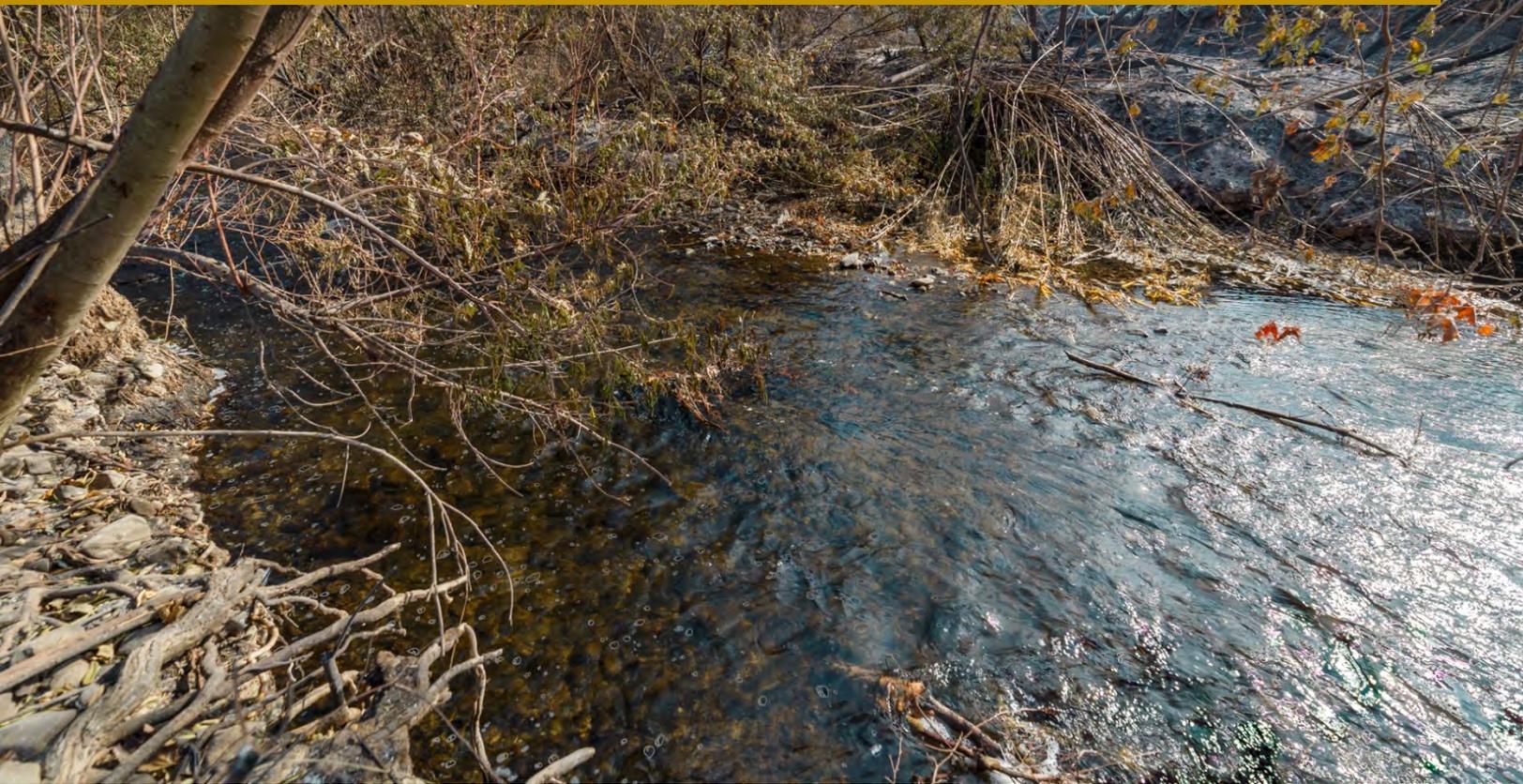




*Ventura Countywide
Stormwater Quality
Management Program*

2018-2019
Permit Year

Ventura Countywide Stormwater Quality Management Program Annual Report



December 13, 2019

Camarillo
County of Ventura
Fillmore
Moorpark
Ojai
Oxnard
Port Hueneme
Santa Paula
Simi Valley
Thousand Oaks
Ventura
Ventura County Watershed Protection District

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Attachment C	Construction Inspection Checklist
Attachment D	Water Quality Monitoring Appendices <ul style="list-style-type: none">• Appendix A: Major Outfall Station Fact Sheets• Appendix B. Event Hydrographs• Appendix C. NRCS Curve Number Methodology Discussion• Appendix D. Event Summaries• Appendix E. Chain-of Custody Forms• Appendix F. Laboratory QA/QC Analysis Results• Appendix G. Laboratory Environmental Analysis Results• Appendix H. RWQCB Permission of Toxicity Species Substitution• Appendix I. Aquatic Toxicity Testing Lab Results• Appendix J. Dry-Weather Analytical Monitoring Results• Appendix K. Formulas for WQO determination
Attachment E	Total Maximum Daily Load Reports and Monitoring Data

Executive Summary

This Annual Report discusses the Permittees' Permit compliance activities for the period of July 1, 2018 to June 30, 2019, the ninth year of the NPDES Permit No. CAS004002/Order No. 10-108 (Permit). It includes a description of all activities conducted during the reporting period, and the efforts to improve water quality throughout Ventura County by the Permittees. The purpose of this Annual Report is to show compliance with the Permit, and to meet the reporting requirement that an Annual Stormwater Report be submitted by December 15th of each year; in its entirety this Report also serves as the Receiving Water Limitations Report. Since the Permit did not require a Stormwater Management Plan this Annual Report also serves to clarify the Permit's requirements and the efforts put forth by the Permittees to meet them. Finally, program effectiveness assessment of the implementation of the Permit requirements are examined with potential areas for improvement identified.

The Permittees, who contributed the information and data regarding their programs, were instrumental in the preparation of this Annual Report. Cooperating through the Ventura Countywide Stormwater Quality Management Program (Program) the Permittees ensure information and workloads are shared, economies of scale achieved, and an efficient and effective Program is realized. Together through the implementation of various comprehensive program elements we have strived for improved water quality through compliance with all requirements of the Permit. Each program element has a subcommittee working to develop needed forms, protocols, and procedures to ensure future Permit compliance. The programs, methods, and this Annual Report are continually being refined to improve effectiveness, apply lessons learned, identify and address additional sources of stormwater pollutants, and therefore improve water quality.

Notable accomplishments made by the Permittees and the Program over this reporting period include:

- Seven Ventura County beaches removed from the 303(d) impaired water body list after consistently meeting water-quality objectives for indicator bacteria. Water quality at beaches throughout Ventura County remained above average for Southern California and three beaches made the honor roll in Heal the Bay's 2018/19 Annual Beach Report Card (BRC).
- Participation in SCCWRP's Bight '18 Microbiology Coliphage Study and Trash assessment.
- Responded to elevated levels of pentachlorophenol at an urban outfall with a special investigation that conclusively found the source and initiated a partnership in a multi-agency effort to eliminate the discharge.
- Stakeholders are submitting new projects in the Stormwater Resource Plan using a tool developed by the Program that automatically calculates the quantitative and qualitative benefits.
- Continued to inform the highest levels of management about the potential programmatic and financial impacts of a new Regional Permit through new and refined communication tools.
- The Public Outreach program made 6.7 million impressions (14% percent in Spanish). New creative material was created, in both English and Spanish, focusing pollutants of concern: trash/litter, pet waste, and yard chemicals. Almost 4,500 elementary school age students were educated through 10 performances by the EcoHero Show and his engaging and interactive eco-friendly songs.
- Initiated an internet-based youth behavioral awareness survey which will be used to assist the Program in creating a more effective and targeted youth outreach program related to stormwater pollution prevention.
- Coordinated the 2018 Ventura County Coastal Cleanup Day Event, as part of the California Coastal Cleanup Day, recruiting 3,008 volunteers to 26 different beach and inland locations covering 45.2 miles. A total of 12,195 pounds of trash were collected, as well as 749 pounds of recyclables.

- Educated the private development community, including planners and engineers, with a comprehensive training workshop covering Ventura County stormwater quality post construction mitigation requirements.
- Continued updating the Water Quality Index distilling the over 200 constituents monitored into an easy to communicate form and continued the comprehensive data analysis effort to prioritize pollutants of concern in outfalls and receiving waters that in turn will be used to prioritize Program activities.
- Updated the drainage area and land use for the 11 major outfall monitoring stations using the latest topography, and storm drain system GIS data resulting in improved understanding of areas monitored.
- Eleven Total Maximum Daily Load Implementation Plans Annual/Semiannual Reports were submitted to the Regional Board.
- Active participation in the Stormwater Monitoring Coalition of Southern California, California Stormwater Quality Association, and the Southern California Coastal Water Research Project.

Ventura County has been subjected to increased environmental stresses in recent years. In addition to the ongoing drought, the Calleguas Creek and Malibu Creek watersheds were heavily impacted by the Hill and Woolsey fires in 2018-19, and the Ventura River and Santa Clara River watersheds are still recovering from the Thomas Fire of 2017-18. The impacts of the fires were not observed in the water quality monitoring results, as concentrations above applicable water quality objectives (WQO) were similar to non-fire years, although higher sediment loads were observed in the runoff.

Three wet weather events were sampled at each of the fourteen monitoring sites. Absence of flow prevented all fourteen monitoring sites from being sampled during dry weather, though it can be inferred no pollutants were being discharged from the dry sites. Aquatic toxicity samples were analyzed for all fourteen sites. No toxicity was observed for the receiving water stations, however acute effects (e.g. mortality/survival), chronic effects [e.g. reproduction (MO-FIL, MO-VEN), growth (MO-MEI, MO-OXN, MO-SPA)], or acute and chronic affects (MO-CAM, MO-OJA) were observed. None of the samples were above the 50% mortality threshold to trigger a toxicity identification evaluation (TIE) and toxicity did not occur at the sites most directly impacted by the Hill or Woolsey Fires.

Water quality in the Ventura River Watershed appears to have rebounded significantly in 2018/19 and the Water Quality Index (Index) shows overall improvement in scores, except for the Calleguas Creek receiving water station. Overall water quality in the County of Ventura is generally good, with the overall Index showing A to C grades across the county during 2018/19 in both wet and dry weather.

During wet weather events, *E. coli* concentrations were commonly found above WQO at most sites while during dry-weather events, less than half of the sites with flow had concentrations of *E. coli* above WQO. Other constituents observed at least once above dry-weather WQO include chloride, total dissolved solids, pH, total selenium, bis(2-ethylhexyl)phthalate, and polycyclic aromatic hydrocarbons (one site, dry weather). Constituents observed at least once above wet-weather WQO include chloride, total dissolved solids, dissolved oxygen, MBAS, total chlorine residual, total cyanide, total aluminum, total arsenic, dissolved copper, dissolved zinc, and pentachlorophenol. Biological assessments were performed in accordance with the current Bioassessment Workplan, and at the Principal Permittee's fixed (Integrator) sites at the three receiving water stations. Data from the monitoring program is used to identify pollutants of concern and direct efforts to reduce their discharge from the storm drain system.

Continued in this Annual Report are the Performance Standards for specific Permit requirements identified in each section along with the Permittees' status on achieving that standard. Permit compliance cannot be directly inferred solely by these Performance Standards as the complete effort of the Permittees cannot be reflected through these discrete metrics. Rather, the information is more suitable for use by the Permittees to gage their efforts and identify areas of needed improvement.

1 Introduction

The Watershed Protection District (Principal Permittee), the County of Ventura, and the incorporated cities of Camarillo, Fillmore, Moorpark, Ojai, Oxnard, Port Hueneme, Santa Paula, Simi Valley, Thousand Oaks, and Ventura, (each a Permittee, and collectively known as Permittees) operate municipal storm drain systems and discharge stormwater and urban runoff pursuant to the countywide NPDES Permit (Board Order No. 10-0108 or Permit). This Permit, administered by the Los Angeles Regional Water Quality Control Board (RWQCB), requires an Annual Stormwater Report and Assessment (Annual Report) be submitted by December 15th of each year.

The first stormwater permit for Ventura County was adopted in 1994 and included all ten cities, the County, and the Watershed Protection District. On July 27, 2000 a second permit was adopted that advanced logical and incremental increases in the requirements. That five-year permit was on administrative extension until May 7, 2009, when Board Order 09-0057 was adopted. Shortly after adoption of that permit the Regional Board rescinded it to hold a new adoption hearing. On July 8, 2010 Order No. R4 2010-0108 was adopted with minor changes. The 2010 Permit had a new set of implementation deadlines associated with it and replaced the order adopted in 2009 in its entirety.

1.1 PURPOSE AND ORGANIZATION OF REPORT

The primary purpose of this Annual Report is to document the Permittees' continued compliance with NPDES Permit No. CAS004002/Order No. 10-108 (Permit) and efforts to improve water quality. Since the Permit did not require a Stormwater Management Plan this Annual Report also serves as a way to clarify the Permit's requirements and the effort required to meet them. Finally, program effectiveness assessment of the implementation of the Permit requirements are examined with potential areas for improvement identified.

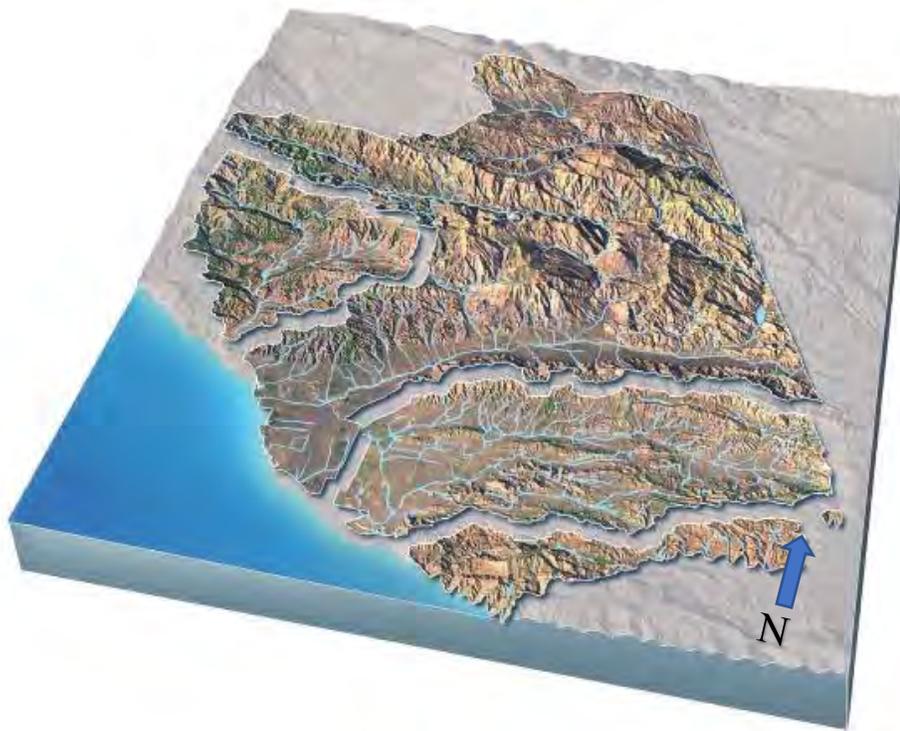


This Annual Report discusses the Permittees' Permit compliance activities for the period of July 1, 2018 to June 30, 2019, the ninth year of the third Permit term. It includes a description of all activities conducted during the reporting period and the efforts made to improve water quality throughout Ventura County by the Permittees. In its entirety, this report also serves as the Receiving Water Limitations Report for all Permittees.

The organization of the Report reflects the organization of the Permit. Each section contains a description of the Permit requirements and their purpose, and the Permittee's program activities in that area with detailed descriptions of the efforts put forth in the 2018/19 Permit year. The sections are as follows:

- **Program Management - Section 2.0** – Roles and responsibilities of the Permittees committee structure, and a program budget report for 2018/19.
- **Public Information and Public Participation Program – Section 3.0** – The efforts and effectiveness of pollution prevention education and outreach programs.

- **Industrial Commercial Business Program - Section 4.0** – The activities directed at effectively prohibiting non-stormwater discharges from businesses and industrial sites in order to reduce stormwater pollution to the maximum extent practicable.
- **Planning and Land Development Program - Section 5.0** – The minimization of the impact of new development and significant redevelopment on stormwater quality through use of Low Impact Development site design and water quality treatment BMPs.
- **Development Construction Program - Section 6.0** – Activities before and during construction through stormwater pollution prevention plans and inspections to ensure the protection of stormwater quality to the maximum extent practicable.
- **Public Agencies Activities Program - Section 7.0** – Both the efforts to remove pollutants from MS4s, and to eliminate the adverse effects that municipal activities may have on runoff water quality.
- **Illicit Discharge and Illegal Connections Elimination Program - Section 8.0** – Status of the tools, control measures, and responses established to eliminate non-permit authorized discharges and connections to the storm drain system.
- **Water Quality Monitoring Program - Section 9.0** – A summary and analysis of the monitoring results from the Permit year. Includes efforts that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedance of Water Quality Objectives.



The Watersheds of Ventura County west to east:

Ventura River, Santa Clara River, Calleguas Creek, and Malibu Creek

1.1.1 Major Program Accomplishments

Since the adoption of the third term Permit the Program has achieved many accomplishments in each of the program elements, and beyond Permit requirements. These include adopting a five-year implementation agreement and new stormwater quality ordinances, new bilingual BMP training posters for business and construction, drafting a Revised Technical Guidance Manual and Hydromodification Control Plan for land development, catch basin mapping and prioritization, increased trash management programs, new pesticide protocols, installation of eleven outfall monitoring stations, water quality data trends analysis, development of a water quality index, and special studies to address pyrethroids, pentachlorophenol, aluminum and bacteria. All of these efforts have resulted in water quality at Ventura County beaches to be among the best in the state.

Notable accomplishments made by the Permittees and the Program over this reporting period include:

- Seven Ventura County beaches removed from the 303(d) impaired water body list after consistently meeting water-quality objectives for indicator bacteria. Water quality at beaches throughout Ventura County remained above average for Southern California and three beaches made the honor roll in Heal the Bay's 2018/19 Annual Beach Report Card (BRC).
- Participation in SCCWRP's Bight '18 Microbiology Coliphage Study and Trash assessment.
- Responded to elevated levels of pentachlorophenol at an urban outfall with a special investigation that conclusively found the source and initiated a partnership in a multi-agency effort to eliminate the discharge.

- Stakeholders are submitting new projects in the Stormwater Resource Plan using a tool developed by the Program that automatically calculates the quantitative and qualitative benefits.
- Continued to inform the highest levels of management about the potential programmatic and financial impacts of a new Regional Permit through new and refined communication tools.
- The Public Outreach program made 6.7 million impressions (14% percent in Spanish). New creative material was created, in both English and Spanish, focusing pollutants of concern: trash/litter, pet waste, and yard chemicals. Almost 4,500 elementary school age students were educated through 10 performances by the EcoHero Show and his engaging and interactive eco-friendly songs.
- Initiated an internet-based youth behavioral awareness survey which will be used to assist the Program in creating a more effective and targeted youth outreach program related to stormwater pollution prevention.
- Coordinated the 2018 Ventura County Coastal Cleanup Day Event, as part of the California Coastal Cleanup Day, recruiting 3,008 volunteers to 26 different beach and inland locations covering 45.2 miles. A total of 12,195 pounds of trash were collected, as well as 749 pounds of recyclables.
- Educated the private development community, including planners and engineers, with a comprehensive training workshop covering Ventura County stormwater quality post construction mitigation requirements.
- Continued updating the Water Quality Index distilling the over 200 constituents monitored into an easy to communicate form and continued the comprehensive data analysis effort to prioritize pollutants of concern in outfalls and receiving waters that in turn will be used to prioritize Program activities.
- Updated the drainage area and land use for the 11 major outfall monitoring stations using the latest topography, and storm drain system GIS data resulting in improved understanding of areas monitored.
- Eleven Total Maximum Daily Load Implementation Plans Annual/Semiannual Reports were submitted to the Regional Board.
- Active participation in the Stormwater Monitoring Coalition of Southern California, California Stormwater Quality Association, and the Southern California Coastal Water Research Project.

