



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

JUL 01 2014

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Mr. Chris Crompton
Manager, Environmental Resources
Orange County Public Works
2301 N. Glassell Street
City of Orange, CA 92865

Re: Orange County Municipal Separate Storm Sewer System (MS4) Compliance
Audit Report

Dear Mr. Crompton:

Enclosed please find the final audit report for the Orange County Storm Water Management Program (Program). On August 26, 2013, EPA Region 9 (EPA) and PG Environmental, LLC, an EPA contractor, conducted an audit of Orange County's Program. The purpose of the audit was to assess the County's compliance with the requirements contained within the *National Pollutant Discharge Elimination System (NPDES) Areawide Urban Storm Water Runoff Permit* (NPDES Permit No. CAS618030).

EPA's audit focused on evaluation of the County's responsibilities as the Principal Permittee to implement the Monitoring and Reporting program requirements included in the Permit. In addition, EPA's evaluation included a review of the County's *2011-2012 Unified Annual Progress Report*.

EPA identified recommendations for improvement and program deficiencies. Specifically, EPA provides the following recommendations for program improvement:

- The County should encourage the Copermittees to routinely participate in dry weather reconnaissance monitoring and conduct follow-up Illicit Discharge/Illicit Connection (ID/IC) investigations to identify and eliminate the source(s) of targeted pollutants; and
- The County should prioritize the development of field level pilot projects to be implemented by the Copermittees to address water quality impairments and/or concerns identified through discharge and receiving water monitoring.

EPA also found program deficiencies. Most significantly:

- The County failed to compare 4-day dry weather receiving water composite sample results against the chronic California Toxics Rule (CTR) criteria as required by Section III.1(a) of the Monitoring and Reporting Plan (M&RP) requirements of the Permit.

Please respond to the audit report with any updates or program enhancements or clarifying comments by Friday, July 18, 2014. Following receipt of the County's response, EPA will post the report along with the County's response on our website. Thereafter, EPA will follow-up with appropriate County management to ensure adequate resolution of all program deficiencies. If you have any questions, please call me at (415) 972-3873, or refer staff to Greg Gholson at (415) 947-4209 or via email at gholson.greg@epa.gov.

Sincerely,



Kathleen H. Johnson, Director
Enforcement Division

Enclosures:

Orange County MS4 Audit Report (w/attachments)

Cc via email with enclosures:

Michelle Beckwith, Santa Ana RWQCB



U.S. Environmental Protection Agency
Region 9
Enforcement Division
75 Hawthorne Street
San Francisco, CA 94105-3901

**MUNICIPAL SEPARATE STORM
SEWER SYSTEM (MS4)
COMPLIANCE INSPECTION**

**ORANGE COUNTY
CALIFORNIA**

INSPECTION REPORT

**Inspection Date:
August 26, 2013**

**Report Date:
June 27, 2014**

CONTENTS

	Page
SECTION 1.0 EXECUTIVE SUMMARY.....	1
SECTION 2.0 ORANGE COUNTY STORMWATER PROGRAM.....	2
2.1 PROGRAM AREAS EVALUATED	2
SECTION 3.0 EVALUATION FINDINGS	3
3.1 MONITORING PROGRAM	3
3.2 REPORTING PROGRAM.....	8
APPENDIX A: ADDITIONAL INSPECTION REPORT MATERIALS	
APPENDIX B: CATALOG OF REFERENCE MATERIALS	

Section 1.0 Executive Summary

The U.S. Environmental Protection Agency (EPA) conducted an inspection on August 26, 2013, of the Orange County, California, Municipal Separate Storm Sewer System (MS4) Program.

EPA reviewed documents and interviewed staff to gather information on the County's compliance with the requirements of its Areawide Urban Storm Water Runoff Permit. The focus of the evaluation was on the County's compliance with the (1) Monitoring, and (2) Reporting program requirements of the Permit. At the conclusion of the inspection, EPA discussed preliminary observations with County representatives.

