

In addition to prescribing actions intended to be protective of water quality, the Permits require the further development of the Program consistent with the Maximum Extent Practicable standard established by the Clean Water Act. This development of the Program is principally informed by the findings of the water quality monitoring program (see **Section C-11.0**). Significant findings from monitoring conducted in the area of the County under the jurisdiction of the Santa Ana Regional Board include:

Analysis of monitoring data resulted in the following observations during the reporting year:

- 1) Nutrient and indicator bacteria contribute the greatest number of benchmark exceedances in receiving waters across the region. However, monitoring data suggests that nutrient and indicator bacteria levels are exhibiting significant decreasing trends over time.

- 2) Nutrient levels in the Newport Bay watershed have decreased very significantly and represent a major water quality success story. Indeed, monitoring shows:
  - A ten fold decrease in the dry weather flow rates in San Diego Creek at Campus Drive,
  - A ten fold or greater decrease in the average nitrate loads in San Diego Creek at Campus Drive, and
  - An almost complete absence of algae on the Upper Newport Bay intertidal mudflats.
- 3) Beach water quality during dry weather tends to be in very good condition. Results show that monitoring sites exhibit low exceedance frequencies ranging from 2.0% to 2.9% on an annual basis. Conditions in regional channels, on the other hand, tend to exhibit more exceedances; Enterococcus is the primary contributing factor to those exceedances.
- 4) Trends over time indicate that levels of indicator bacteria and reactive phosphorus in MS4 discharges, on average, are decreasing. Median Fecal Coliform levels across the MS4 during dry weather were 340 CFU/100mL while Enterococcus remains a more challenging, with a median concentration of 390 CFU/100mL. While progress to date is encouraging, Enterococcus levels at some sites are still elevated suggesting that additional source tracking efforts are needed.
- 5) In general, toxicity testing organisms showed little to no negative response to environmental sample exposure during dry weather conditions. The notable exception to this pattern was the increased growth of *Selenastrum capricornutum* which is attributed to the presence of nutrients. During wet weather, the test organisms with the greatest response are the *Ceriodaphnia dubia* and *Americamysis bahia* which implicates pesticides as the source of the toxicity although no clear correlation between pyrethroid concentration and biological impact was established.
- 6) Sediment quality in the enclosed bays and estuaries are an area of concern. Sediment quality at 54% of enclosed bay and estuary sites are "Likely Impacted." Sediment quality assessments did tend to follow noticeable patterns but were not consistent across the region. Sediment toxicity at these sites was also not equally distributed between the two toxicity testing species suggesting that future monitoring efforts will need to identify the contributing toxicant(s).
- 7) Biotic Integrity scores from urban streams were considered to be poor to very poor and ranged from 2.9 to 12.9 which was consistent with urban sites sampled during the prior years of the SMC Program. The evaluation of four years of SMC Program monitoring data in the Santa Ana Region shows that there is an apparent relationship between the biological community patterns and physical habitat parameters (e.g., channel alteration and instream cover). This relationship has been observed in a number of other bioassessment programs, including the County's bioassessment

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monitoring in the San Diego Region and the San Gabriel River Watershed (LASGRWC 2010).

The Permittees also consider a series of performance metrics termed Headline Measures to further enable the effectiveness of the Program's elements to be evaluated. These measures are intended to confirm program implementation and validate achievement of outcomes. The basis of this approach draws on the hierarchical taxonomy of programmatic outcomes, being advocated by the California Stormwater Quality Association (CASQA), which creates a framework for defining the relationships between compliance actions and, ultimately, positive changes in water quality.

The report discusses the compliance of the Program with the Fourth Term Permits and presents an assessment of both the chemical, biological impacts of urban dry and wet weather runoff on the quality of the surface water environment in Orange County and the Program's Headline Measures. This assessment is the basis for identifying specific program development initiatives that are identified as *2012-13 Program Focus* initiatives. These initiatives are noted in each section of the report and summarized, together with the Fourth Term Permit compliance milestones, in **Section C-13.0**.