1.2 PROGRAM EFFECTIVENESS ASSESSMENT

The 2018/19 Annual Report documents the Program’s comprehensive stormwater quality efforts that address a wide range of activities. Various Departments in each Permittee’s agency cooperate in implementing the different elements or activities of the Program under their control. All of these efforts are examined for program effectiveness.

Each of the six Program Elements contains various Control Measures. Each Control Measure consists of a series of Performance Measures. Performance Measures are identified to document the progress of implementation and to measure the effectiveness of implemented BMPs.

The Program has adopted a method for assessing program effectiveness based on an approach developed by the California Stormwater Quality Association (CASQA). The effectiveness assessment is more comprehensive than assessments under past permits and addresses the major stormwater

program areas and activities. The outcome levels represent ways in which the effectiveness of the program can be determined, even if it is intermediate¹.

Outcome levels help to categorize and describe the desired results of the Program Elements and related Control Measures. Pursuant to the 2007 CASQA guidance, outcomes for stormwater programs have been categorized into six levels, as shown in Figure 1-1. As illustrated, there are six outcome levels for the effectiveness assessment. The outcome levels help to categorize and describe the desired results or goals of the program.

Within each individual program section (starting with Chapter 3), the effectiveness assessment identifies the outcome level(s) achieved, as well as any program modifications that have been identified because of the assessment. The assessment section is at the end of each chapter.

Integrated Assessment					
Implementation Assessment	Target Audience & Source Assessment			Urban Runoff & Receiving Water Assessment	
<u>Outcome Level 1</u>	<u>Outcome Level 2</u>	<u>Outcome Level 3</u>	<u>Outcome Level 4</u>	<u>Outcome Level 5</u>	<u>Outcome Level 6</u>
Stormwater Program Activities <ul style="list-style-type: none"> ▪ <i>Facilitation activities</i> ▪ <i>Feedback activities</i> ▪ <i>Administrative activities</i> 	Knowledge & Awareness <ul style="list-style-type: none"> ▪ <i>Knowledge</i> ▪ <i>Awareness</i> ▪ <i>Attitudes</i> 	Behavior (Action) <ul style="list-style-type: none"> ▪ <i>BMP Implementation</i> ▪ <i>Intermediary Behaviors</i> <ul style="list-style-type: none"> ○ Information seeking ○ Pollution reporting ○ Participation and involvement ○ Administrative and procedural behaviors 	Source Reductions <ul style="list-style-type: none"> ▪ <i>Source pollutant loads</i> ▪ <i>Site / source hydrology</i> 	Runoff Quality & Hydrology <ul style="list-style-type: none"> ▪ <i>Urban runoff quality</i> ▪ <i>Urban runoff hydrology</i> 	Receiving Water Conditions <ul style="list-style-type: none"> ▪ <i>Receiving water quality</i> ▪ <i>Hydromodification impacts</i> ▪ <i>Beneficial use protection</i>

Figure 1-1 Effectiveness Assessment Outcome Levels

Some important points to remember about these effectiveness assessments include:

- The ability of a stormwater program to assess an outcome level tends to become progressively more difficult as you assess higher outcome levels (levels 4-6). This is because the higher outcome levels assess the impact that the Permittees have on water quality, which requires a much more robust dataset over an extended period of time.

¹ California Stormwater Quality Association, *Municipal Program Effectiveness Assessment Guidance*, May 2007.

- Outcome levels 1-3 (and sometimes 4) are typically assessed using program management data, whereas outcome levels 4-6 are assessed using physical and/or water quality monitoring data.
- Each program element may be assessed at one or more outcome levels based on the data and information available.

Through the annual reports the effectiveness assessment will be expanded and modified as necessary in order to report on key items.

To assess our ultimate effectiveness of improvement in receiving water conditions, the Program started a comprehensive data analysis effort, aiming to identify historical trends in water quality, priority pollutants and their sources to receiving waters. As part of this year’s Report in Section 9 Water Quality Monitoring, the trend analysis methods and results are presented.

Water quality at the receiving water (mass emission) Stations in Ventura County is generally good but does fluctuate from year to year, usually associated with changes in salts and bacteria in dry weather, and salts and metals in wet weather. Water quality is usually better during dry weather events compared to storm events. Trends of sub-indices are shown in Chapter 9 as part of the Water Quality Index. The sub-indices quickly indicate what constituent classes are associated with drops of the overall Index. Lower scores are typically affected by salts in dry weather, and salts, metals, and bacteria in wet weather.

Overall water quality improved in Ventura County from 2003/04 to 2011/12, but then began dropping through 2016/17 coinciding with increasing (severe) drought conditions in Ventura County and a corresponding decrease in scores for salts and metals. A return to closer to average rainfall in 2017/18 and 2018/19 coincided with an improvement in salts scores, however, the heavy impact of the Thomas Fire on the Ventura River Watershed likely dragged down the 2017/18 scores at ME-VR (metals and toxicity in wet weather and bacteria² in dry weather), reducing the scores overall. The Ventura River Watershed appears to have rebounded significantly in 2018/19 and the Index shows overall improvement in scores, except for ME-CC, which had a similar log transformation exaggeration for the dry weather bacteria score, which dragged down the score overall, despite some improvement in scores for salts and organics in dry weather in 2018/19.

Index scores have generally been best for ME-VR/VR2, followed by ME-SCR then ME-CC in non-drought years, and ME-CC then ME-SCR in drought years. The order could be related to the degree of urbanization and agriculture in each watershed, as well as the effect of drought conditions on the watersheds.

The Program has already observed outcome Level 6 in receiving waters. Concentrations of metals, organics, nutrients, and one pesticide have trended downward since 2003.

Overall water quality in the County of Ventura is generally good, with the overall Index showing A to C grades across the county during 2018/19 in both wet and dry weather.

² The exceedance was low in magnitude but the log transformation rule in the Index exaggerated the effect.

2 Program Management

2.1 PROGRAM IMPLEMENTATION

2.1.1 Mission Statement

The Management Committee adopted a revised mission statement in 2018 to improve the focus and guide the actions of the Program. Its purpose is to provide a sense of direction, identify the overall goals, and guide decision-making in the future. It presents the framework and context within which the Program's strategies are guided. The Program's mission statement is:

Preserve, protect, and enhance surface water resources within Ventura County for the protection of human health and continued enjoyment of multiple beneficial uses.

2.1.2 Program Implementation

In 1992 the concept of a single countywide NPDES MS4 Stormwater Permit (Permit) was implemented in Ventura County. This began with the initial Report of Waste Discharge and the authorization to use the Watershed Protection District's Benefit Assessment to finance the activities and program efforts. Subsequently, on June 30, 1992, the District (as the Permit's Principal Permittee) entered into four separate District-zone-based implementation agreements with the ten Ventura County cities and the unincorporated areas of the county (the Permittees). Collectively, these four agreements are known as the Implementation Agreement for the Ventura Countywide Stormwater Quality Management Program. The Implementation Agreement identified the responsibilities of the Permittees and set forth the methodology for using the District's Benefit Assessment financing to fund the NPDES Stormwater Programs.

With the adoption of the second NPDES Permit, the Principal Permittee Program activities, responsibilities, and associated costs increased significantly. The District could no longer solely shoulder these fiscal obligations without assistance from the Permittees. In response, the Permittees' Public Works Directors created a committee to research the historical documentation from the District's Benefit Assessment Reports and draft a new implementation agreement.

In FY 2007/08, the first amendment to the agreement was approved to address this needed cost-sharing by amending the original agreement. In FY 2008/09 and 2009/10, the second and third amendments to the original agreement were approved to continue this needed cost-sharing.

The additional program costs for the Principal Permittee and Permittees associated with the 2010 NPDES Permit prompted further effort among the Public Works Directors to equitably share the increased costs. The result of that effort was a new NPDES Implementation Agreement to supersede the original agreement and amendments. The latest version of the Implementation Agreement was approved in 2016.

The Implementation Agreement defines the fiscal responsibilities (expenditures and contributions) of all collective parties with respect to the current Permit. It formalizes the Permittees' commitment to cooperate and to mutually fund an integrated Program for protecting and improving water quality in Ventura County. Permittee Responsibilities

The responsibilities of the Principal Permittee and Permittees are defined within the Permit and the Implementation Agreement. These roles and responsibilities are outlined below.

2.1.3 Permittees

Each Permittee is responsible for implementing the NPDES Stormwater Program and Permit compliance within their jurisdiction. The main responsibility of each Permittee can be identified as follows:

- Comply with the requirements of the Permit through implementation within its jurisdiction of the various stormwater management programs outlined in the Permit.
- Establish and maintain adequate legal authority and apply appropriate enforcement actions as necessary within its jurisdictions to ensure compliance with applicable ordinances.
- Participate in intra-agency coordination (e.g., Planning Department, Fire Department, Building and Safety, Code Enforcement, Public Health, Parks and Recreation, and others) necessary to facilitate the implementation of the requirements of this Permit applicable to such Permittees in an efficient and cost-effective manner.
- Prepare and submit all reports or requests of information to the Principal Permittee in a timely fashion.
- Review, provide comments, and approve Program budgets, plans, strategies, management programs, and monitoring programs developed by the Principal Permittee or any subcommittee.
- Respond to, or arrange for, response to emergency situations, such as accidental spills, leaks, illicit discharges/illegal connections, etc., to prevent or reduce the discharge of pollutants to the storm drain systems and waters of the U.S. within its jurisdiction.
- Conduct inspections of, and perform maintenance on, municipal infrastructure within its jurisdiction.
- Conduct and coordinate any surveys and source identification studies necessary to identify pollutant sources and drainage areas, and
- Participate in the Management Committee.

2.1.4 **Principal Permittee**

The role of the Principal Permittee is similar to the other Permittees with the addition of certain overall programmatic and facilitation responsibilities. These responsibilities do not include ensuring the compliance of the Permittees, as the Principal Permittee has no regulatory authority over the Permittees. The responsibilities outlined in the Permit include the following:

- Coordinate and facilitate activities necessary to comply with the requirements of the Permit.
- Act as liaison between the Permittees and the Regional Water Board on permitting issues.
- Provide for countywide consistency and program coordination.
- Provide technical and administrative support for subcommittees organized to implement this Order and its requirements.
- Implement a Public Information and Participation Program (PIPP) including developing a strategy to educate ethnic communities through culturally effective methods, and a plan to provide outreach in lieu of the school curriculum.
- Implement the monitoring program required in Attachment F of the Permit.
- Participate in the County Environmental Crimes Task Force.

- Provide resources for the collection, processing and submittal to the Regional Water Board of monitoring and annual reports, and summaries of other reports required under this Order. Establish uniform data submittal format and develop an Electronic Reporting Program.
- Participate in water quality meetings for watershed management and planning.
- Participate in the Southern California Storm Water Monitoring Coalition (SMC) Southern California Regional Bioassessment Monitoring Program.
- Compile and make available on the internet a list of the general public reporting contacts, and
- Convene all Management Committee meetings.

In addition to responsibilities identified in the Permit, the Principal Permittee also performs the following for the benefit of the Program:

- Prepare communications, regulatory reports, and submissions to the Regional Board.
- Provide Regional Representation for the Program and communicate information to the Permittees.
- Arrange for public access and review of Program plans and documents.
- Secure services of consultants as necessary.
- Implement activities of common interest to the Program.
- Develop, prepare, and generate all materials and data common to all Permittees, and
- Update Permittees on RWQCB and US Environmental Protection Agency (USEPA) regulations.

2.2 MANAGEMENT ACTIVITIES

2.2.1 Management Committee

The NPDES Management Committee is the main forum for directing the Program's development and implementation. This Committee is attended by senior staff from all Permittee agencies and meets monthly to assure Program continuity. All Committee members have been authorized by their Director of Public Works as Management Committee Voting Representatives with the authority to approve the Principal Permittee's budget and/or modifications. If no Representative is authorized, it is the Public Works Directors' responsibility to voice their opinion at meetings when these items are on the agenda. In addition to budgeting and program direction, this committee also periodically evaluates the need to create ad hoc committees or workgroups to develop tools and accomplish the objectives of the NPDES Stormwater Program. Although it is no longer mandated that Permittees attend the meetings, participation in the Management Committee as necessary is a specific requirement of the Permit.

Performance Standard 2-1

Participate in intra-agency coordination including Committee and Subcommittee Meetings to facilitate the implementation of the Permit			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		



2.2.2 Subcommittees

The Subcommittees provide a forum for discussion of particular program elements and are attended by the staff with the appropriate expertise from each Permittee. These meetings allow for a more uniform approach and regional consistency to program management countywide. This helps provide a level playing field for businesses and residents countywide. More importantly it allows the Permittees to learn from each other and have access to tools that have already been developed. This is very beneficial for the smaller agencies which do not have at their disposal the resources available to the true Phase 1 cities (population over 100,000).

The subcommittees were created at the beginning of the program, have continued to meet, and have evolved over the years as requirements and pollutant sources have changed. Subcommittee activities over this Permit Year have been devoted to communicating and implementing Permit requirements and improving programs for compliance. Each subcommittee focuses on specific Permit requirements and implementation programs. These generally follow the program sections of the Permit, but the subcommittees also incorporate the whole Permit in their analysis and integrated program development. The subcommittees and their program responsibilities are listed below. This list does not include any ad hoc, special project, or working groups that may have been formed by the Management Committee or from a logical outgrowth of the subcommittees. One such working group that was previously implemented was the Capital Improvement Projects (CIP) Working Group. This group was set up to assist Permittees own capital improvement program engineers and staff to understand and implement the new post-construction requirements as well as the new Construction General Permit requirements in our public projects.

The following is description of the Program’s subcommittees.

Residential/Public Outreach Subcommittee

The Principal Permittee’s countywide outreach program is guided by this subcommittee. Using information on pollutants identified through the monitoring program and 303(d) lists, this committee selects specific Pollutants of Concern to target each year, target audiences, and decides on the best methods of outreach to influence a change in behavior. Information is shared and regional message consistency reinforced.

Business Outreach and Illicit Discharge Control Subcommittee

Attended mostly by inspectors, this committee oversees the development of the model industrial/commercial and illicit discharge/illegal connections programs. Countywide consistency is created by developing inspection forms and sharing methods of identifying and educating businesses

and industries targeted for inspections. Outreach materials focused on specific industries and businesses are also developed for countywide use by all Permittees. Illicit discharge identification and responses are included at every meeting and discussed. Enforcement experiences are shared to further the education of inspectors countywide.

Planning and Land Development Subcommittee

Planners and development engineers work together to provide regional tools for design, review, and conditioning of new development and redevelopment projects, and to promote regional consistency in their application. Guidance and training are developed for the development community for the implementation of stormwater management control measures countywide. The guidelines developed are intended to improve water quality and mitigate potential water quality impacts from new development and significant redevelopment. This year's focus was on developing the Stormwater Resources Plan, and creating the tools needed for identifying potential project locations and concept designs.

Construction Subcommittee

Regional consistency for inspections and enforcement are provided by developing model inspection checklists and identifying solutions to common problems. Information on the State Construction General Permit issues, training requirements and opportunities are shared and disseminated to the construction community.

Public Infrastructure Subcommittee

This subcommittee assists municipalities in the protection of their storm drain infrastructure from pollutants through best management practices, the development of model municipal activities programs, corporate yard inspections, and integrated pesticide management programs. It also works to identify solutions to infrastructure mapping and other Permit requirements.

The value of the subcommittees to improve staff knowledge and abilities, achieve economies of scale, and provide regional program consistency is understood by all members. It is recognized by the Permittees that increased attendance and effort in the subcommittees will be rewarded by improvement in staff understanding and capabilities, resources, and the overall program.

2.2.3 Total Maximum Daily Load Annual Compliance

In addition to the compliance requirements of the NPDES Permit the Permittees also must comply with the Total Maximum Daily Loads (TMDLs) when they are named as Responsible Parties. These efforts may seem parallel to Permit compliance efforts, but they require significant additional resources to develop and implement the needed plans. Many of the Permittees have coordinated efforts under separate implementing legal instruments for common sharing of monitoring and reporting costs and collection of data and studies among the Responsible Parties of the different TMDLs. The currently effective multi-stakeholder Memoranda of Agreements (MOAs) for TMDLs in Ventura County are listed in Table 2-1.

Table 2-1 Currently Effective Ventura County TMDL MOAs

Watershed	TMDL	TMDL Requirement	MOA Effective Date	Participating Parties
VRW	Algae, Eutrophic Conditions, & Nutrients TMDL	Receiving Water Monitoring	01/19/2015	City of Ventura, City of Ojai, County of Ventura, District, Ojai Valley Sanitary District, VCAILG (Farm Bureau of Ventura County), & Caltrans
VRW	VRE Trash TMDL	Implementation of TMRP/MFAC	03/28/2009	City of Ventura, County of Ventura, District, Fairgrounds, State Parks, VCAILG (Farm Bureau of Ventura County), & Caltrans
SCR	SCR Bacteria TMDL	Receiving Water Monitoring	10/11/2016	City of Fillmore, City of Santa Paula, City of Oxnard, City of Ventura, & County of Ventura
		Outfall Monitoring	09/14/2018	
CCW	OC Pesticides TMDL	Implementation of TMDL Requirements	07/01/2018 Amendment No. 2	CCW MS4s, CCW WWTPs, Caltrans, Navy, and VCAILG (Farm Bureau of Ventura County)
CCW	Metals TMDL			
CCW	Salts TMDL			
CCW	RSBW Trash TMDL			
CCW	Oxnard Drain TMDLs			
OCW	Harbor Beaches TMDL			County of Ventura, District, City of Oxnard
		Special Studies for Wet Weather Compliance	01/01/2018	
MCW	Malibu Creek Bacteria TMDL	TMDL Monitoring	07/20/2010	District, County of Ventura, & City of Thousand Oaks
		Time Schedule Order Request	09/27/2016	
MCW	Malibu Creek Trash TMDL	Implementation of TMRP/MFAC	07/30/2012	

For the TMDLs identified in the Permit that specifically mention reporting, the Permit states that “MS4 Permittees, either independently or in conjunction with other stakeholders, shall submit an annual progress report”. It does not identify the Principal Permittee as responsible to collect, analyze or report the information regarding TMDL compliance, but rather keeps that responsibility with Permittees (and other Responsible Parties) identified in the TMDL. Nonetheless, all TMDL Reports and Plans submitted to the Regional Board in the 2018/19 reporting period are included in Attachment E.