In this report, where applicable, EPA has identified recommendations for improvement, and program deficiencies. Specifically, EPA provides the following recommendations for program improvement:

- The County should encourage the Copermittees to routinely participate in dry weather reconnaissance monitoring and conduct follow-up Illicit Discharge/Illicit Connection (ID/IC) investigations to identify and eliminate the source(s) of targeted pollutants; and
- The County should prioritize the development of field level pilot projects to be implemented by the Copermittees to address water quality impairments and/or concerns identified through discharge and receiving water monitoring.

EPA also found program deficiencies. Most significantly:

- The County failed to compare 4-day dry weather receiving water composite sample results against the chronic California Toxics Rule (CTR) criteria as required by Section III.1(a) of the Monitoring and Reporting Plan (M&RP) requirements of the Permit.

Section 2.0 Orange County Stormwater Program

On August 26, 2013, a representative of the U.S. EPA (Greg Gholson) and an EPA contractor, PG Environmental, LLC, conducted an evaluation of the County's MS4 Program. EPA also evaluated the City of Orange and Santa Ana MS4 Programs on August 28 and August 29, 2013, respectively.

Discharges from the County's MS4, the Orange County Flood Control District (OCFCD) and twenty-six (26) other municipalities are regulated under *Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the Incorporated Cities of Orange County within the Santa Ana Region, Areawide Storm Water Permit*, National Pollutant Discharge Elimination System (NPDES) Permit No. CAS618030, Order No. R8-2009-0030 as amended by Order No. R8-2010-0062, (hereinafter, Permit), issued October 29, 2010. The Permit is the fourth NPDES MS4 permit issued to the municipalities. The municipalities currently covered under the Permit include Orange County (Principal Permittee and Copermittee), OCFCD and the incorporated cities of Anaheim, Brea, Buena Park, Costa Mesa, Cypress, Fountain Valley, Fullerton, Garden Grove, Huntington Beach, Irvine, Laguna Hills, Laguna Woods, La Habra, La Palma, Lake Forest, Los Alamitos, Newport Beach, Orange, Placentia, Santa Ana, Seal Beach, Stanton, Tustin, Villa Park, Westminster, and Yorba Linda (Copermittees).

The Permit authorizes the Copermittees to discharge or contribute to discharges of storm water from Phase I MS4s into the Watershed Management Areas of the: San Gabriel River drainage area; Huntington Harbour and Bolsa Bay drainage area; Santa Ana River drainage area; Newport Bay drainage area, and the Irvine and Newport Coast Areas of Special Biological Significance. These Watersheds are tributaries to the Pacific Ocean.

Orange County Information

Orange County is the designated Principal Permittee with roles similar to that of the Copermittees, as well as additional overall programmatic and facilitation responsibilities as outlined in the Permit. As the Principal Permittee, the County has responsibilities that include acting as a liaison between the Copermittees and the Regional Water Board, participating in various committees and workgroups, providing technical and administrative support for subcommittees, and implementing the Countywide Monitoring Program.

2.1 Program Areas Evaluated

The inspection included an evaluation of the County's responsibilities as the Principal Permittee to implement the Monitoring and Reporting program requirements included in the Permit. The EPA Inspection Team did not evaluate all components of the County's MS4 or Monitoring and Reporting Programs and this report should not be considered a comprehensive evaluation of all program elements.

Section 3.0 Evaluation Findings

This section describes the findings of the EPA evaluation. Within each sub-section, where applicable, EPA has identified recommendations for improvement and program deficiencies. Program deficiencies are areas of concern that may prevent successful program implementation or areas that, unless action is taken, have the potential to result in non-compliance in the future. This report also provides recommendations for improved program implementation.

The inspection findings are supported by interviews, observations and photographic evidence gathered during the inspection, as well as documentation that may have been obtained before, during, or after the inspection. This inspection report does not attempt to comprehensively describe all aspects of the County's MS4 Program or fully document all lines of questioning conducted during personnel interviews. Additional inspection report materials, including a program evaluation agenda, and sign-in sheet are included in Appendix A.

