

## EXECUTIVE SUMMARY

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The Orange County Stormwater Program (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, "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, 2012 to June 30, 2013, and includes a description of all activities that were conducted during the reporting period and an assessment of program effectiveness. These compliance activities include 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, which continue to be required under the Fourth Term Permits, notably existing development, municipal activities, public education and environmental monitoring.

Programmatic accomplishments in 2012-13 include:

- Continuing implementation of the County Area Spill Containment (CASC) Program and CASC activation to address significant sewage and related 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. To date Tier 1 funding of \$8.6 million has been awarded to 85 projects and Tier 2 funding of \$12.7 million has been awarded to 8 projects (**Section C-3.0**);
- Continuing implementation of *Baseline BMPs* and further development and implementation of the Program's Integrated Pest Management (IPM) policy which has led to reductions in municipal use of chemicals for landscape maintenance (**Section C-5.0**);
- The production of an estimated 134 million public education impressions, rebranding of the program as H2OC ([www.H2OC.org](http://www.H2OC.org)) and application of community based social marketing principles to a new campaign focused on eliminating irrigation overwatering (**Section C-6.0**);
- A second year of implementation for the 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**).
- Completion of infiltration feasibility and hydromodification susceptibility mapping for the entire Orange County area and creation of a web portal to enable public access to the information (**Section C-7.0**);
- Processing of 351 Project WQMPs covering 1,238 acres of development (**Section C-7.0**);

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- Inspecting 7,123 construction sites inspected with 647 formal enforcement actions taken (**Section C-8.0**);
- Completion of 6,179 commercial/industrial facility inspections and 661 formal enforcement actions (**Section C-9.0**);
- Completion of 11,304 food service establishment inspections and 2,680 follow-up investigations/actions (**Section C-9.0**);
- Implementation of a countywide mobile business database (**Section C-9.0**);
- Investigation of 2,744 complaints and 2,767 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 the Dry Weather Reconnaissance Monitoring Program in North Orange County and implementation of Non-stormwater Action Level (NAL) Program in South Orange County (**Section C-11.0**);
- Continued implementation of metals, sediment, selenium, nutrients, toxics and bacteria Total Maximum Daily Load (TMDL) programs 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 this program include:

- Nutrient and indicator bacteria contribute the greatest number of benchmark exceedances in receiving waters across the region;
- Beach water quality during dry weather tends to be in moderate to very good condition. Results show that monitoring sites exhibit exceedance frequencies ranging from 0% to 18% on an annual basis. Conditions at Doheny and Poche Beach, on the other hand, tend to exhibit more exceedances; Enterococcus is the primary contributing factor to those exceedances;
- Trends over time indicate that levels of indicator bacteria in MS4 discharges during dry weather, on average, are decreasing. Median Enterococcus levels across the MS4 during dry weather were steady and median fecal coliform levels increased slightly over the past year. However, flow rates from MS4 discharges continued to decline, meaning that overall loads of indicator bacteria also declined. Continued source tracking efforts and new methods development will contribute to progress in the future;
- 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,

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- 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.
- In general, toxicity testing organisms showed little to no negative response to environmental sample exposure during dry weather conditions, either at mass emissions stations or in the surfzone at coastal ambient receiving water stations. During wet weather, the test organisms with the greatest response are *Americamysis bahia* and *Hyallela azteca* at mass emissions stations, which implicates pesticides as the source of the toxicity although no clear correlation between pyrethroid concentration and biological impact was established. Wet weather samples in the surfzone were not toxic;
- Biotic Integrity scores from urban streams were considered to be poor to very poor and ranged from 5.7 to 37.18 which is consistent with urban sites sampled during the prior years. Physical habitat conditions at urban sites in the San Diego Region were similar in some cases to reference streams suggesting that the decreased IBI scores resulted from an apparent relationship between the biological community patterns and additional parameters (perhaps rainfall or the effects of fires in the recent past) that are not fully characterized at this time. However, physical habitat scores at reference sites can also be relatively low, suggesting that these reference sites may also be somewhat impacted by habitat modification. This pattern of results should become clearer once the State Water Board's new California Stream Condition Index, which incorporates regional reference conditions, is released for wider use. In contrast to correlations between biotic condition and physical habitat, there were no apparent relationships between biotic condition and aquatic chemistry or aquatic toxicity results;
- MS4 discharge samples during wet weather are below action levels for all constituents. Individual nutrients samples exceeded the action level 3.7% of the time, with copper and turbidity both exceeding the action level 3.6% of the time. However, there is little evidence that copper is an important source of toxicity. In contrast to the patterns in wet weather, median values of nutrients, indicator bacteria, and total dissolved solids exceeded their respective benchmark levels during dry weather, and
- 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). However, sediment conditions across the region have improved somewhat, with a reduction in sites in the Likely Impacted or worse categories and a substantial increase in sites in the Possibly Impacted or better categories.

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.

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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 *2013-14 Program Focus* initiatives. These initiatives are noted in each section of the report and summarized in **Section C-13.0**.