During this reporting period of July 1, 2018 through June 30, 2019, the TMDL Responsible Parties continued implementation of the TMDL requirements including preparation and submittal to RWQCB required documents. Table 2-2 summarizes submitted TMDL documents and Permittees' compliance efforts for TMDL covered under the Permit:

Table 2-2 Summary of TMDL Implementation Efforts (July 1, 2018 and June 30, 2019)

No.	Watershed	TMDL Pollutant	On-going Implementation Plan Efforts	Submitted Documents	Permittees' Compliance Efforts
1	Malibu Creek	Nutrients	U.S. EPA's TMDL - the Implementation Plan was developed by the RWQCB-LA Region and became effective May 2017 Addendum 1 to Implementation Plan was prepared by the County and submitted to RWQCB-LA Region in May 2013	Not required	County of Ventura successfully applied for Prop. 84 funding to design and construct Oak Park Green Streets Retrofit project; project Phase I construction was completed in October 2017; phase II is scheduled for completion in spring of 2020.
2	Calleguas Creek	Nitrogen Compounds	Stormwater discharges are minor contributors; no WLAs were assigned to MS4s. On-going monitoring per approved Calleguas Creek TMDL Monitoring Plan	Annual Report (Dec. 2018)	Stormwater pollution source is minimal; no WLAs are assigned to MS4s.
3	Santa Clara River	Nitrogen Compounds	On-going MS4 monitoring	Request for Ammonia Delisting (June 2015)	1) Salt and Nutrient Management Plan for Santa Clara River watershed was approved by RWQCB-LA on July 9, 2015; 2) The County and SCR MS4s completed data analysis and submitted a request to RWQCB-LA for delisting of Ammonia in SCR Reach 3 in June 2015; RWQCB-LA and SWRCB approved requested delisting as documented in the 2014/2016 Integrated Report;

No.	Watershed	TMDL Pollutant	On-going Implementation Plan Efforts	Submitted Documents	Permittees' Compliance Efforts
4	Santa Clara River (Reach 3)	Chloride	On-going MS4 monitoring	Not applicable	Salt and Nutrient Management Plan for Santa Clara River watershed was approved by RWQCB-LA on July 9, 2015.
5	Upper Santa Clara River	Chloride	Outside County of Ventura's jurisdiction	Not applicable	Not applicable; in July 2016, the County provided maps to RWQCB showing no Ventura County's MS4 within upper SCR watershed
6	Calleguas Creek	Toxicity, Chloropyrifos, Diazinon (OP Pesticides)	On-going monitoring and completion of Special Studies per approved Calleguas Creek TMDL Monitoring Plan	Annual Report (Dec. 2018)	On-going implementation of MS4 Permit requirements
7	Calleguas Creek	OC Pesticides, PCBs, and siltation	On-going monitoring and completion of Special Studies per approved Calleguas Creek TMDL Monitoring Plan; Natural Attenuation study due March 2016	Annual Report (Dec. 2018)	On-going implementation of MS4 Permit requirements
8	Malibu Creek and Lagoon	Bacteria	Weekly bacteria monitoring per approved Monitoring Plan. Addendum 1 to Implementation Plan was prepared by the County.	Monthly reports	1) Completion of Additional Bacteria Source Identification Special Study by the County in summer 2015. 2) County of Ventura successfully applied for Prop. 84 funding to construction Oak Park Green Streets Retrofit project; project Phase I construction was completed in October 2017; phase II is scheduled for completion in summer of 2019.

No.	Watershed	TMDL Pollutant	On-going Implementation Plan Efforts	Submitted Documents	Permittees' Compliance Efforts
9	Calleguas Creek	Metals & Selenium (Cr, Ni, Ag, Zn, Cd, Se)	On-going monitoring and completion of Special Studies per approved Calleguas Creek TMDL Monitoring Plan and Urban Water Quality Monitoring Plan for Cu, Hg, Ni, and Se.	Annual Report (Dec. 2018)	On-going implementation of MS4 Permit requirements
10	Revolon Slough and Beardsley Wash	Trash	Monthly trash monitoring per approved Trash Monitoring and Reporting Plan (TMRP); In process of revising TMRP as required by the 2018 revised TMDL	Annual Report (Jan. 2019)	1) Installation of full trash capture devices to meet 100% point-source compliance by County of Ventura & City of Oxnard; 2) 100% point source compliance including additional MFAC/BMP efforts by City of Camarillo 3) On-going monthly clean-ups and monitoring events; 4) Additional trash BMPs and clean-up efforts are described in the Annual Report; 4) TMDL implementation update presentation was given to RWQCB in June 2018
11	Calleguas Creek	Salts: Boron, Chloride, Sulfate, & TDS	On-going monitoring and completion of Special Studies per approved Calleguas Creek TMDL Monitoring Plan	Annual Report (Dec. 2018)	On-going implementation of MS4 Permit requirements
12	Ventura River Estuary	Trash	Weekly patrols, monthly trash cleanups, and quarterly trash assessment per approved Trash Monitoring and Reporting Plan (TMRP) Addendum 1.	Annual Report (Jan. 2019)	1) Installation of full trash capture devices to meet 100% point-source compliance by City of Ventura and County of Ventura; 2) Weekly patrols and monthly volunteer trash cleanups; 3) On-going trash monitoring per approved TMRP Addendum 1;

No.	Watershed	TMDL Pollutant	On-going Implementation Plan Efforts	Submitted Documents	Permittees' Compliance Efforts
13	Harbor Beaches of Ventura County	Bacteria	On-going weekly bacteria monitoring at Kiddie and Hobie Beaches	Compliance Report (Dec. 2016)	1) Dry weather compliance due to year-round operation of San Nicolas Pump Station at Kiddie Beach and no nuisance flows present at Hobie Beach; 2) Implementation of BMPs in accordance with Dry-Weather and Wet-Weather Implementation Plans. 3) County conducted dye test to confirm proper operation of dry-weather diversion system; 4) Weekly inspections of catch basins discharging into Hobie Beach by City of Oxnard; 5) Completion of wet weather special study in 2018; 6) Microbial Source Tracking study planned for 2019/2020;
Additional TMDLs Currently not Included in Ventura MS4 Permit:					
14	Ventura River	Algae, Eutrophic Conditions, & Nutrients TMDL	Draft Implementation Plan	Draft Implementation Plan 06/25/2015; Annual and Semiannual Reports	1) On-going receiving water monitoring and reporting 2) County and District constructed Happy Valley Bioswale in Meiners Oaks in spring 2016 funded by Proposition 84 SWGP 3) on-going water conservation efforts including seminars and workshops

No.	Watershed	TMDL Pollutant	On-going Implementation Plan Efforts	Submitted Documents	Permittees' Compliance Efforts
15	Santa Clara River	Bacteria Indicator	Draft Implementation Plan was approved by RWQCB-LA in Dec. 2017	Draft Implementation Plan (Mar. 2015); Semiannual Report (June 2019); Annual Report (December 2018)	<ul style="list-style-type: none"> 1) On-going receiving water monitoring and reporting 2) County completed Green Streets retrofit in El Rio in spring 2016 funded by Proposition 84 IRWM 3) Piru Stormwater project funded by Proposition 1 SWGP will be constructed in winter of 2019 4) City of Santa Paula is in the design process of stormwater improvement project 5) District completed periodic trash cleanups and removal of homeless encampments 6) on-going water conservation efforts including seminars and workshops 7) District is working with stakeholders on planning and initial design of Central Avenue Stormwater Diversion for Groundwater Recharge project 8) County in collaboration with Caltrans prepared initial planning documents for Saticoy Stormwater Capture for infiltration project. 9) TMDL implementation update presentation was given to RWQCB in October 2017
16	Malibu Creek	Trash TMDL	Development of Trash Monitoring and Reporting Plan (TMRP); in process of revising TMRP as required by the 2018 revised TMDL	Annual Report (Feb. 2019)	<ul style="list-style-type: none"> 1) Installation of full trash capture devices to meet 100% point-source compliance by County of Ventura; 2) On-going monthly clean-ups and monitoring events; 3) Additional trash BMPs and clean-up efforts are described in the Annual Report; 4) TMDL implementation update presentation was given to RWQCB in June 2018

Since adoption of the Permit in July 2010, additional TMDLs for Ventura County watersheds were adopted and/or became effective including:

1. Santa Clara River Bacteria TMDL effective March 2012,
2. Ventura River Algae TMDL effective June 2013,
3. Malibu Creek and Lagoon Sedimentation and Nutrients Impacting Benthic Community TMDL adopted by US EPA in July 2013,
4. Lake Sherwood Mercury TMDL adopted by US EPA in March 2012, and
5. Oxnard Drain No. 3 Toxicity TMDL adopted by US EPA in October 2011.

TMDL responsible parties listed in the above recently adopted and/or effective TMDLs have been implementing all planning, monitoring, and implementation requirements as specified by TMDLs.

2.2.4 Other Regional Committees/Work Groups

Many of the Permittees additionally participate in various watershed management advisory groups. These groups include: the Ventura County Integrated Resources Water Management Plan (IRWMP), Ventura River Watershed Council, Santa Clara River Watershed Committee, Wetlands Recovery Project, Calleguas Creek Watershed Management Committee, Matilija Dam Ecosystem Restoration Study, Channel Islands Beach Park Action Plan for Improving Water Quality, Malibu Creek Watershed Management Committee and Technical Advisory Committee, Steelhead Restoration and Recovery Plan, Beach Erosion Authority for Clean Oceans and Nourishment (BEACON), Southern California Coastal Water Research Project (SCCWRP), Stormwater Monitoring Coalition of Southern California (SMC), the Ormond Beach Task Force, and the Marine Advisory Committee of the Channel Islands Neighborhood Council.. These watershed and regional groups focus their activities and discussions on specific concerns such as water quality, habitat restoration and flood control, as well as short, medium, and long-term solutions to improve water quality.

2.2.5 Management Framework – Program Implementation

Program development occurs through the Permittee, Countywide Program, and watershed management frameworks. At a jurisdictional level the Permittees have formally identified which departments and staff have responsibility for implementation of each program element within their jurisdictions. It may be necessary for the responsibility to be formally documented through Memorandums of Understanding or other tools. Smaller agencies tend not to require such formal agreements between departments, and in some cases there may be only a few people who are involved in the implementation of all aspects of the stormwater program.

2.2.6 Legal Authority

Although adequate legal authority existed for most pollutant discharges at the inception of the stormwater program in 1994, the Permittees determined that a Model Stormwater Quality Ordinance should be developed to provide a more uniform countywide approach and to provide a legal underpinning to the entire Ventura Countywide NPDES Stormwater Program.

Performance Standard 2-2

Ensure that the Stormwater Quality and LID Ordinances authorize enforcement of all requirements of the Permit? (by July 8, 2012)			
	<i>Yes</i>	<i>No</i>	<i>In Progress</i>
<i>Camarillo</i>	<input checked="" type="checkbox"/>		
<i>County of Ventura</i>	<input checked="" type="checkbox"/>		
<i>Fillmore</i>	<input checked="" type="checkbox"/>		
<i>Moorpark</i>	<input checked="" type="checkbox"/>		
<i>Ojai</i>	<input checked="" type="checkbox"/>		
<i>Oxnard</i>	<input checked="" type="checkbox"/>		
<i>Port Hueneme</i>	<input checked="" type="checkbox"/>		
<i>Ventura</i>	<input checked="" type="checkbox"/>		
<i>Santa Paula</i>	<input checked="" type="checkbox"/>		
<i>Simi Valley</i>	<input checked="" type="checkbox"/>		
<i>Thousand Oaks</i>	<input checked="" type="checkbox"/>		
<i>Watershed Protection</i>	<input checked="" type="checkbox"/>		

Subsequently, all of the Permittees adopted largely similar versions of the initial Model Stormwater Quality Ordinance. With the adoption of the Order No. 10-0108 the municipal ordinances must be updated by July 8, 2012. The Permittees, led by the City of Moorpark, drafted a model ordinance which can serve as the basis for each Permittee to adopt and authorize them to enforce all requirements of the Permit. Several of the Permittees have updated their existing ordinances or written entirely new ones. Preliminary review by Counsel for the Permittees have determined the existing ordinances are capable of enforcing the Permit, however this will be made stronger through the adopting of an improved ordinance.

Enforcement of the current ordinance and the detection, investigation, and elimination of discharges undertaken by the Permittees during 2018/19 are described further in Section 8 Illicit Connections and Illicit Discharge Elimination. In addition to prohibiting un-permitted discharges, the Stormwater Quality Ordinance, in conjunction with the conditions of land development, provides for requiring BMPs on new development and significant redevelopment. Stormwater quality ordinances have been adopted in each Permittees' jurisdictions as indicated in Table 2-3 Ordinance Adoption Dates. As stated above, the requirement to be able to enforce the Permit was required by July 8, 2012, the beginning of this reporting period.



Watershed Identification Sign

Table 2-3 Ordinance Adoption Dates

Ordinance Adoption Dates		
Permittee	Adopted Date	Amendment Date
Camarillo	10/1/1998	12/12/2012
County of Ventura	7/17/2012	
Fillmore	3/25/2014	8/25/2015
Moorpark	1997	2008
Ojai	6/21/1999	
Oxnard	3/24/1998	3/24/2009
Port Hueneme	4/1/1998	
San Buenaventura	1/11/1999	9/1/2011
Santa Paula	1/1/1998	2010
Simi Valley	7/2/2012	
Thousand Oaks	9/14/1999	

2.2.7 Watershed Protection District Stormwater Program Representation

To stay informed of new science and regulations and gain economies of scale through regional efforts the Principal Permittee represents the Permittees by participating in the following organizations and associations:

California Association for Stormwater Agencies (CASQA)

The California Stormwater Quality Association, originally formed as an advisory body to the State Water Resources Control Board (SWRCB) on stormwater quality program issues, is now a 501 (c)(3) non-profit organization. CASQA membership is composed of a diverse range of stormwater quality management organizations and individuals, including cities, counties, special districts, industries, and consulting firms throughout the state. A large part of its mission is to assist stormwater quality programs in California to learn collectively from the individual experiences of its members, learn from their mistakes, and provide awareness of regional and state issues. Since its inception in 1989, CASQA has evolved into the leading organization in California dealing with stormwater quality issues.

Southern California Coastal Water Research Project (SCCWRP)

The Southern California Coastal Water Research Project (SCCWRP) is a joint powers agency formed by fourteen agencies through a unique partnership between municipalities that discharge treated wastewater to the ocean, stormwater agencies, and regulators that oversee dischargers. Members work together to develop a solid scientific foundation for coastal environment management in southern California. SCCWRP's mission is to gather the necessary scientific information so that member agencies can effectively and cost-efficiently protect the Southern California coastal and marine environment. In addition, SCCWRP's mission is to ensure that the data it collects and synthesizes effectively reaches decision-makers, scientists, and the public.

Stormwater Monitoring Coalition of Southern California (SMC)

The SMC participants are the Ventura County Watershed Protection District, the County of Orange, the County of San Diego, the Los Angeles County Flood Control District, the San Bernardino County Flood Control District, the Riverside County Flood Control and Water Conservation District, the City of Long Beach, the City of Los Angeles, the Regional Water Quality Control Boards of Los Angeles Region, Santa Ana Region, and San Diego Region, the Southern California Coastal Water Research Project (SCCWRP), and the California Department of Transportation. They have decided to work together in a cooperative effort to develop scientific

and technical tools needed in southern California to improve stormwater program implementation, assessment, and monitoring.

2.3 FISCAL ANALYSIS

The Permittees have committed significant resources to Permit compliance, reducing stormwater pollution, and improving the water quality in Ventura County. This Section presents a summary of the costs anticipated for the coming permit year by the Permittees in developing, implementing, and maintaining programs in order to comply with Permit requirements. Also included is information on the different funding sources used by the Permittees to ensure that resources are available for Permit compliance. Since each Permittee shares in the cost of the Principal Program the total cost shown for each Permittee is the sum of those *shared* costs and their *individual* costs. However, in the grand total of all costs, including the Principal Permittee, these costs are not included to avoid the error of counting them twice.

2.3.1 Program Costs for Permit

With the current Permit, costs of the Principal Program had increased significantly over previous permits. The majority of this was due to the large increase in monitoring, but also the first year of the Permit required new materials for businesses and land development communities. Cost for the Permittees’ implementation also increased significantly but have tapered off from the first year. In 2010/11 the projected cost of the activities undertaken by the Permittees implementing the stormwater program within their jurisdictions were estimated to be \$31,910,727. This is a large increase over the budgets under the previous permit due to new programs, monitoring equipment and studies required. For 2018/19 the estimated costs are about half of what they were a 2010/11, though still significant at \$17.5 million.

Performance Standard 2-3

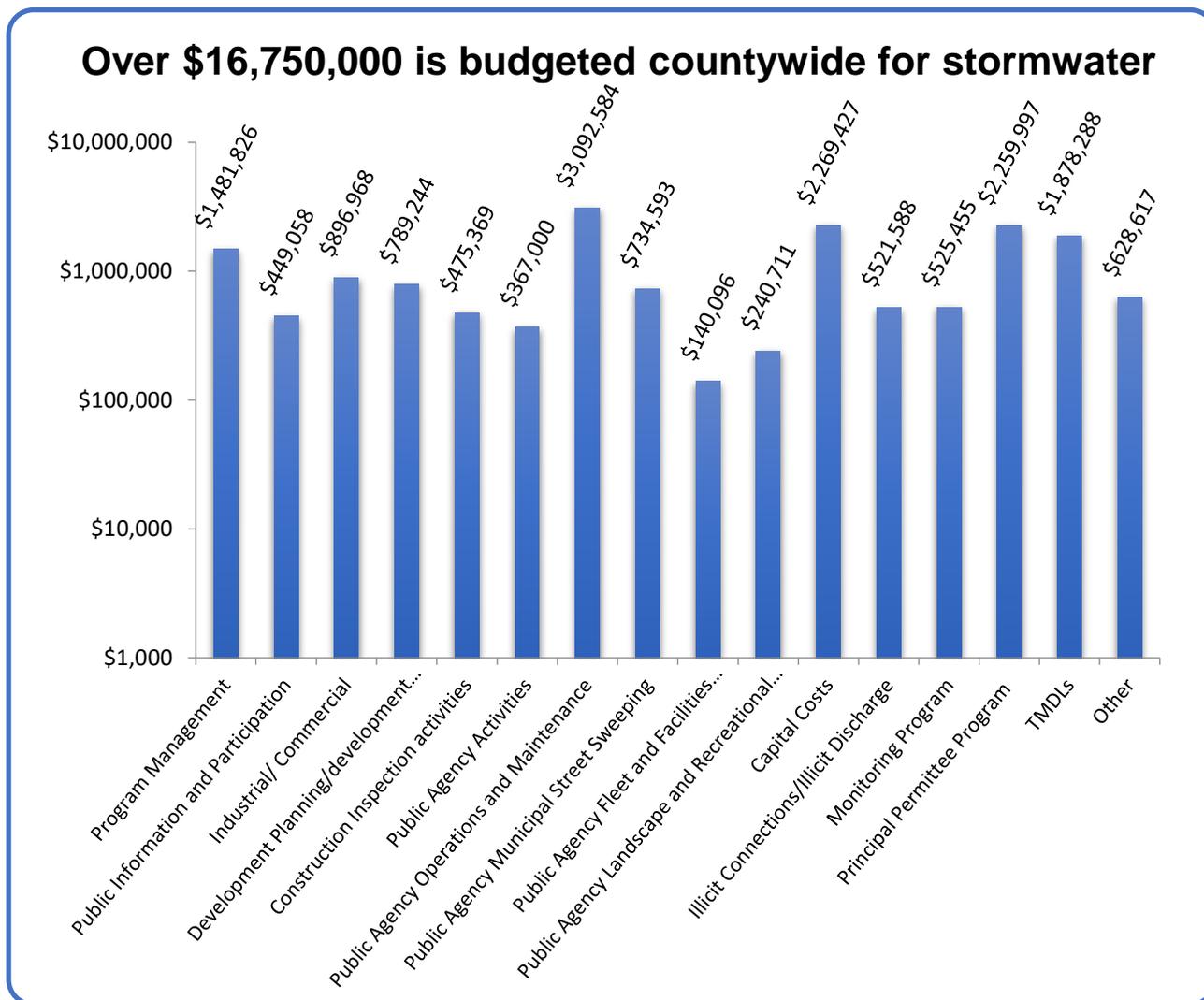
Document the costs to implement the stormwater program for Permit Year 2018/2019			
	<i>Yes</i>	<i>No</i>	<i>N/A</i>
<i>Camarillo</i>	<input checked="" type="checkbox"/>		
<i>County of Ventura</i>	<input checked="" type="checkbox"/>		
<i>Fillmore</i>	<input checked="" type="checkbox"/>		
<i>Moorpark</i>	<input checked="" type="checkbox"/>		
<i>Ojai</i>	<input checked="" type="checkbox"/>		
<i>Oxnard</i>	<input checked="" type="checkbox"/>		
<i>Port Hueneme</i>	<input checked="" type="checkbox"/>		
<i>Ventura</i>	<input checked="" type="checkbox"/>		
<i>Santa Paula</i>	<input checked="" type="checkbox"/>		
<i>Simi Valley</i>	<input checked="" type="checkbox"/>		
<i>Thousand Oaks</i>	<input checked="" type="checkbox"/>		
<i>Watershed Protection</i>	<input checked="" type="checkbox"/>		

2.3.1 Fiscal Resources

Each Permittee prepares a stormwater budget annually and allocates resources to be applied to the stormwater program. An effective stormwater program must be integrated within the entire management structure of a Permittee, which means it transcends divisions and departments, therefore stormwater programs are not always uniquely identified in budgets, but more often integrated into the ongoing programs. Table 2-4 presents the projected stormwater budget for each Permittee for Fiscal Year 2019/20 and Figure 2-1 shows how the countywide budget is broken out among the various programs. As expected, there is some variability between the stormwater program budgets reported by the Permittees, even if normalized by population or geographic size. This variability is due in part to the accounting practices utilized by each Permittee and the allocation of

activity costs amongst programs implemented by each Permittee. Variability is most significant when capital improvements are undertaken, these are usually very large and costly projects that may be TMDL driven or assisted by grant funding. These projects do not represent ongoing program costs, but rather investments in infrastructure to help reduce stormwater pollution into the future.