Multiple documents were referenced by the EPA Inspection Team during the inspection process and development of this report (e.g., the Permit, MS4 annual reports). A list of these reference materials is included as Appendix B. The documents identified in Appendix B have not been included in the submittal of this inspection report. Copies of the materials are maintained by EPA Region 9 and can be made available upon request.

3.1 Principal Permittee Monitoring Program

The Monitoring and Reporting Program (M&RP) requirements are contained within an attachment to Order No. R8-2009-0030. Section III.1 of the M&RP requires continued implementation of the Monitoring Program as detailed within the 2003 Drainage Area Management Plan (DAMP), approved by the Regional Board Executive Officer on July 15, 2005. Section 11.III, Part 2.2 of the DAMP identifies the following seven program elements of the County's monitoring program within the Santa Ana Region:

- Long-term mass emissions monitoring;
- Estuary / wetland monitoring;
- Bacteriological / pathogen monitoring;
- Urban stream bioassessment monitoring;
- Dry weather reconnaissance;
- Land use correlations; and
- Nutrient TMDL monitoring.

EPA did not evaluate the County's urban stream bioassessment, land use correlations or nutrient TMDL monitoring program components as part of this evaluation. The Permit also requires the Permittees to conduct specific activities based on the results of the MR&P, EPA did not evaluate the County's compliance with those Permit requirements.

3.1.1 Long-Term Mass Emission Monitoring

Section 11.III, Part 3.1 of the DAMP indicates that the goals of the County's long-term mass emission monitoring program within the Santa Ana region are to estimate the mass emissions from the MS4, assess trends in mass emissions over time, and determine if the MS4 is contributing to exceedances of water quality objectives by comparing results to the California Toxics Rule (CTR), Basin Plan, and other relevant standards. Part 3.1 of the DAMP further specifies that the monitoring program design will focus "on sites at or near the bottom of key watersheds" including, at a minimum, the following 11 sites:

- Coyote Creek (in north Orange County)
- Fullerton Creek (in north Orange County)
- Carbon Creek (in north Orange County)
- Santa Ana Delhi Channel (Newport Bay Watershed)
- Peters Canyon Wash (Newport Bay Watershed)
- San Diego Creek at Campus (Newport Bay Watershed)
- Central Irvine Channel (Newport Bay Watershed)
- San Diego Creek at Harvard (Newport Bay Watershed)
- Costa Mesa Channel (Newport Bay Watershed)
- Bolsa Chica Channel (Huntington Harbour)
- East Garden Grove-Wintersburg Channel (Bolsa Bay)

Through discussions with County staff during the inspection and review of the County's 2011-2012 Unified Annual Progress Report (Unified Annual Report), EPA confirmed that the County continues to utilize the approved receiving water locations for routine wet and dry season mass emission monitoring. County staff explained that while additional receiving water monitoring locations are utilized for complementary monitoring activities, such as TMDL required monitoring, use of the established mass emission monitoring locations (many in services since the 1970's) continue to provide valuable water quality data for long-term trend analysis (Attachment 1: *Map C-11-1, Receiving Water Locations for Mass Loading Monitoring Program*).

Section 3.1 of the DAMP further specifies that for the 11 sites listed above, "samples will be collected for three storm events per season, with three to four samples collected per storm event, and three times during the dry season." County staff explained that receiving water samples were collected at 8 of the 11 mass emission monitoring locations during the 2011-2012 rainy season. County staff explained that logistical considerations impacted its ability to successfully collect storm event samples at all 11 mass emission monitoring locations during the 2011-2012 reporting year. In addition, County staff explained that inconsistent dry weather flows impacted its ability to collect three dry season samples at all sample locations. Review of County's 2011-2012 Unified Annual Report (Attachment C-11-II, Table 7) indicates that a minimum of two dry season samples were collected at all sample locations.