Figure 2-1 Countywide Budget FY 2019/20



The Permittees vary significantly in their jurisdictional area and population; this can explain some differences in resources dedicated to various program areas. Another example of differences is that some Permittees have privatized streets sweeping and the annual costs are being born by the solid waste rate payers. Yet, a review of the annual budgets produces some nominal findings. As expected, total stormwater budgets trend upwards as population and service area increases. However, increased population doesn't always directly translate into increased revenue available for the program. Seeking new revenue sources to provide the needed resources to comply with the legal requirements of the Permit is an ongoing effort of the Permittees.

Table 2-4 Agency Annual Budget Update for Stormwater Management Program - Fiscal Year 2019-2020

Program Element	Camarillo	County of Ventura	Fillmore	Moorpark	Ojai	Oxnard	Port Hueneme	Ventura	Santa Paula	Simi Valley	Thousand Oaks	VCWPD	Principal Permittee
II. Program Management	\$ 216,405.00	\$ 349,985.00	\$ 8,856.00	\$ 66,516.00	\$ 12,000.00	\$ 47,000.00	\$ 20,000.00	\$ 107,000.00	\$ 40,000.00	\$ 146,815.00	\$ 160,000.00		\$ 307,249
III. Public Outreach	\$ 50,456.00	\$ 117,685.00	\$ 4,000.00	\$ 1,000.00	\$ 1,000.00	\$ 20,000.00	\$ 1,000.00	\$ 33,000.00	\$ 500.00	\$ 47,737.00	\$ 60,000.00	\$ -	\$ 112,680
IV. Industrial/Commercial	\$ 46,850.00	\$ 143,580.00	\$ 6,000.00	\$ 18,000.00	\$ 5,000.00	\$ 400,000.00	\$ 2,000.00	\$ 120,000.00	\$ 3,000.00	\$ 112,538.00	\$ 40,000.00	\$ -	
V. Planning and Land Development	\$ 37,629.00	\$ 157,685.00	\$ 5,000.00	\$ 85,000.00	\$ 5,000.00		\$ 10,000.00	\$ 400,000.00		\$ 18,930.00	\$ 70,000.00	\$ -	
VI. Construction	\$ 46,800.00	\$ 99,438.00	\$ 4,000.00	\$ 75,000.00	\$ 3,500.00	\$ 40,000.00	\$ 10,000.00	\$ 45,000.00	\$ 20,000.00	\$ 81,631.00	\$ 50,000.00		
VII. Public Agency Activities		\$ 367,000.00											
Operations and Maintenance	\$ 341,207.00	Included in County Agencies O&M Budgets	\$ 1,000.00	\$ 14,250.00	\$ 48,420.00	\$ 372,932.00	\$ 40,000.00	\$ 325,000.00	\$ 35,000.00	\$ 234,775.00	\$ 180,000.00	\$ 1,500,000	
Municipal Street Sweeping	\$ 130,000.00				*	\$ 300,000.00	\$ 137,000.00	\$ 50,000.00	\$ 10,000.00	\$ 107,593.00	\$ -	N/A	
Fleet and Public Agency Facilities (Corporate Yards)	\$ 3,085.00		\$ 7,000.00	\$ 7,920.00	\$ 2,500.00		\$ 2,000.00	\$ 10,000.00	\$ 30,000.00	\$ 17,591.00	\$ 60,000.00		
Landscape and Recreational Facilities	\$ 21,398.00		\$ 3,000.00	\$ 13,000.00	\$ 2,500.00		\$ 75,000.00	\$ 40,000.00	\$ -	\$ 85,813.00	\$ -		
Capital Costs	\$ 60,000.00	\$ 1,678,800.00		\$ 151,157.00	\$ -		\$ 70,000.00	\$ 100,000.00	\$ 20,000.00	\$ 109,470.00	\$ 80,000.00		
VIII. Illicit Discharges/Connections	\$ 78,115.00	\$ 143,580.00	\$ 3,000.00	\$ 2,000.00	\$ -	\$ 20,000.00	\$ 5,000.00	\$ 30,000.00	\$ 15,000.00	\$ 184,893.00	\$ 40,000.00		
Monitoring Program		\$ -			\$ 1,100.00	\$ 25,000.00		\$ 25,000.00	\$ -	\$ 10,073.00	\$ -	\$ -	\$ 464,282
Principal Permittee Program	\$ 103,000.00	\$ 230,277.00	\$ 14,600.00	\$ 30,000.00	\$ 12,800.00	\$ 188,135.00	\$ 14,000.00	\$ 133,000.00	\$ 21,000.00	\$ 149,500.00	\$ 191,281.00	\$ -	
TMDLs	\$ 100,500.00	\$ 918,270.00	\$ 19,418.00	\$ 25,000.00	\$ 12,000.00	\$ 160,000.00		\$ 75,000.00	\$ 13,100.00	\$ 75,000.00	\$ 240,000.00	\$ 240,000	
Other			\$ 14,427.00	\$ 15,000.00	\$ -	\$ 75,000.00			\$ 1,000.00	\$ 67,401.00		\$ 210,000	\$ 245,789
Total	\$ 1,235,445	\$ 4,206,300	\$ 90,301	\$ 503,843	\$ 105,820	\$ 1,648,067	\$ 386,000	\$ 1,493,000	\$ 208,600	\$ 1,449,760	\$ 1,171,281	\$ 1,950,000	\$ 1,129,999

* Funds for additional Public Agency Activities are allocated in the County’s Operations and Maintenance budget, Fleet Public Agency budget, and County’s Landscape and recreational Facilities budget.

** Capital costs are included in the County’s Capital Project budget.

2.3.2 Funding Sources

Funding sources to implement the stormwater program, including the programs that have been in place long before the Permit requirements but are now relied upon to ensure Permittees meet Permit objectives, are both general and specific funds, taxes, maintenance and user fees, and grants. Other efforts in the county to monitor, cleanup, or otherwise improve stormwater quality by volunteer groups like Ventura Coastkeeper whose efforts can be considered to help implement some stormwater program elements are not included, however, Permittee efforts to support volunteer groups in their endeavors are included.

The funding sources used by the Permittees include: Watershed Protection District Benefit Assessment Program, General Fund, Utility Tax, Separate Tax, Gas Tax, Special District Fund, and others (Developer Fees, Business Inspection Fees, Sanitation Fees, Fleet Maintenance, Community Services District, Water Fund, Grants, and Used Oil Recycling Grants).

All Permittees except the City of Moorpark gave authorization to use the Watershed Protection District's Benefit Assessment to finance the activities and requirements. This was done through watershed-based Implementation Agreements for the Ventura Countywide Stormwater Quality Management Program. The Implementation Agreements identified the responsibilities of the parties to the Permit and set forth the methodology for using the District's Benefit Assessment financing to fund the NPDES Stormwater Program in their respective jurisdictions. To formally document their intention to be included in the following fiscal year's Benefit Assessment Program, each Permittee submits a request via their Annual Report data submittal and signature page.

The Agreements have been amended over the years and with the 2010 Permit a renewed effort to secure a long-term agreement was initiated. The result was a five-year Implementation Agreement with all Permittees to replace the original agreement. The Agreement defines the fiscal responsibilities (expenditures and contributions) of all collective parties with respect to the current Permit. It formalizes the Permittees' commitment to cooperate and to mutually fund an integrated Program of protecting and improving water quality in Ventura County. The five-year time frame was designed to mirror the term of the Permit. The latest Implementation Agreement was approved in 2016. As new permits are written and adopted for Ventura County these agreements will be reviewed, revised, and renewed as appropriate.

Table 2-5 Permittee Population and Area

Ventura County Statistics		
Permittee	Population	Area (Sq. Mi.)
Camarillo	69,301	19.86
County of Ventura	92,063	24
Fillmore	15,812	3.36
Moorpark	37,044	12.44
Ojai	7,582	4.50
Oxnard	209,877	26.89
Port Hueneme	22,173	4.40
Ventura	110,790	33.00
Santa Paula	31,138	5.40
Simi Valley	126,788	42.00
Thousand Oaks	127,690	55.03

3 Public Information and Public Participation

3.1 OVERVIEW

The purpose of the Public Outreach Program is to increase the public's knowledge and ultimately change their behavior to reduce stormwater pollution. In addition to improving water quality, helping the public understand the problems associated with urban stormwater runoff can help build overall support for the stormwater program.

The Public Outreach Program is designed to implement and evaluate comprehensive short- and long-term public education campaigns that will inform the community about how our actions may adversely impact urban stormwater discharges and, subsequently, the local water bodies. Public education is an essential part of a municipal stormwater program because changing public behavior can create a real reduction in pollutants. When a community has a clear understanding of where the pollution comes from, how it can affect them, and what they can do to stop it, they will be more likely to support the program, change their own practices, and help educate others.

The Permittees are building upon the many successes of the current program. Early in the program, the Permittees identified key elements crucial to establishing a successful outreach campaign. These elements include:

- Watershed Awareness.
- Identification of general and specific goals of the program.
- Identification of target audiences and key messages for those audiences.
- Consistent messaging using a unified “brand name”.
- Development of a watershed based outreach program.
- Development of a model public education/public participation strategy for localization at the Permittee level.
- Development and implementation of a school-aged children education outreach program.
- Development and implementation of food facilities outreach program materials.
- Development and implementation of automotive facilities outreach program materials.
- Development and implementation of industrial facilities outreach program materials, and
- Public Awareness Surveys to measure success and determine needs.

3.3.1 Identify Staff to Serve as Contact Persons for Public Reporting

Permittees have identified staff to serve as the contact person for public reporting, in many cases more than one staff member will serve in this capacity to ensure that someone is always available to respond. Designated staff members are provided with relevant stormwater quality information, including program activities and preventative stormwater pollution control information.

Performance Standard 3-1

Identify staff who will serve as the contact person(s) for public reporting of water pollution problems			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
Ventura County	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		

3.3.2 Maintain Public Reporting Hotline Numbers

The Permittees have two types of phone numbers for the public: one for general stormwater information and one for reporting water pollution problems. The latter number is used by the public to report illicit discharges or illegal dumping into the storm drain system, faded or missing catch basin markers, and other observed water pollution problems. In some cases this number is also used to report clogged catch basin inlets, but some agencies may have a separate number for that. Staff is also available to provide general stormwater information.

Once a water pollution complaint is received, staff initiates a response as required by the Permit within 24 hours to the reported illicit discharges, and within 21 days to illicit connections (generally much faster). For additional summary information regarding use of the hotlines for reporting illicit discharges or illegal connections see the process outlined in Section 8 Illicit Connections and Illicit Discharges Elimination. It is a requirement of the Permit that the public reporting phone numbers are listed in the phone book. As technology continues to make phone books more obsolete, the less effective this Permit requirement is. Permittees are making use of more novel ways to make the reporting number available. The Permittees will

Performance Standard 3-2

Public reporting information has been listed in the government white pages of the local phone book			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
Ventura County	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme		<input checked="" type="checkbox"/>	
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks			<input checked="" type="checkbox"/>

consider a web-based reporting form for reporting illegal discharges and illicit connections (see Control Measure ID1), however the timely response needed to stop illicit discharges necessitate the public report to a live person as quickly as possible, so it is considered more appropriate for websites to refer the public to a phone number. Most Permittees reporting numbers can be found on multiple websites.

3.3.3 Promote/Publicize Public Reporting Hotline Numbers/Contact Information

Contact information for reporting water pollution complaints for all Permittees is updated as necessary and published in the government pages of the local phone book and other appropriate locations. In addition, this contact information is available at several Permittee web sites.

Table 3-2 Web Sites Listing Contact Information for Public Reporting

Program or Permittee	Web site URL
Ventura Countywide Stormwater Quality Management Program	http://www.vcstormwater.org/index.php/programs/illicit-discharge-dumping
Community for a Clean Watershed	http://cleanwatershed.org/MAIN%20PAGES/Contacts.htm
Ventura County Watershed Protection District and County of Ventura	http://www.vcstormwater.org/index.php/programs/illicit-dischargedumping
City of Camarillo	www.cityofcamarillo.org
City of Fillmore	http://www.fillmoreca.com/
City of Moorpark	www.moorparkca.gov
City of Ojai	www.ci.ojai.ca.us
City of Oxnard	www.oxnard.org/city-department/public-works/stormwater/
City of Port Hueneme	www.ci.port-hueneme.ca.us
City of Ventura	https://www.cityofventura.ca.gov/1094/Stormwater-Quality-Management
City of Santa Paula	http://www.ci.santa-paula.ca.us/PublicWorksDept.htm
City of Simi Valley	www.simivalley.org/environmentalcompliance
City of Thousand Oaks	http://www.toaks.org/departments/public-works/maintenance/storm-drains
County of Ventura	http://www.cleanwatershed.org/ http://vcpublicworks.org/ http://www.vcstormwater.org

Performance Standard 3-3

Promote and publicize contact information for public reporting in public information media, such as the government pages of the telephone book and web sites			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
Ventura County	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		

3.4 PUBLIC OUTREACH IMPLEMENTATION (Control Measures PO2 and PO3)

The Public Outreach Implementation Control Measure provides that outreach be conducted with the residential community and general public to inform these audiences of the impacts of urban stormwater runoff and introduce steps they can take to reduce pollutants in stormwater runoff. Such outreach communicates to the Permittees' residents and visitors the importance of stormwater quality protection and pollution prevention as it relates to the protection of the local water bodies.



“Yours to Enjoy. Yours to Protect” Billboard on Thompson Blvd. in City of Ventura.

3.4.1 Educate Ethnic Communities

The Permit requires the Principal Permittee to develop and implement a strategy to educate ethnic communities through culturally effective methods. The Program has previously performed focus groups on Ventura County residents who speak Spanish at home. The information gained through this effort helped the Program understand what needs to be communicated to Spanish speakers and where that communication will be most effective.

To reach the Hispanic community in Ventura County we focused a significant portion of the spring radio campaign in 2019 towards Spanish speakers. Sagent, our new media consultant, wrote copy for one general messaging 30-second radio spot and three 15-second radio spots focusing on each of the three pollutants of concern: litter/trash, yard chemicals, and pet waste. All four radio spots were translated to Spanish and ran on a Spanish language radio station (KUNX) during the spring outreach campaign. 17.8% of all radio spots for the spring outreach campaign aired in Spanish on Spanish radio stations and made a total of 39,600 impressions. Additionally, this year the Program posted digital ads in Spanish targeted to Ventura County and optimized for engagement and website visits. 54.9% of all banner ads placed were placed in Spanish. This resulted in 851,161 impressions made in Spanish through digital ads. Digital ads had a 0.11% click through rate, which is above the industry standard. 2018 Coastal Cleanup Day radio ads ran on Spanish language stations as well. Overall Spanish language advertising accounted for 14% of the annual paid media impressions: 928,261. (This figure does not include impressions from Spanish language social media posts.)

Performance Standard 3-4

Develop and implement a strategy to educate ethnic communities through culturally effective methods?			
	Yes	No	In Progress
Ventura Countywide Stormwater Quality Program	<input checked="" type="checkbox"/>		

Performance Standard 3-5

Conduct stormwater pollution prevention public service announcements			
	Yes	No	In Progress
Ventura Countywide Stormwater Quality Program	<input checked="" type="checkbox"/>		

3.4.2 Make Five (5) Million Stormwater Quality Impressions per Year

In 2017 Ventura Countywide Stormwater Quality Management Program put out a Request for Qualifications to hire a public outreach and marketing consultant to help the Program achieve its mission and reach the outreach goals, as laid out by the 2010 NPDES permit. In October 2017 the Program established a new one-year contract with Sagent, a full-service media company based out of Sacramento with stormwater outreach experience. After a successful 2017/18 outreach campaign, the Program extended the contract with Sagent. In an initial Discovery Meeting, Sagent met with permittees in the Public Information and Participation Program Subcommittee to identify outreach properties, pollutants of concern, and key messages to build a campaign around. In a continued effort to educate residents on how their daily habits contribute to the health of the five watersheds in Ventura County, Permittees agreed on the outreach strategy and Plan for program year 2018/19 that expands on the general message campaign from the year prior, “Yours to Enjoy. Yours to Protect”.

“Yours to Enjoy. Yours to Protect” relates to the beauty of the watersheds, something that past awareness surveys have shown resonates with residents. The Program continued to use this creative as the overarching campaign. To round out the campaign for the 2018/19 program year, the Program developed new creative elements with behavior messages targeting three pollutants of concern: trash/litter, pet waste, and yard chemicals.



"Yours to Enjoy. Yours to Protect." Creative developed in 2018.

Hikers (used in campaign)



Biker (used in campaign)



Pet Waste (used in campaign)



Yard Chemicals (used in campaign)



New "Pollutants of Concern" creative elements with behavior messages created for the 2019 campaign.

Litter (used in campaign)

Media Outreach Strategy

To meet the NPDES permit requirements for outreach the Program must achieve a minimum of 5 million impressions per year to the general public related to stormwater quality, with a minimum of 2.5 million impressions via newspaper, local TV access, local radio and/ or internet access. For the 2018/19 program year Sagent helped the Program develop a well-rounded media plan using multiple tactics: radio, pre-roll video, outdoor, and print advertising, to increase awareness and opportunity for behavior change in Ventura County related to stormwater. Media plans were negotiated with the goal to maximize target reach and frequency on a limited budget. The target audience for the paid media outreach was established to be adults 18+ since a separate youth education and outreach element was utilized for program year 2018/19. Attention was paid to geographical distribution throughout Ventura County as well as adequate coverage in the Hispanic market. Sagent was able to obtain significant bonus elements, including bonus radio commercials and a sweepstakes.

The spring paid media campaign ran from April 1, 2019 to June 10, 2019 and included radio, digital, and print ads. For the spring paid media campaign, the new “Pollutants of Concern” creative (trash/litter, pet waste, and yard chemicals) was executed across many sizes and formats in English and Spanish for billboards, digital display ads, print media, bus ads, bus stop ads, Little League vinyl banners, convenience store ads, and paid social media. Three 15-second videos were developed based on the “Pollutants of Concern” creative, with the same look and feel as the overarching “Yours to Enjoy. Yours to Protect” campaign. The digital display ads and video ads in English and Spanish were geo-targeted in Ventura County. Sagent also developed radio copy for 15-second and 30-second radio spots and traffic sponsorships to run through the duration of the campaign. The radio spots were translated to Spanish by the Spanish media vendor.

Additionally, this campaign included print in a local monthly magazine, outdoor ads, and community partnerships with local youth baseball teams. Outdoor media was placed as convenience store posters and bus ads. All outdoor placements ran the “Litter is Preventable” message. Posters were placed on storefronts across Ventura county from April 1 to April 28, 2019, and bus ads ran for 5-weeks. In total outdoor advertising delivered an estimated 2,020,000 impressions. For the partnerships with local youth baseball little leagues, the Program secured sponsorships with six youth baseball little leagues across Ventura County. Sponsorship packages and their corresponding ad privileges varied across leagues, but all guaranteed display banners on local fields at the least, and ads in the league yearbooks, digital ads on the league websites, or sponsorship recognition during ceremonies. In total, the advertising done with the youth baseball leagues delivered 1,257,000 estimated impressions.

The campaign delivered a total of 5,883,488 impressions, exceeding the goal for the year. (not including social media impressions or Coastal Cleanup Day ads).

Consistent with recent years, the Ventura Countywide Stormwater Quality Monitoring Program continued to support and sponsor countywide Coastal Cleanup Day events. The VCSQMP is the largest sponsor of Coastal Cleanup Day in the County. Paid radio, newspaper, newsletter, and billboard advertising for the event ran from mid-August until the event on September 22, 2018. 3,008 volunteers participated in 2018, our second highest number of volunteers to date.

For the 2018/19 reporting year the Program again hired Mr. Eco to give school assembly style presentations to schools throughout Ventura County. Ten assemblies were scheduled from October 2018 to April 2019 and included stormwater messages and the Program’s Community for a Clean Watershed logo and website.

For the two major media campaigns (“Pollutants of Concern”, and Coastal Cleanup Day) in the 2018/19 permit year, the Ventura County Community for a Clean Watershed media plan achieved 660,015 gross impressions broken out as follows:

Table 3-3 Community for a Clean Watershed Gross Impressions

Timing	Campaign	Gross Impressions (Persons 12+)	Youth Impressions (included in total)	Spanish Impressions¹ (included in total)
Spring 2018 Watershed Awareness	Pollutants of Concern	5,883,488		890,761
	Radio	925,800		39,600
	Print (Ventana Magazine)	130,000		
	Outdoor (VCTC busses, convenience stores)	2,020,000		
	Digital	1,550,688		851,161
	Community Partnership (Little League banners)	1,257,000 ³		
Summer 2018	Coastal Cleanup	660,015³		37,500
Total Media Plan		6,543,503		928,261
Year Round	Organic Social Media (Facebook & Twitter)	110,625		
Year Round	Paid Social Media (Facebook)	45,503		
Year Round	Website	4,714		
Fall 2018 – Spring 2019	Youth EcoHero Presentations	4,468	4,468	
Total Impressions		6,708,813		928,261

Notes: ¹Spanish impressions include Spanish-language media only. The total impressions against the Hispanic community is much higher due to reaching them in English-language media that have a high percentage of Hispanics watching or listening.

³A significant number of these impressions were against youth, however the impressions were only reported as a total.

Performance Standard 3-6

Make a minimum of 5 million impressions per year to the general public related to stormwater quality, with a minimum of 2.5 million impressions via newspaper, local TV access, local radio and/ or internet access.			
	Yes	No	In Progress
Ventura Countywide Stormwater Quality Program	<input checked="" type="checkbox"/>		

Countywide Efforts

Formally acknowledging the collective work of the ten city Permittees and the County, the logo and all branding elements read “Ventura County’s Community for a Clean Watershed.” The step is further acknowledgement of the group’s commitment and collaboration in its eleventh year of effectively educating Ventura County residents about how their daily habits contribute to the health – or the detriment – of the five watersheds in our area. The 2018/19 campaign built on our general watershed awareness campaign to

remind residents that we all live in a watershed while encouraging residents to protect the beauty of their environment by performing positive behaviors. Past annual awareness research indicated that this message of natural beauty and preserving Ventura County’s watersheds and landscapes for future generations resonated with Ventura County residents and had high recall.

Collectively, the campaigns work toward the following long-term objectives:

- Build and sustain public awareness of watershed, watershed stewardship, and protection practices.
- Identify pollutants of concern.
- Engage community members and youth through social media, website engagement, program initiatives, and community events.
- Be relevant to Ventura County’s diverse populations with targeted and language-appropriate outreach.
- Demonstrate positive behavior and change negative behavior.
- Track attitude and behavior changes.
- Track impressions and outreach efforts for reporting.
- Adhere to all permit requirements for outreach.

A variety of ongoing outreach activities fulfill various components of the NPDES permit and target a range of key audiences including:

- Residential
- Retail Businesses
- Commercial Businesses
- Industrial Businesses
- Spanish language support for each of the above audiences
- K-12 Students

Adult Campaign

The adult campaign used radio, digital ads, web displays, and social media to focus on the top three pollutants of concern while building on the “Yours to Enjoy. Yours to Protect” general watershed awareness campaign from the 2017/18 reporting year. New creative elements were developed to address the top three pollutants of concern; trash/litter, pet waste, and yard chemicals. A paid media campaign for “Pollutants of Concern” ran from April 1 to June 10, 2019 and included 30-second and 15-second radio ads in English and Spanish, and digital geo-targeted ads in Ventura County in English and Spanish. Additionally, this campaign included print ads, outdoor as transit ads and convenience store posters, and community

partnerships with local youth baseball teams. The campaign delivered 5,883,488 total impressions, exceeding the goal for the year.

- One (1) :30 radio spot on the beauty of Ventura
- Three (3) :15 spots focusing on each pollutant of concern: litter/trash, yard chemicals, and pet waste
- The English spots were produced by the media vendor at no cost and played on KCAQ, KFYV, KOCF, and KVTA. The Spanish media vendor translated the radio copy and produced the radio spots at no cost, airing on KUNX.

Digital banner ads were targeted to Ventura County and optimized for engagement and website visits. The digital ads yielded a 0.11% click through rate (CTR) which is above the industry standard of 0.05% - 0.08%.

Print ads were placed in *Ventana*, a high-end home magazine that is published and distributed in Ventura monthly. Each issue is direct mailed to 25,000 homeowners in West Ventura County who have combined household incomes over \$125K per year. An additional 8,000 copies are street circulated. Monthly readership is 65,000.

Outdoor media was placed as convenience store posters and bus ads. All outdoor placements ran the “Litter is Preventable” message. Posters were placed on storefronts across Ventura county, achieving 770,000 impressions while they ran from April 1 to April 28, 2019. The calculated impressions for the bus ads totaled around 1,250,000 after a 5-week run. In total outdoor advertising delivered an estimated 2,020,000 impressions.

Six sponsorships were secured with youth baseball little leagues across Ventura County. Sponsorship packages and their corresponding ad privileges varied across leagues, but all guaranteed display banners on local fields at the least. The sponsorship packages also included half or quarter-page ads in the league yearbooks, digital ads on the little league websites, and sponsorship recognition during ceremonies. In total, the advertising done with the youth baseball leagues delivered a total of 1,257,000 estimated impressions.

Radio Spot Copy

Approved Radio Scripts Ventura County Stormwater Spring 2019 Campaign



:30 General Spot

My family's been in Ventura County for generations. I grew up hiking in the mountains and playing on the beach. Now, I do the same with my family. We're so lucky to be surrounded by the ocean, mountains, and rivers.

It's important to me and my family that we take care of our environment. We love our watershed and do our part to care for it and protect it.

These watersheds are ours to enjoy, ours to protect.

Visit cleanwatershed.org.

:15 Behavior Spots

Litter/Trash - :15 audio

Litter is preventable. Keep litter off our streets and parks and out of our rivers, creeks, and ocean. Do your part by putting trash and recyclables in the proper bin. Remember, Ventura County watersheds are yours to enjoy, yours to protect! Visit CleanWatershed.org.

Yard Chemicals - :15 audio

Protect our water. Yard chemicals can end up in our rivers, creeks, and ocean through wind, sprinkler runoff or rain. Use eco-friendly products and follow label directions. Remember, Ventura County watersheds are yours to enjoy, yours to protect! Visit CleanWatershed.org.

Pet Waste - :15 audio

Pick up after your pup. Pet poop has harmful bacteria that can end up in our rivers, creeks and ocean through sprinkler runoff or rain. Properly dispose of pet poop in the trash. Remember, Ventura County watersheds are yours to enjoy, yours to protect! Visit CleanWatershed.org.

Ad Examples



Half Page Magazine Ad



Convenience Store Poster



Bus Ad



Spanish Digital Ad

Youth Outreach

The sheer number of schools in Ventura County and the demands on the curriculum has made it challenging for the Program to coordinate with schools to schedule in-class presentations. In permit year 2014/15 the Program realized that after-school Boys & Girls Clubs were interested in environmentally appropriate presentations and were easier to schedule with. Since then the Program developed and provided youth outreach presentations to Boys & Girls Clubs throughout Ventura County annually. Following three years of this approach the Program decided to again reassess the available options for engaging K-12 students in the area. After learning more about The EcoHero Show, the co-permittees decided to try the EcoHero Show for the 2017/18 Permit Year in place of the previous Boys & Girls Club presentations. Environmental rap superhero, Mr. Eco and his EcoHero Show perform school-wide assemblies for elementary school students and has performed at 350+ elementary schools to date. The presentations are designed to inspire the next generation of eco-friendly citizens through choreographed dance, video, and lyrics about environmental issues. Each song has a call-and-response aspect to the chorus and kids and teachers are encouraged to dance and sing along.

After receiving very positive feedback from teachers and principals at the schools that The EcoHero Show visited in 2018, the Program choose to contract with The EcoHero Show to visit eleven more schools throughout Ventura County for the 2018/19 Permit Year; one per co-permittee. Schools with high enrollment and who did not host an EcoHero Show assembly the year before were prioritized to have the greatest reach. We were pleased to see that school administrators and teachers were receptive, and we were able to schedule most assemblies between October 4, 2018 and December 18, 2018. Due to the Thomas Fire causing missed school days it was difficult to schedule the assemblies in some school districts. After several attempts, only ten out of the planned eleven assemblies were scheduled. Mr. Eco's songs "Litterbug", "Bag Monster" and "EcoHero Anthem" were selected to be performed at the assemblies because of their anti-littering and waste messages that encourage kids to take action against pollution at school and at home. Mr. Eco's goal is to teach youth how to be environmental superheroes by demonstrating positive behaviors. By providing these school-wide assemblies we were able to reach more youth than we have in previous years with the Boys & Girls Club presentations. The total number of students engaged through our sponsored assemblies was 4,468 students. Additionally, two press releases were sent out to local media partners. Articles were published in the VCStar and Camarillo Acorn.

In addition to the EcoHero school assemblies, Ventura's Community for a Clean Watershed was one of the sponsors for 95.9 FM Radio station Lunch tour. The lunch tour promotion included a 15-second promotional spot with a name mention, in addition to the title sponsor for the tours. The schools included Buena High School, Haydock Junior High School, St. Bonaventure High School, and Channel Island High School. During this tour, the radio station also had a Ventura Community for a Clean Watershed poster displayed while they engaged with the students at the schools.



Students watch as Mr. Eco, played by Brett Edwards, shows them what a watershed is how pollutants travel to the ocean once in the environment.

<u>Date/Time</u>	<u>City</u>	<u>Organization</u>	<u>Age Groups</u>	<u># of Shows</u>	<u># Kids</u>
10/4	Santa Paula	Grace Thille Elementary	K-6	2	400
10/4	Simi Valley	St. Rose of Lima Elementary	K-5	1	165
10/5	Oxnard	Christa McAuliffe Elementary	K-6	2	732
10/10	Fillmore	Mountain Vista Elementary	K-5	2	500
10/11	Ventura	ATLAS Elementary	K-2	1	384
10/12	Moorpark	Flory Academy of Sciences and Technology	K-5	2	476
12/14	County Unincorporated	Laguna Vista Elementary	K-5	2	500
12/18	Camarillo	La Mariposa Elementary	K-5	2	623
2/4 2019	Port Hueneme	Richard Bard Elementary	K-8	2	543
4/16 2019	Thousand Oaks	Ascension Lutheran School	K-6	2	145

EcoHero Earned Media Coverage

Camarillo Acorn

<https://www.thecamarilloacorn.com/articles/students-champion-planet-earth/>

VC Star

<https://www.vcstar.com/story/news/local/2018/12/20/ecoheroes-bring-save-environment-message-ventura-county-schools/2344148002/>



“The show was amazing in so many ways: it was informative on a topic that is important, of high interest, and easily relatable by all students. It taught the students something new by providing real life examples and it gave them some ideas on how they can help to be a part of the solution, which I loved because we talk about being Bucket Fillers and as the principal, was how engaging the assembly was! ALL of the students were attentive, participating, learning, and having fun! This includes our special needs students as well who were enjoying it just as much and often times have difficulty sitting through an entire block of time. We would love to have this assembly back next year!” – 10/15/2018: Rosalinda Silva, Principal, Flory Academy of Science and Technology

3.4.3 Maintain and Update the Countywide Stormwater Website

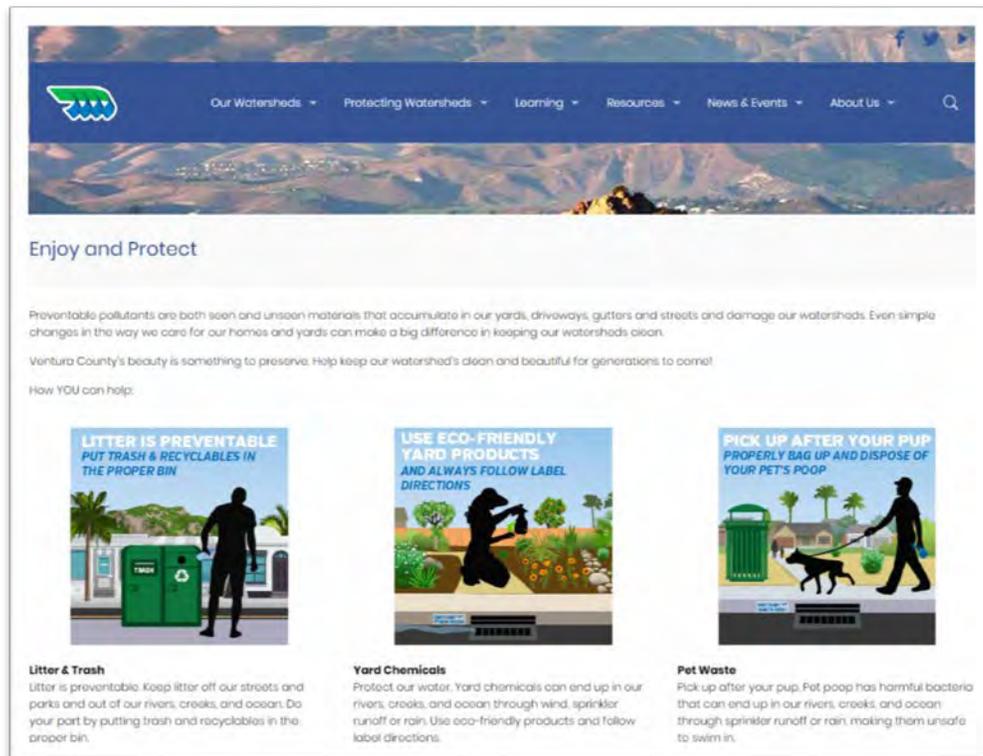
Community for a Clean Watershed Website Update

The Permit requires the Permittees to maintain the Countywide stormwater website (www.vcstormwater.org) This is the website specified by the Permit, but the Permittees also use

www.cleanwatershed.org primarily for outreach, as described earlier under “activity-specific outreach to residents”. The Community for a Clean Watershed website (www.cleanwatershed.org) continues to reinforce the various public outreach messages as well as make available a network of resources to help the web viewer make informed decisions. In 2018 the website was updated to a new platform that made the site mobile-friendly. As part of the website update, the content was re-organized to improve Search Engine Optimization search results and ease of finding key information. The website now earns a 99% utilization score on mobile devices. Social media streaming capabilities were also added to the new landing page.

The website is periodically updated to include pollutant-specific educational materials for businesses and do-it-yourself homeowners. Fact sheets have been developed and updated as needed over the life of the program and include information on the proper disposal, storage, and use of the following pollutants:

- Vehicle waste fluids
- Household waste materials
- Construction waste materials
- Pesticides and fertilizers (including IPM) (updated in Program Year 15/16)
- Green waste (including lawn clippings and leaves)
- Animal waste



2019 Spring Campaign Landing Page



Website landing page traffic during spring campaign window compared to prior window.