In addition, the County's 2011-2012 Unified Annual Report did not include data tables or a narrative discussion of analysis of receiving water samples against the *chronic* CTR criteria. The CTR, found at 40 CFR Section 131.38, contains acute and chronic criteria for priority toxic pollutants for inland surface waters (i.e. freshwater) and enclosed bays and estuaries (i.e. saltwater). The County's monitoring program, as described within Section 3.1 of the DAMP, requires the collection of at least 3 receiving water samples during the dry season. Given the relatively homogenous nature of dry season urban runoff, the chronic CTR criteria is the relevant standard against which dry season analytical results should be compared.

Program Deficiency

Based on information contained in the Unified Annual Report, the County failed to compare dry weather receiving water composite sample results against the chronic CTR criteria as required by Section III.1(a) of the M&RP requirements of the Permit.

Sampling results reported by Orange County were compared to acute toxicity criteria, not chronic, which is required by the permit. The lack of adequate sampling and/or analysis of dry weather composite samples against the chronic CTR criteria limits the County's ability to identify trends, potential sources, and appropriate responses to exceedances of applicable water quality standards.

3.1.2 Estuary/Wetlands Monitoring

Section 11.III Part 3.2 of the DAMP indicates that the goal of the County's estuary/wetlands monitoring program is to determine the effects of storm water and non-storm water runoff on targeted estuaries/wetlands. This goal is to be accomplished through implementation of a monitoring program designed to assess the concentration of specific pollutants of concern and their impacts on the integrity of coastal zone ecosystems. Section 11.III Part 3.2.1 of the DAMP specifies that estuary/wetland monitoring will include chemical and toxicity monitoring of sediments and receiving waters in targeted estuaries/wetlands and the channels that flow into them.

County staff explained during the audit that surface water flows into coastal zone ecosystems are sampled at six channel sites (all of which, except the Talbert Channel, are also mass emission monitoring sites) and twelve estuary/wetland sites. Based on a review of the County's 2011-2012 Unified Annual Report, EPA confirmed that the County met the sampling frequency requirements contained in the DAMP during the 2011-2012 reporting period.

The DAMP further specifies that surface water flows into coastal zone ecosystems will be monitored for the same parameters as its mass emissions monitoring program; while estuarian and wetland sites will be monitored for a subset of these parameters and benthic infauna, depending on factors such as season, type of sample (i.e. sediment or aquatic), and the location monitoring site.

3.1.3 Bacteriological/Pathogen Monitoring

Section 11.III, Part 3.3 of the DAMP indicates that the goal of the County's bacteriological/pathogen monitoring program is to determine the impacts of storm water and non-storm water runoff on the loss of beneficial uses to receiving waters. This goal is to be accomplished through implementation of a monitoring program that 1) compares ambient indicator bacteria levels to relevant standards (i.e. California's Ocean Water Contact Standards) at sites along the coastline and a number of inland channels during dry weather, and 2) evaluates the impacts of coastal storm drain discharges on water quality within the surfzone. County staff explained that dry weather flows are sampled weekly at nine coastal storm drains and their respective surfzone receiving waters, as well as six inland channels discharging to the Huntington Harbor, Bolsa Bay, Talbert Marsh, and the Upper Newport Bay.

Review of the County's 2011-2012 Unified Annual Report (Attachment C-11-II – Table 9) indicates that 1) approximately 3% of all surfzone samples collected during the reporting year exceeded the ambient indicator bacteria standards, 2) the majority of exceedances occurred when dry weather flows from regional channels reached the Ocean, and 3) the greatest percentage of surfzone exceedances occurred near the outlet of one of the Huntington City Beach drains (HB5) and the Buck Gully Creek on the Newport Coast.

Notwithstanding the relative low frequency of surfzone exceedances, 281 of 747 samples collected (38%) from regional channels exceeded the relevant indicator bacteria standard. Despite the significant exceedance rates in the regional channels, the County reported an overall declining trend in fecal coliform bacteria concentrations at each of the channel monitoring locations.