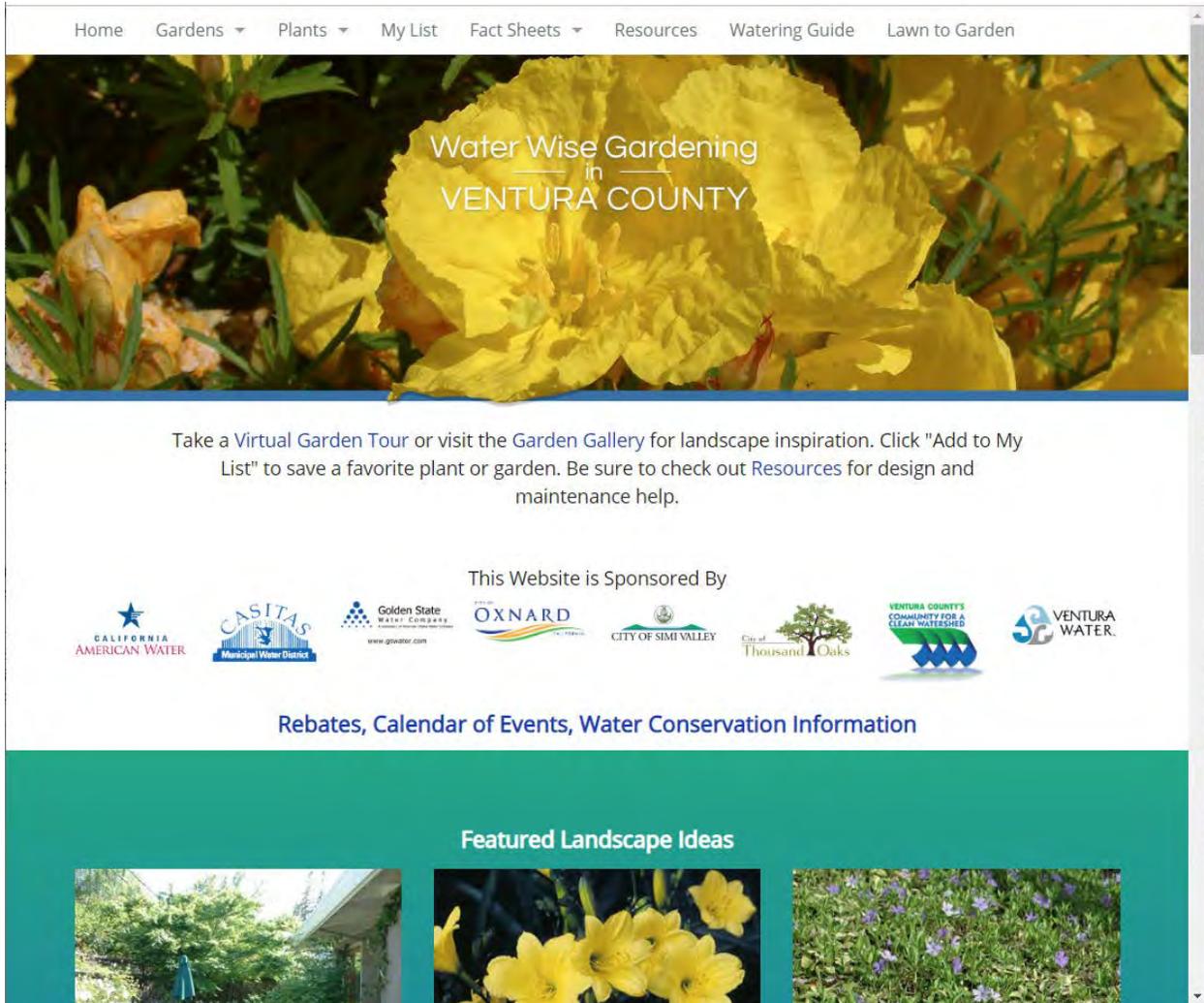
Performance Standard 3-7

Maintain the stormwater Web site (www.vcstormwater.org)			
	Yes	No	In Progress
Ventura Countywide Stormwater Quality Program	<input checked="" type="checkbox"/>		

Gardensoft

Understanding Ventura County's water resources are limited, and that water wasted down the gutter will also transport pollution, the Program teamed up with Ventura County water purveyors to develop a waterwise landscaping website (www.venturacountygardening.com). There the user will find information on how to design and install a water-wise garden, and irrigation methods and equipment that will help water a landscape more efficiently, along with suggestions on how to easily and effectively maintain a garden. The website includes a directory of drought-tolerant plants and example gardens. Special additions were made to include rain gardens, permeable pavement options, and rain barrels.

In spring 2019 the Program led an effort to update the site to be mobile-friendly and have a new look and feel. The new website landing page also highlights stormwater and links to the Community for a Clean Watershed website, www.cleanwatershed.org. The number of website visits from July 1, 2018 to June 30, 2019 was 6,337 unique visitors.



New www.venturacountygardening.com homepage

Home Gardens Plants My List Fact Sheets Resources Watering Guide Lawn to Garden





Importance of Watershed

A watershed is a land area that drains rain and other water into a creek, river, lake, wetland, or groundwater aquifer. Water from your neighborhood also enters the watershed through the storm drain system and flows directly to local creeks and the ocean without any treatment. It often is contaminated by pollutants that can be toxic to fish, wildlife, and people.

Stormwater Runoff

Stormwater runoff is the water that flows over paved surfaces or landscaping after rain (a storm), irrigation, or other water use

than the ground can absorb. As the runoff travels, it can pick up litter, pesticides, fertilizers, pet waste, motor oil, and other pollutants, washing these substances into our neighborhood creeks and the ocean. Replacing non-permeable surfaces with permeable material, any material that allows water to flow through, greatly helps with absorption and reducing runoff. Materials such as sand and gravel, can be installed in pathways to control runoff and improve water quality by filtering pollutants through the ground. The end result is cleaner, healthier waterways in our community.



Home Steps to Protect the Watershed:

- 1. Clean up outside your home** including trash, leaves, yard clippings, and pet waste.
- 2. Water the yard only as needed** and avoid spraying streets, sidewalks, and driveways to prevent water from carrying pollutants directly into storm drains.
- 3. Divert rainspouts and garden hoses away from paved surfaces.** Provide landscaping next to sidewalks and driveways to help collect and filter rain runoff.
- 4. Control erosion around your property** to prevent dirt and debris being carried into the storm drain.
- 5. Read labels on pesticides, herbicides, and fungicides** prior to use and follow instructions carefully. Try Integrated Pest Management (IPM) as a less toxic alternative for yard pest management. www.ipm.ucdavis.edu

Erosion and stormwater pollution prevention page on www.venturacountygardening.com

Facebook

Continuing its growth, especially given the narrow focus of this page, the Community for a Clean Watershed has over 4,538 page followers, allowing us to keep Ventura County residents and youth engaged during periods when there is no paid outreach while adding a social element year round. Even though we did not see an increase in page followers or fans this program year, of the people who unfollowed or unliked the page, 89% were due to suspicious account removal or other reasons that were not intentional. It is also important to note that although the total number of fans decreased slightly, the data shows that our targeting towards residents of Ventura County was successful. There is a significant reduction in fans from LA (from 508 to 299) and increases in Ventura County locations. Consistent posts create ongoing communication with fans that are likely to be concerned about the environment.

July 2018

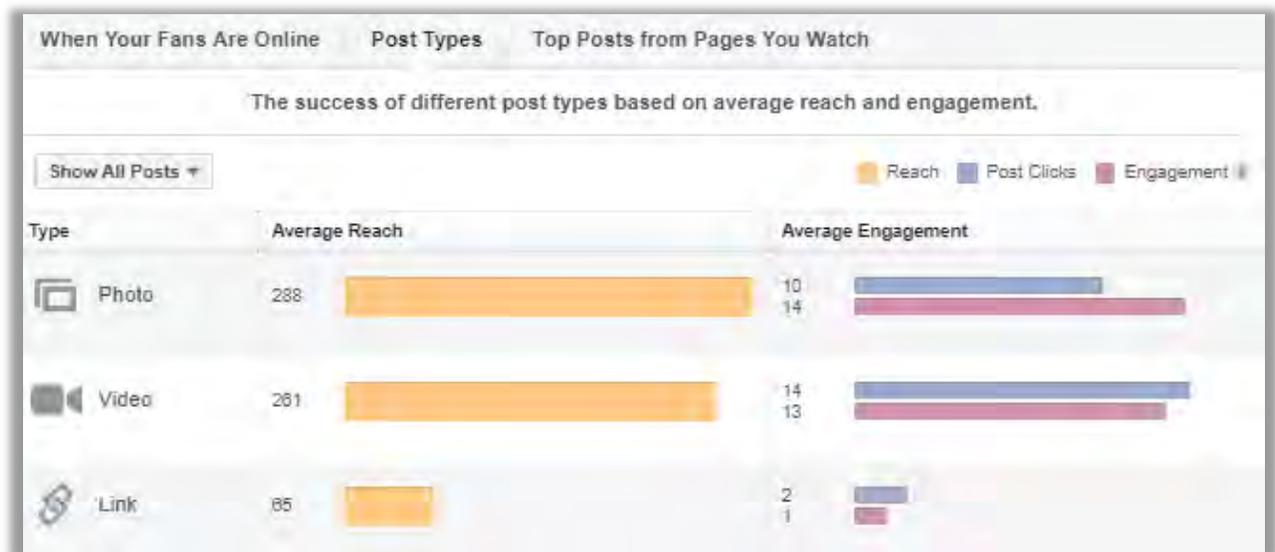
June 2019

City	Your Followers
Ventura, CA	920
Oxnard, CA	781
Los Angeles, CA	299
Simi Valley, CA	246
Camarillo, CA	209
Thousand Oaks, CA	208
Santa Paula, CA	155
Ojai, CA	130
Santa Clarita, CA	116
Moorpark, CA	80

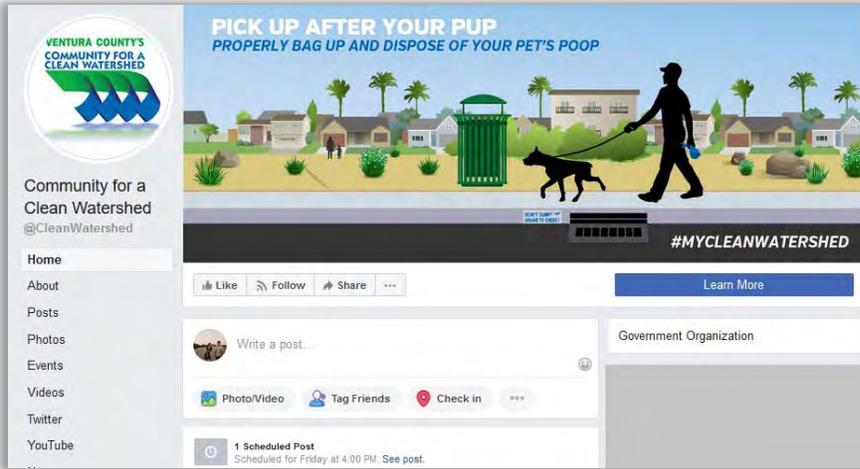
City	Your Followers
Ventura, CA	910
Oxnard, CA	828
Los Angeles, CA	366
Simi Valley, CA	254
Camarillo, CA	203
Thousand Oaks, CA	180
Santa Paula, CA	145
Ojai, CA	141
Santa Clarita, CA	124
Moorpark, CA	79

Facebook Page followers by location

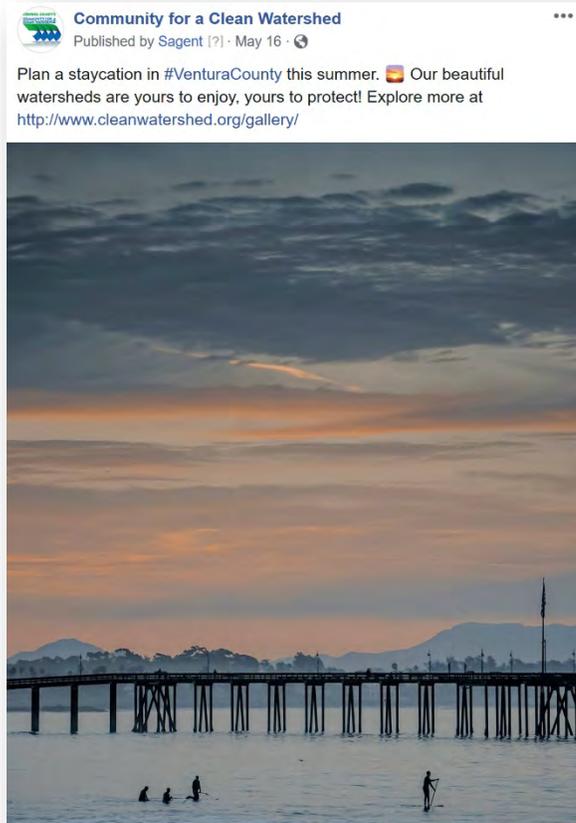
To maintain awareness of stormwater between media campaigns, the CCW Facebook page includes photos, information about local events for Earth Day and/or Coastal Clean-up Day, and interesting watershed and water facts.



Engagement by post type



Ventura County's Community for a Clean Watershed Facebook Page



Sample Facebook status updates/posts

Twitter

From July 1, 2018 through June 30, 2019, @CleanWatershed published 72 tweets on the Community for a Clean Watershed Twitter page, resulting in 72,756 impressions, 573 engagements, and 144 URL clicks. As of June 30, 2019, the Twitter page had 567 followers.



Ventura County's Community for a Clean Watershed Twitter page

Performance Standard 3-6

Make a minimum of 5 million impressions per year to the general public related to stormwater quality, with a minimum of 2.5 million impressions via newspaper, local TV access, local radio and/ or internet access.			
	Yes	No	In Progress
Ventura Countywide Stormwater Quality Program	☑		

3.4.4 Permittee Individual Efforts

On top of what the Program provides for public outreach countywide, the individual Permittees implement their own outreach efforts focusing on local issues and more personal interactions with their residents. Countywide these efforts beyond the Program's efforts lead by the Principal Permittee made over 6.1 million additional impressions. Below are some examples of these efforts:



The City of Camarillo used an Enviroscape to show how to protect storm runoff

Camarillo

- July/August 2018 City Scene Article: “Coastal Cleanup Day: Save the Date”
- September/October 2018 City Scene Articles: “Do Not Litter”
- November/December 2018 City Scene Article: “Bravo Coastal Cleanup Day Volunteers”
- January/February 2019 City Scene Article: "Prepare for Rainy Season" Highlighting storm drain maint.
- March/April 2019 City Scene Article: “Your Watershed...Your Actions Matter!”
- May/June 2019 City Scene Article: “Think Before You Drain!” Proper swimming pool maintenance.
- Coastal Cleanup Day Utility Bill Insert featuring Trash and Plastic Outreach.
- Coastal Cleanup Day Presentation at City Council Meeting (Televised to Camarillo Residents)
- UPCS Environmental Conference - Outreach to Charter Schools - 3/21/19
- Swimming Pool Outreach to New Swimming Pool Owners

- Eco Hero at Pleasant Valley School of Engineering & Arts - 12/18/2018
- Eco Hero at Las Posas Elementary School - 12/20/2018
- Eco Hero at Dos Caminos Elementary School - 2/21/2019
- Stormwater Webpages and Coastal Cleanup Day Webpage on www.cityofcamarillo.org
- Stormwater quality information on the www.waterwise.com website on sustainable landscapes (pervious pavement, bioretention) and Integrated Pest Management



County of Ventura

On October 15, 2018, County staff gave a presentation about the County Government Center pervious concrete installation and Ocean Friendly Garden to about 20 Oxnard College students.

On November 3, 2018, County staff set up and staffed an informational booth at the Rio Vista Middle School Science Carnival hosted by Cal State University Channel Islands. The event included more than 80 different hands-on science activities and the County presented information on stormwater pollution prevention with an interactive pervious concrete display.

On April 22, 2019, County staff set up an informational booth that focused on stormwater pollution prevention and included a pervious concrete demonstration. Staff also provided a tour of the Ocean Friendly Garden and pervious concrete installation at the County Government Center.

On April 24, 2019, County staff set up and staffed an informational booth at the Cal State University Channel Islands Earth Week event. The information provided to the college students focused on stormwater pollution prevention and examples of stormwater projects around the County.

The County Stormwater Program set up and staffed a booth at Ventura County Public Agency's Annual Public Works Week event on May 21, 2019. More than 700 youth ranging from K-12 attended this year's event. The booth included a pervious concrete demonstration where the attendees were able to pour water into a large pervious concrete block to observe the infiltrative capabilities. Brochures and stormwater information were provided to all tour groups who stopped by the booth.



Eco Hero shows were held from October 2018 through April 2019 and attended by over 2,700 students. They provided public outreach and education targeting the youth of the community by teaching them about the impacts of littering and trash. Mr. Eco provides a fun and interactive way to deliver a message that really resonates with children. Mr. Eco's message empowers children to make changes and to do simple things that can help them feel a connection to their community and natural environment.

Fillmore

The City of Fillmore has coordinated and participated in Household Hazardous Waste events. These events were advertised in the Trash Flash City newsletter produced by the City's waste provider EJ Harrison. The events served to inform the public of proper containment, use, storage, and disposal of hazardous waste.

Additionally, EJ Harrison advertised an Annual City-wide Clean-up Day featured in the Trash Flash newsletter in Spring 2019, one of which was directed to residents. The Annual City-wide Clean-up Day provided an opportunity for residents to discard bulky items and other trash. Additionally, it highlighted the importance of clean dumpsters and dumpster enclosures for the benefit of clean creeks and beaches.

An Earth Day Event was held by the City on April 22 in front of City Hall. During this event, the City promoted the importance of water quality and conservation. Furthermore, the City hosted a voluntary clean-up in Sespe Creek as part of the Annual Coastal Clean-up Day, during which the public had the opportunity to assist in trash and debris removal from the local waterway.

Business outreach is conducted as part of the Commercial and Industrial Facilities Program on a biannual basis. The last outreach was conducted as part of the inspections in Spring 2019.

Moorpark

The City participates in Coastal Cleanup Day, which is traditionally held on the third Saturday of September. In 2018, the event was held on September 15, and 38 volunteers participated in litter collection along the Arroyo Simi in Moorpark.

Public information on stormwater protection is provided during Moorpark Country Days. Country Days was held on October 6, 2018. An estimated 5,000 people attend the event annually.

Mass mailings includes the City's solid waste inserts, which included stormwater-related messages in 3 of the 6 inserts. Inserts go out to an estimated 9,300 households and 300 business accounts each cycle.

The City of Moorpark participates in the Countywide Public Information Subcommittee which works on residential and commercial/industrial education. The City also provides information on stormwater best management practices when performing inspections of all businesses identified as critical sources for pollutants. These include food, automotive, industrial, laundry, and nursery/feedlot facilities.

Ojai

The City of Ojai distributed storm water related materials at City Hall, Planning, and Public Works public counters. The Building Department counter has storm water brochures available. City plan review includes information regarding SWPPPs and stormwater pollution prevention.



Oxnard

The City of Oxnard has established the Oxnard.org website to publicize community events such as Earth Day and Coastal Cleanup Day. Community members can access the website to view calendars of upcoming events, view press releases, or even watch videos of past events. Coastal Cleanup Day is an event that consistently receives huge community support. City of Oxnard Outreach Specialists will post a press release containing information about the event at least one month in advance to assist community volunteers with pre-registration and planning. This past September, members of the Oxnard community participated in Coastal Clean Up Day at the Ormond Beach Wetlands, Oxnard Beach Park, and Silverstrand Beach. Technical Services Program-Stormwater staff also visited several schools to talk about watershed science,

distributed over 500 pet waste bags at local events including Rescuedcon to prevent the spread of bacteria into local waterways, and attended the community event showing of STRAWS at the Oxnard Performing Arts and Convention Center.

The City has also established a dedicated stormwater page on the city website to disseminate information about stormwater best management practices and pollution prevention. The illicit discharge/illicit connection hotline is located on this page along with links to other relevant stormwater related websites. The City of Oxnard also has the 311 mobile application which can be used by the public to report illicit discharges/illicit connections that are observed in the city.

The City of Oxnard has an active Business Assistance Program. Technical Services Program staff distribute educational materials and BMP guidelines during routine inspections of commercial facilities, automotive facilities, and food service establishments. During FY 2018-2019 staff provided verbal direction and guidance regarding stormwater compliance during inspections and did not distribute educational materials to automotive parts stores, home improvement stores, or pet shops unless requested.

Port Hueneme

Numerous events were supported through NBVC clean-ups, social media postings and outreach at the Oxnard Harbor District Banana Festival. Bill stuffers were sent out as well as outreach material displays at City Hall and the Preuter Library.

Staff conducts outreach through inspections at local businesses and also works with the local commercial facilities performing waste evaluations, water conservation efforts and project reviews.