3.1.4 Dry Weather Reconnaissance monitoring

Section 11.III, Part 3.5 of the DAMP indicates that the goal of the County's reconnaissance monitoring program is to identify and eliminate illegal discharges and illicit connections. This goal is to be accomplished through implementation of a monitoring program targeting storm drain outfalls potentially influenced by illegal discharges and/or illicit connections. County staff explained that, consistent with the sampling methodology contained within the DAMP, 39 targeted outfalls and 17 random outfalls were sampled during the 2011-2012 reporting period.

County staff stated that the Copermittees are informed immediately of obvious problems identified during dry weather sampling and with monthly updates of the data from the entire program. Further review of the County's 2011-2012 Unified Annual Report (Section C-11.4.4) indicates that the ten constituents of greatest prevalence identified through dry weather outfall sampling were: inorganic nitrogen, enterococcus, reactive phosphorus, fecal coliforms, ammonia, selenium, anionic surfactants, copper, dissolved oxygen, and total suspended solids. In addition to ranking these pollutants in relation to their prevalence, the County compared the monitoring results against average background

levels of these pollutants, generated through analysis of historic dry weather receiving water data. Based on this analysis, the County reported that enterococcus, orthophosphorus, fecal coliforms, inorganic nitrogen, and ammonia exceeded their respective background values by the greatest magnitude (in descending order). The County further explained in its report that the ranking of constituents found in dry weather discharges is consistent with trends identified through its receiving water monitoring. Given these findings, the County indicated in its Unified Annual Report that nutrients and indicator bacteria represent the most “prevalent regulatory issues on a system-wide basis.”

Recommendation for Improvement

The County should encourage the Copermittees to routinely participate with the County in dry weather reconnaissance monitoring and conduct follow-up ID/IC investigations to identify and eliminate the source(s) of targeted pollutants as required by Section VII.1 of the Permit.

As discussed above, the County reported that nutrients and indicator bacteria represent the most “prevalent regulatory issues on a system-wide basis.” EPA’s review of the County’s 2011-2012 Unified Annual Report indicates that no source investigations targeting these pollutants were initiated by the Copermittees in response to the County’s monitoring results. Although significant efforts have been initiated to address nutrient exceedances in receiving waters as part of the ongoing Newport Bay watershed Nutrient and Selenium Management Plan workgroup, Copermittee initiated source investigations continue to be a required program response to documented water quality exceedances.

3.2 Principal Permittee Reporting Program

Section I.A of the Permit requires that, among other things, the Principal Permittee conduct chemical and biological water quality monitoring, and prepare and submit to the Executive Officer of the Regional Board unified reports, plans, and programs, including the annual report. Section IV of the M&RP contains additional requirements specific to the scope and content of the Principal Permittee’s Annual Report. Specifically, Section IV.2(e) and (h) of the M&RP require that the Annual Report include a “plan and schedule to address program modifications and improvements identified during the program assessment” and a workplan including “clearly defined tasks, responsibilities, and schedules for implementation of the storm water program and each permittee actions for the next fiscal year,” respectively.

EPA reviewed the County’s 2011-2012 Unified Annual Report with attention to program modifications proposed in response to monitoring program findings. Although Section C – 2.3 of the Unified Annual Report discusses the County’s leadership role in statewide storm water policy development activities through the California Stormwater Quality Association (CASQA) and the participation in the Southern California Coastal Water Research Project (SCCWRP), the Annual Report contained few details “clearly defin[ing] tasks, responsibilities, and schedules for implementation” by each of the

Copermittees to address exceedances of relevant water quality standards within their respective jurisdictions.

Recommendation for Improvement

The County should prioritize the development of field level pilot projects to be implemented by the Copermittees to address water quality impairments and/or concerns identified through discharge and receiving water monitoring.

Part I.B(5) of the Permit calls on the County to “provide technical and administrative support and inform the co-permittees of the progress of other pertinent municipal programs, pilot projects, research studies, etc.” In addition to ongoing leadership in important statewide and regional storm water policy and research efforts, EPA encourages the County to utilize its technical resources to assist the Copermittees in developing clearly defined tasks and schedules, including pilot projects, to address water quality impairments within their respective jurisdictions. Given the importance of the County’s water quality data trend analysis in supporting program enhancements to address local impairments, EPA encourages the County to work closely with the Copermittees to prioritize the development of small scale pilot projects (similar to the *Newport Bay Trash and Litter Investigation*, and *City of Anaheim Infiltration Well Pilot* projects) to ensure greater and more widespread participation by all Copermittees in similar field activities critical to successful program implementation.

Orange County, CA
Municipal Separate Storm Sewer System (MS4)
Compliance Audit Report

Appendix A

**Tentative Agenda for MS4 Program Inspection
Orange County, California
August 26, 2013**

Day	Time	Program/Agenda Item
Monday, August 26, 2013	8:00 am - 8:30 am	Kick-off Meeting & Program Management Overview (Office)
	8:30 am - 11:30 am	Monitoring Program (Office)
	11:30 am - 12:30 pm	Lunch Break—including discussion among the EPA Inspection Team members
	12:30 pm - 2:00 pm	Program Effectiveness Assessment and Reporting (Office)
	2:00 pm - 3:30 pm	Open Period for Additional Activities ¹ (Tentative time slot)
	3:30 pm - 4:00 pm	Internal Discussion ²
	4:00 pm - 4:30 pm	Closing Conference ³ (Tentative time slot)

¹ Open Period for Additional Activities – Will be decided by the EPA Inspection Team during the inspection activity in collaboration with County staff.

² Internal Discussion – Time for inspectors to arrange notes and prepare information to be discussed with the County at the Closing Conference. County participation is not expected.

³ The County is encouraged to invite representatives from all applicable organizational divisions/departments.

MS4 PROGRAM EVALUATION SIGN-IN SHEET (PLEASE PRINT)

Permittee: Orange County

Date conducted: 8/26/13

Permit No. RB-2009-0030

Name	Title	Organization	Department	Phone
Max Kuker	EPA Contractor	PG Environmental	_____	703-707-8258
Greg Gholson	EPA Reg. 9	Env. Scientist	_____	415 947 4209
LEN NARBL	ENV. RESOURCES S/BL.	OC PW/OCW		714-955-0678
Jim Reed	ENV. Resource Spec.	ocpw/ocw	_____	858-342-7386
Tom Lewengrub	Env. Resource Spec.	OC PW/OCW	_____	714-955-0687
RICHARD REED	Chief/OC Stormwater	OC PW/OCW		714 955 0670
Jenna Voss	Environmental Resource Spec.	OC PW/OCW	_____	(714) 955-0672
Christy Suppes	Env. Resource Spec.	OC PW/OCW	_____	(714) 955-0673
ROBERT RODARTE	ENV. RESOURCE SPEC.	OC PW/OCW		714-955-0684
Grant Sharp	Manager, Environmental Monitoring Section	OC Public Works/ OC Watersheds		714-955-0633
Brock Bernstein	CONSULTANT			805-646-8369
JUSTIN GIBBVAL	ENV. RESOURCE SPECIALIST	OC PW/OC WATERSHEDS		714-955-0667
Rita Abellar	Env. Resource Specialist	OC PW/OC Watersheds		714-955-0663

Census Compton
Jian Peng

Manana WRC Compton OC PW/OC Watersheds
Env. Resources Specialist OC PW/OCW

714 955-0630
714-955-0651

Appendix B
List of Reference Materials

Municipal Separate Storm Sewer System
Compliance Inspection
Orange County, California

- B1) *Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the Incorporated Cities of Orange County within the Santa Ana Region, Areawide Storm Water Permit, National Pollutant Discharge Elimination System (NPDES) Permit No. CAS618030, Order No. R8-2009-0030 as amended by Order No. R8-2010-0062, issued October 29, 2010.*
- B2) Orange County 2011-2012 Unified Annual Progress Report