Santa Paula

City contributed to Ventura County MS4 Public Outreach Program; litter cleanup events; storm drain signage; church cleanup events; Boy Scouts cleanup events; Future Farmers of America trash collection; California Conservation Corps; presentations to Boys and Girls Club. Facebook page, "Growing Up in Santa Paula".



Turf Removal Class

City contributed to Ventura County MS4 Public Outreach Program for businesses. Contact with businesses during commercial inspections.

Simi Valley

Throughout the year the City of Simi Valley participated in several community events to help promote pollution prevention and improve stormwater awareness within the community. During the reporting period six Household Hazardous Waste events were held where over 70,000 pounds of hazardous waste

was collected from the residents of Simi Valley. Stormwater informational brochures were handed out to each of the 804 participants at the events. Stormwater demonstrations were given using an Enviroscape to approximately 300 adults and children at the Moorpark College Environmental and Multicultural Day, Moorpark College Earth Day, and Living Green Expo. Environmental Compliance also participated in the Library Summer, Fun & Games: Reading Takes You Everywhere program and the Rancho Simi Parks and Recreation's summer program Eat, Learn, and Play where staff provided school aged children with information through games relating to environmental issues. The City had a staffed booth and informational brochures were handed out at the City's Street Fair. The City's Environmental Compliance Inspectors took the time to educate residents and businesses during 117 compliance responses. City staff issued 128 Pool Discharge Encroachment permits, handing out our Swimming Pool Maintenance BMP brochures with each encroachment permit. The Swimming Pool Maintenance brochures were also given out with Building and Safety permits for new pools.

The City of Simi Valley has a phone hotline and designated e-mail address to address stormwater pollution questions and concerns of businesses in the City. Also, during inspections City Environmental Compliance inspectors review stormwater BMPs as well as issues dealing with industrial pretreatment, hazardous materials, and water conservation. We pay special attention to the stormwater needs of our Industrial base, auto facilities, restaurants, and home improvement stores. On a monthly basis a report is created showing all the new Business Tax Certificates issued by the City, inspectors will then visit the business to determine what pretreatment classification it should be, discuss Stormwater BMPs, and offer technical assistance and guidance. As time warrants inspectors perform sweeps in their assigned areas to identify new businesses. City Environmental Compliance inspectors respond to resident complaints and concerns on a regular basis and make field observations for mobile businesses.

Thousand Oaks

The following bullet points summarize engagements/impressions initiated by the stormwater outreach program. At these contact points, the attention of participants is focused on residential activities that have the potential to affect the quality of surface waters and strategies to avoid contaminating discharges.

Public Events

- Public Works Week – 5/21 and 5/22/19; 549 students in K- 3rd grades and 261 adults watched a demonstration of what urban runoff is and heard about ways to eliminate pollutants it can transport.
- Arbor Earth Day, 4/27/19 – City Staff used an Enviroscape Urban Runoff Model to demonstrate how runoff can contaminate a creek or lake and methods of prevention. An estimated 200 attendees viewed the display.
- Amgen Earth Day Fair, 4/25/19 – City Staff gave a poster presentation that provided participants simple tips for reducing stormwater contamination by modifying yard maintenance practices.

School Outreach

EcoHero, 4/16/19 – Using dance, music, and storytelling, this program encouraged participation in activities with messages about watershed protection. A total of 145 elementary school students attended two presentations given at Ascension Lutheran School.

Solid Waste Reduction Programs

- Freeway On/Off Ramp Cleanup – During the course of the fiscal year, 2.37 tons of littered trash were removed from on/off ramps over the fiscal year for legal disposal.
- Simi Valley Landfill Days – Free landfill disposal was provided to residents for partial days on 9/16/18 and 4/14/19. Combined, these days allowed 858 residents to appropriately dispose of 284.92 tons of trash, 218.81 tons of construction and demolition waste, 84.61 tons of greenwaste, 35 tons of concrete, 125 tires and 22 defunct appliances.
- Household Hazardous Waste Collection Facility – Over the fiscal year, residents brought 7,234 car loads of waste materials weighing 203.17 tons. Loads were composed of electronics (e-waste), paint, automobile and garden chemicals, pool chemicals and other hazardous materials to the facility. Most of these materials were recycled.
- Neighborhood Cleanup Events – These events were initiated and organized by one or more residents and supported by the City. Throughout the fiscal year, a total of 514 homes held neighborhood refuse and debris collections to gather 12.81 tons trash and 4.12 tons green waste. The collected materials were properly taken to a landfill for disposal or recycling.

Local Media and Direct Mailing Outreach

- Thousand Oaks Television (TOTV) – A free cable/internet service aired billboard advertisements for Coastal Cleanup Day yielding an estimated 30,000 impressions (5% of broadcast audience).
- TOTV, FY 2018-19 – Public service announcements were aired covering issues such as sources of pollution that can enter street drains, and street drains discharge directly to natural waters with no treatment. The estimated viewing audience was 1,256,000 viewers (5% of broadcast audience).
- Utility Bill Insert Mailing – Coastal Cleanup Day was promoted through messaging that informed the public about the hazards of litter in an aquatic environment – 38,000 households received this literature through the post.).

City of Thousand Oaks' Industrial Waste Inspection Program routinely provides information to businesses that explain best management practices to prevent discharges with the potential to contaminate stormwater. Brochures are also provided that detail prohibited activities with regard to the stormwater system.

Ventura

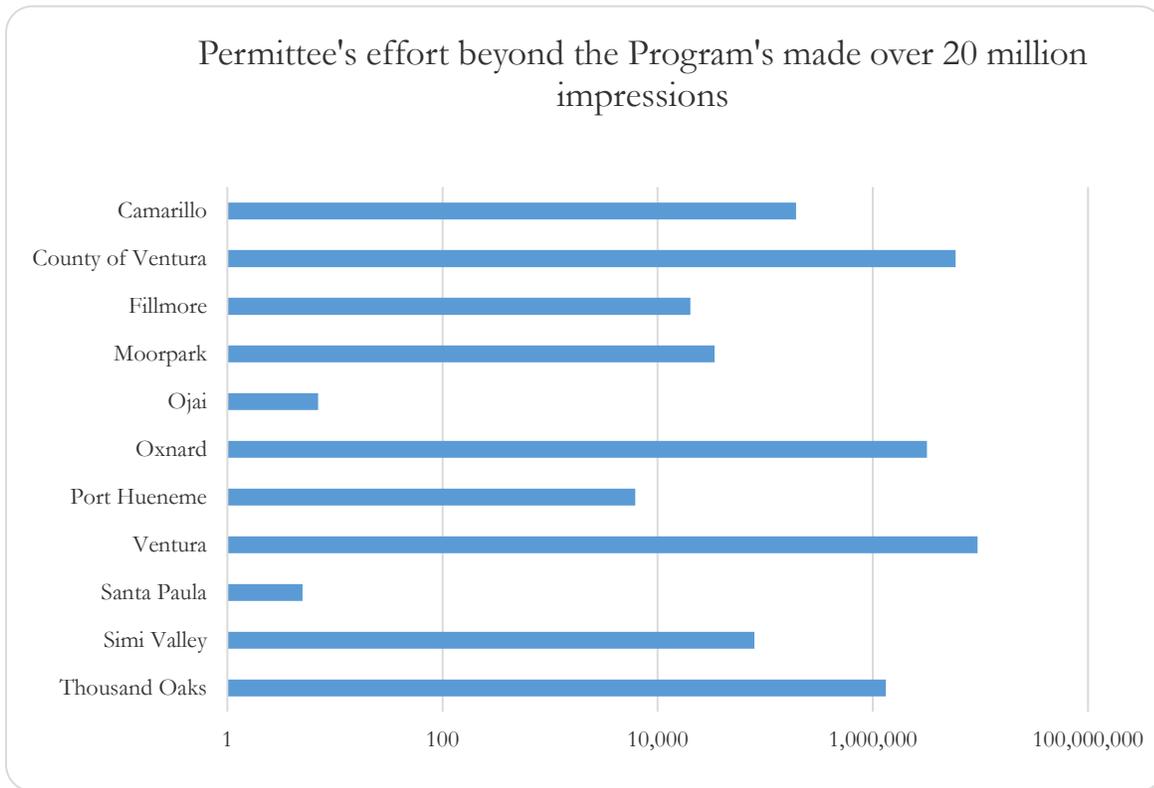
One of our most effective outreach tools has been participation in community events where we can meet with residents one-on-one. In 2018/2019, Environmental Sustainability participated in about 20 events and special presentations reaching an estimated 50,000 residents. These included small and large events such as the Wild & Scenic Film Festival, 4th of July Street Fair, Chamber of Commerce business expos, Eco-Fest, Surf 'N Suds, etc. Special presentations are also made by request by community councils, businesses, and church groups. The City sponsors and hosts 4 free Community Cleanup & Recycling Events throughout the year including free drop-off of unwanted items. The City sponsors and hosts 2 free compost workshops and a very successful March Mulch Madness giveaway event per year. In addition to our Green Business Certification Program, our Environmental Excellence Award and Green School Award are outreach tools to reward businesses and schools for their best environmental practices. Videos highlighting the winners are posted on our City website as models for other businesses and schools. Outreach materials were also provided at the 11 Household Hazardous Waste collections. Technical assistance was provided to businesses and schools through waste assessments and specific requests. Environmental Sustainability reviews and updates a wide variety of educational materials circulated to residents, multifamily dwellings,

businesses, and schools. The City produces advertising and other outreach for various media outlets including VC Star website and newspaper, the local movie theater, billboard advertisements, Cumulus Media, My Ventura magazine, our e-newsletter, our waste haulers newsletter, and social media. These messages range from recycling, HHW, DIY oil change, oil recycling, stormwater pollution prevention, and litter management. Side panels on the Big Belly machines offers highly visible locations for environmental messaging. We also offer residents texting for messages related to stormwater pollution prevention, HHW events, oil recycling, and other community events. We also distribute reusable shopping bags, straws, utensils, and water bottles to encourage residents to reduce single-use plastic use.

Environmental Sustainability Division staff work with businesses to educate them on general environmental sustainability, which includes stormwater pollution prevention. We provide educational materials and training, when requested. The City of Ventura Environmental Sustainability Division continues to run the Green Business Certification program. This statewide California Green Business Network is comprised of other cities, counties and regional jurisdictions. This program is available currently to office/retail, restaurants, multi-family dwellings, and brewery businesses. To date, the city has certified over 80 businesses, with many other in the process. Stormwater pollution prevention and best management practices play an important role in this program.

In addition to the Green Business Certification Program's growing success, the City continues to recognize businesses that go above and beyond with regard to their environmental practices. Through the ongoing partnership with the Chamber of Commerce Green Task Force focusing on business education and recognition, to the annual Chamber of Commerce Poinsettia Environmental Excellence Awards. The city also partners with our waste hauler, EJ Harrison and Sons, and our Ventura Water department to award local schools with Green School and Watershed Hero Awards for those schools that go above and beyond with their environmental efforts.

Figure 3-1 Impressions made through Permittee efforts



3.4.5 Work with Existing Local Watershed Groups

There are four watersheds in urbanized Ventura County: Malibu Creek, Calleguas Creek, Santa Clara River, and the Ventura River. Each of these watersheds has a watershed organization or existing stakeholder group developed to encourage stakeholders to work together to identify problems and reach consensus on solutions. The Program's members are involved with these groups and are accomplishing this Permit requirement through their collective effort.

Performance Standard 3-7

Work with existing local watershed groups or organize watershed Citizen Advisory Groups/Committees to develop effective methods to educate the public about stormwater pollution? (by July 8, 2011)			
	Yes	No	In Progress
Ventura Countywide Stormwater Quality Program	<input checked="" type="checkbox"/>		



Watershed Identification Sign

3.4.6 Storm Drain Inlet Markers and Signage Discouraging Illegal Dumping

The Permit requires each Permittee to label all storm drain inlets that they own with a legible “no dumping” message and to maintain them. The Permit also requires signs with prohibitive language (i.e., discouraging illegal dumping) to be posted and maintained at designated public access points to creeks, other relevant waterbodies, and channels.

Label Storm Drain Inlets with “No Dumping” Message

As of Permit Year 2011/12, the Permittees

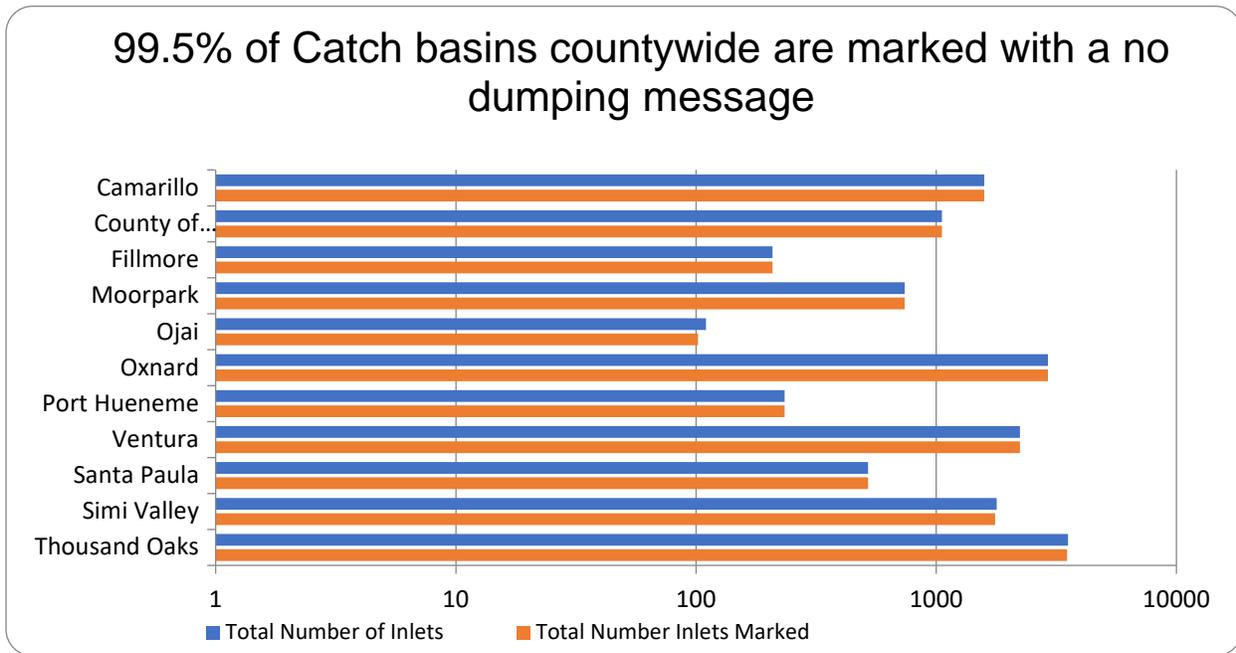
had completed labeling or marking the curb inlets to their entire storm drain system. Permittees maintain their inlet signs by reapplying stencils/markers as they wear out (see Control Measure PA5) and applying stencils/markers to new inlets as they are installed. Markers at curb inlets have varying useful lives due to the materials from which they are constructed (e.g., paint, thermoplastic), their position (e.g., on top of curb, on face of curb), and wear factors (e.g., traffic, street sweeping, sunlight). As a result, the Permittees have different programs to maintain curb inlet markers within their respective jurisdictions. Some Permittees replace a portion of their markers each year, whereas others re-mark all inlets every few years. Regardless of the specific inlet marker practice, all Permittees understand the importance of storm drain inlet markers to the education component of their program and are committed to installation and maintenance of the markers.

Performance Standard 3-8

Label storm drain inlets with a “no dumping” or equivalent message			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		



Figure 3-2 Catch Basin Labeling

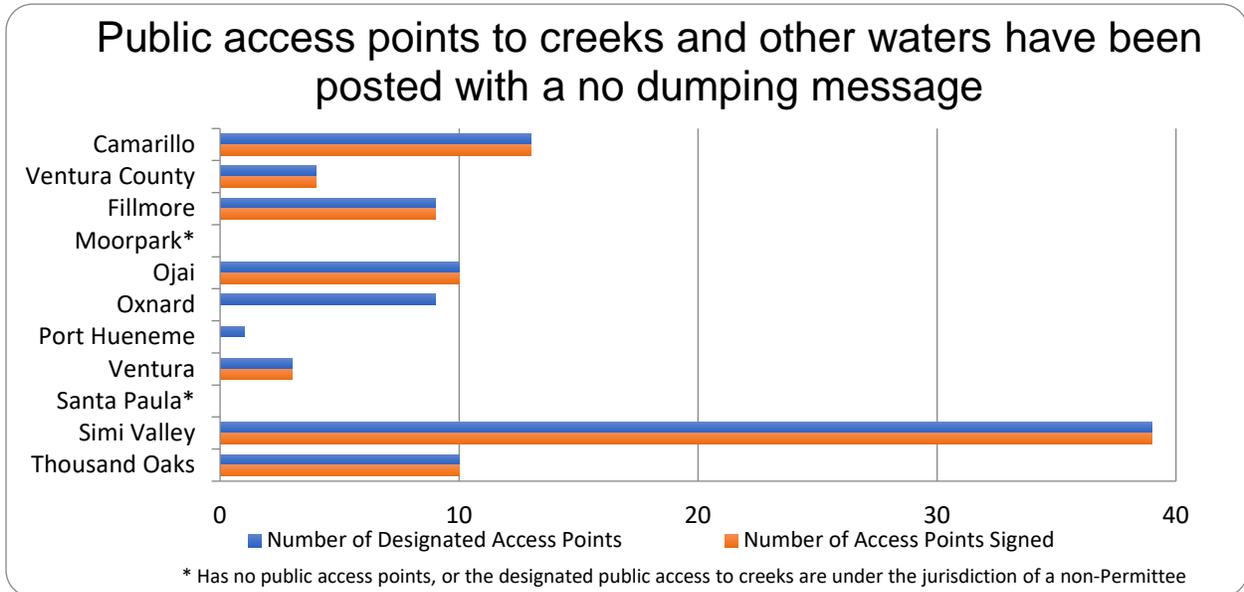


Post Signs with Language Discouraging Illegal Dumping

The Permittees are required to designate appropriate access points to the creeks and channels within their jurisdiction for the placement of signs with prohibitive language to discourage illegal dumping. Each Permittee is responsible for designating the appropriate access points to creeks and channels within their jurisdiction, which requires field verification and mapping. In some cases a Permittee may not have any

designated public access points or they are under the jurisdiction of a special district outside a Permittee's jurisdiction.

Figure 3-3 Public Access Point Signage



3.4.7 Educational Materials

The Permittees are required to distribute stormwater pollution prevention educational materials covering specific types of pollutants to specific businesses. The businesses to be targeted with these pollutant-specific educational materials include automotive parts stores; home improvement centers; lumber yards; hardware stores; and pet shops and feed stores. In addition, the Permit requires the Permittees to continue the existing outreach program to residents on the proper disposal of litter, green waste, pet waste, proper vehicle maintenance, lawn care, and water conservation practices.

Retail Partnership Brochures: Gardeners, Pet Owners, Car Owners (Due July 8, 2011)



This requirement was fulfilled in June of 2011, as was reported in the 2010/2011 Annual Report. The Permittees distributed stormwater pollution prevention public education materials to automotive parts stores, home improvement centers/lumber yards/hardware stores, and pet shops/feed stores. Three Watershed Protection Tip pamphlets aimed at residents were created to encourage best practices in their homes. These brochures were distributed to targeted retailers called out in the Permit to reach the population that is likely involved in the activities. Each colorful pamphlet defines



the Watershed, explains the storm drain system, how polluted water is damaging and gives both overall and topic-specific tips for how to keep the Watershed clean. For example:

- Gardeners: discuss plant selection, irrigation, fertilizer and pesticide practices, integrated pest management and yard maintenance
- Pet Owners: safe methods for handling and disposing pet waste, for both cats and dogs
- Car Owners: do-it-yourself clean vehicle practices for fluids, tires, batteries, and car-washing

Even though this requirement has been met, several Permittees have made additional visits to restock the brochures and have also identified and reached out to new businesses that have opened since the original effort. It is important to note that the Retail Partners are not required to display the material and only do so voluntarily. Permit compliance is met when the Permittee makes request for the brochures to be displayed.

Figure 3-4 Retail Partnership Outreach to Automotive Parts Stores

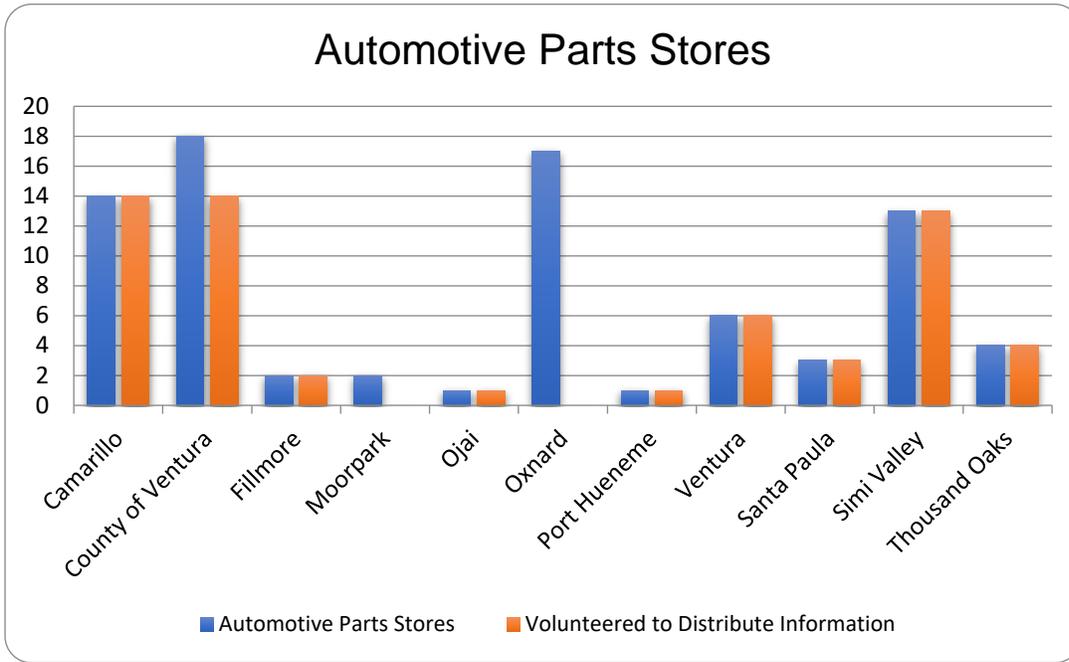


Figure 3-5 Retail Partnership Outreach to Pet Shops

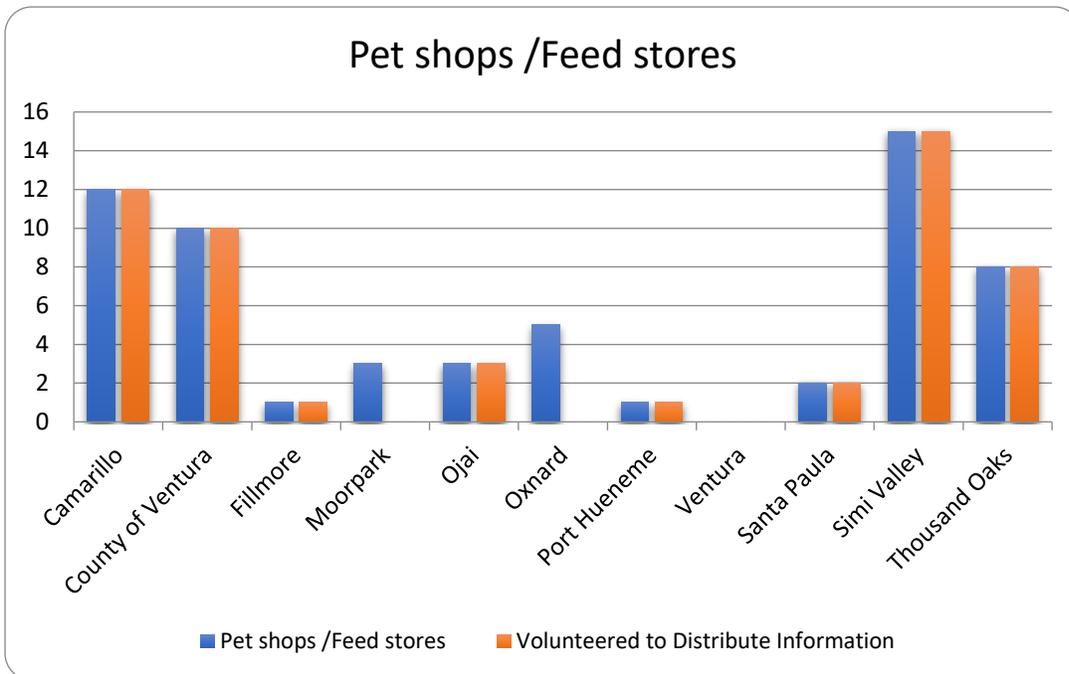
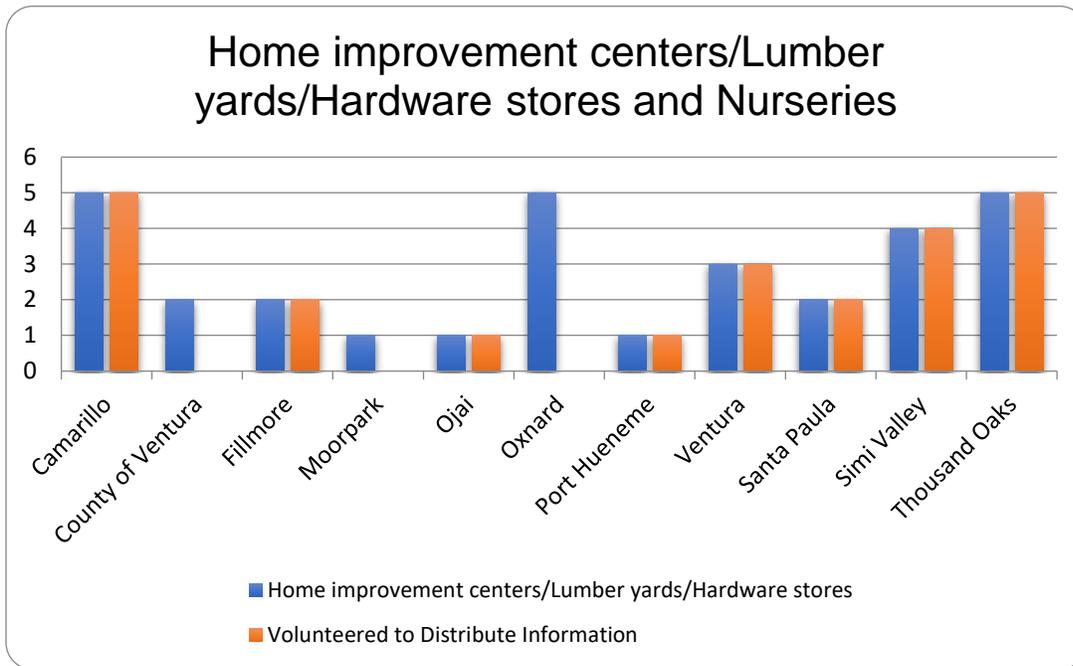


Figure 3-6 Retail Partnership Outreach to Nurseries



3.4.8 Community Events

The Permit requires the Permittees to individually and collectively organize community-oriented educational activities and events and to participate in countywide events focusing on stormwater quality. The main countywide event for the stormwater program is Coastal Cleanup Day.

Our Coastal Cleanup Day is part of international coastal cleanup day and is an annual trash pickup event held on the third Saturday each September. Volunteers spend three hours of their Saturday morning picking up litter from beaches, parks, and local waterways. Two inland cleanup sites in Fillmore and Santa Paula were added to the list of sites for Coastal Cleanup Day in 2017; totaling 26 sites in Ventura County.

Coastal Cleanup Day is organized by a team of talented, hard working professionals from the cities of Oxnard, Ventura, Simi Valley, Camarillo, Moorpark, Thousand Oaks, California State University Channel Islands, and the Resource Conservation District, without whom this event would not be the success that it is. The California State University Channel Islands became a significant partner in the planning and organizing in 2018, by coordinating, sorting, and distributing all the materials for the 25 sites in Ventura County. We are supported by the California Coastal Commission and their statewide sponsors, as well as by our generous local sponsors, including the Ventura Countywide Stormwater Program’s Community for a Clean Watershed, and Gold Coast Broadcasting. We have passionate, dedicated site captains, many of whom have been doing this for many years, who volunteer their time to host the event at sites across the county, including inland areas, on the water harbor cleanups, and sites along the coast from Oil Piers to Mugu Rock, and inland to Simi Valley, Thousand Oaks, and Ojai.

2018 was the 34th anniversary of CCD with over 3,000 volunteers, including individuals and groups from schools, scouts, clubs, churches, and both large and small employers in Ventura County. Collectively, volunteers picked up over 12,900 pounds of trash and recyclables – 12,900 pounds that is no longer out there to pollute our communities, waterways and oceans, and harm our wildlife. In addition to picking up

the trash, the volunteers count the number of each type of item they pick up, so that we can determine the source of the trash and the data can be used to find better ways to prevent it from becoming trash in the first place. This event showcases the pride that Ventura County residents take in their communities. Our volunteers get to choose which site they volunteer at, so the number of volunteers at each site varies. This year it ranged from 12 to over 400.



Performance Standard 3-9

Collectively organize events targeted to residents and population subgroups			
	Yes	No	In Progress
Ventura Countywide Stormwater Quality Program	<input checked="" type="checkbox"/>		

3.4.9 Pollutant-Specific Outreach

The Permit requires the Permittees to coordinate to develop outreach programs that focus on the following specific pollutants of concern: metals, urban pesticides, bacteria, and nutrients. For effectiveness in delivering these messages they were incorporated into the other outreach program requirements of a multimedia campaign and retail partnerships with auto shops, pet stores, and home improvement stores/nurseries.

To focus on nutrients a more understandable surrogate for the public was employed because communicating that “nutrients” are a bad thing would create an additional hurdle to the ultimate goal of changing behavior. Good gardening techniques were identified as the best way to communicate this issue. A full media campaign was developed and information along with pesticide BMPs were distributed at retail nurseries throughout the county. Bacteria from pet waste have been an ongoing target of the program. In the 2018/19 Permit Year the Program developed new creative for general paid media campaigns focused on “Pollutants of Concern”: trash/litter, pet waste, and yard chemicals. The “Pollutants of Concern” new creative material was executed in multiple format including video, digital ads, outdoor ads, and radio. A description of how these pollutant-specific outreach materials were utilized during the 2018/19 Permit Year can be found in section 3.4.2. As stated in the Permit the metals pollutant-specific outreach is addressed through the industrial-commercial inspection program.

3.5 BUSINESS OUTREACH (Control Measure PO4)

The Permit requires the Permittees to develop and implement both a corporate outreach and a small business assistance program to educate and inform corporate franchise operators, local facility managers, and small businesses about stormwater regulations and BMPs to reduce the discharge of pollutants in stormwater.

3.5.1 Corporate Outreach

Develop Corporate Outreach Program (due by July 8, 2012)

The Annual Report for Permit Year 2011/12 describes in detail how this requirement was met. While the Program continues the data are not repeated here. The requirement is that Permittees must work with other regional or statewide agencies and associations such as the California Storm Water Quality Association (CASQA) to develop a Corporate Outreach program to educate and inform the following corporate franchise operators and/or local facility managers (at a minimum) about stormwater regulations and BMPs.

- Four (4) Retail Gasoline Outlet (RGO) Franchisers
- Four (4) Retail Automotive Parts Franchisers
- Two (2) Home Improvement Center Franchisers
- Six (6) Restaurant Franchisers

Educational materials for RGOs, and restaurants have been developed by the Permittees and are distributed to local facility managers during the required inspections. These facilities are inspected not less than twice during the Permit term. During the inspection the inspector meets with the facility manger, effectively complying with this Permit requirement. Automotive part stores are included in the retail partnership program to help educate the consumers shopping at their locations. The local facility manager’s permission is needed to display the brochures, at this opportunity regulations and BMPs are explained. Under the nursery inspection program some Permittees are including home improvement centers due to the size of

their gardening sections. Again, the business inspection program satisfies the requirement by meeting with the local facility manager during the inspection.

3.5.2 **Business Assistance Program**

Best Management Practices Fact Sheets

Targeting types of businesses that have significant potential to contribute to stormwater pollution, Watershed Protection Tips one-page fact sheets were created to outline Best Management Practices for six categories of activities. Each BMP fact sheet is available on the Community for a Clean Watershed website, where they can be read or printed for distribution. 10,800 were printed for distribution through Permittees. Printing more of these brochures was evaluated this year but was postponed due to the upcoming Permit renewal. Some Permittees used their own resources to print more fact sheets.

Provide Consultation Regarding Business Responsibilities

On-site, telephone, or e-mail consultation is required to help businesses reduce the discharge of pollutants. The Permittees provide on-site consultation regarding the responsibilities of businesses to reduce the discharge of pollutants, during inspections; this requirement is covered in Section IV Industrial Commercial Programs. These trained and knowledgeable inspectors are also available to respond to questions via phone or email.

Distribute Educational Materials to Specific Businesses

As mentioned above, the Industrial Commercial Program is responsible for the distribution of information to businesses. This occurs mostly at inspections but may also be done when obvious problems are reported. An opportunity to disseminate this information to new businesses before they are in operation is through the business license program. Businesses may need a business license to operate legally in a jurisdiction. It is at that time that the Permittees are able to distribute information regarding stormwater regulations and appropriate BMPs for their operations. The Program has developed many specific fact sheets over the years for this purpose. The fact sheets may be distributed with the business license, or the proprietor may be directed to the website for the information.



Best Management Practices Fact Sheets

3.6 EFFECTIVENESS ASSESSMENT (Control Measure PO5)

3.6.1 Behavioral Change Assessment Strategy

Youth Panel Survey – June 2019

Research surveys are conducted to measure awareness, perceptions, and actions taken by Ventura County residents, alternating years of research between adult residents and K-12 youth. In addition to measuring changes in attitudes and behaviors related to watershed best practices, the research gives insights about whether outreach messaging is effective. The following summarizes the June 2019 Youth Research Survey (the 5th youth study survey since 2009), noting significant changes since the last youth survey in 2015.

METHODOLOGY

- A web survey was used as the method of data collection.

- The number of completed surveys from each of the cities with Ventura County are as follows: Thousand Oaks (30); Simi Valley (30); Oxnard (35); Ventura (31); Moorpark (30); Camarillo (30); Santa Paula (30); Port Hueneme (30); Fillmore (30); Ojai (30); and Unincorporated areas (32), including Somis, Lake Piru, Saticoy, El Rio, Hidden Valley, Meiners Oaks, Mira Monte, Oak Park, Oak View.
- Study participants had to be youths between the ages of 5 and 18 and were required to be residents of Ventura County. In addition, they were recruited according to specific demographic criteria that are comparable to previous years.

Key Findings

- Kids' consciousness of litter is also evolving. In the 2015 study, the majority of the kids (59%) said they *sometimes picked up litter* when they saw it on the ground. That has switched to where the majority (54%) now say that they'd *always pick it up*.
- The schools are taking a more active role in talking to kids about the environment, a trend that has been growing every study since it was initiated in 2010. Almost two-thirds (62%) said they learned about environmental concerns in school in 2019 versus less than half (46%) in 2015.
- There was a dramatic 100% increase in participation in Coastal Cleanup Day. Participation grew to over two-fifths (43%) in 2019 from only one-fifth (22%) in 2015.
- However, awareness of Earth Day has decreased somewhat to only two-thirds (68%) aware in 2019 versus three-quarters (79%) in 2015. Still, more importantly, participation in the event remained constant.
- There has been a steady increase in kids concern about the environment since the question was first asked in 2013. The overwhelming majority (88%) of the kids are worried about people hurting the environment, a steady growth from 66% in 2013 to 82% in 2015. More importantly, that worry has escalated with three-quarters (75%) saying "*they are very worried*" versus just over half (51%) in 2015.
- Two-thirds (67%) of the kids think the environment will be more polluted when they are older, a dramatic 45% increase over 2015 numbers (46%).
- The kids are exceedingly more attuned to the fact that all types of waste are damaging to the environment. In fact, in this study they felt a number of waste items had a more negative impact on the environment----pet waste, pesticides, yard waste, garden fertilizer, household cleaning supplies and cigarette butts.
- The recognition of the beauty of Ventura's environment continues to grow with each survey from just over half in 2013 (58%), to three-quarters (74%) in 2015, to the overwhelming majority (90%) in 2019.

Public Outreach Findings

- Advertising recall of the commercials remains steady but has not grown significantly. It's possible that an approach more closely attuned to youthful events and interests might be a more effective way to reach the youth. It seems that the computer is where the youth spend a great deal of their spare time. Facebook seems to have grown passé, whereas Instagram and YouTube have gained trust and interest from kids.
- 47% of respondents recalled seeing the 'Biker', Yours to Enjoy, Yours to Protect online image.

- This year, two-fifths (40%) of the youth said they heard or saw advertising regarding the protection of the watershed. That’s similar, although slightly greater than 2015 (36%).
- 68% of respondents were able to recall seeing the CCW logo (+1%) since 2015.

Summary of Effectiveness

Based on the positive results of the 2019 Youth and 2016 Adult Survey, the combined strategy of reminding people *why* they should protect the watershed and filtering in building upon existing assets seems to work. Together, the advertising outreach elements work with promotions and face-to-face presentations to raise the value of protecting the environment while suggesting best practices to help them do so.

In program year July 2018 to June 2019, we:

- Utilized existing broadcast and online elements to strengthen awareness of best watershed practices while stretching the budget to achieve maximum reach and repetition.
- Maintained a consistent presence with youth, including consistent communication through social media channels, radio promotions, and in-school presentations.
- Garnered an exceptional amount of bonus media placements with Coastal Cleanup Day promotions.

Performance Standard 3-10

Develop and implement a behavioral change assessment strategy based on current sociological data and studies to determine whether the Public Outreach Program is demonstrably effective in changing the behavior of the public.			
	Yes	No	In Progress
Ventura Countywide Stormwater Quality Program	<input checked="" type="checkbox"/>		

3.6.2 Outreach Program Annual Effectiveness Assessment

Effectiveness assessment is a fundamental component required for the development and implementation of a successful storm water program. In order to determine the effectiveness of the Public Outreach Program Element, a comprehensive assessment of the program data is conducted as part of the Annual Report. The results of this assessment are used to identify modifications that need to be made to the program. Each year the effectiveness assessment is reviewed and revised as necessary.

By conducting these assessments and modifying the Program Element as necessary, the Permittees ensure that the iterative process is used as an effective management tool. Due to the types of data collected for the Public Outreach Program, current and future assessments will primarily focus on Outcome Levels 1, 2, and 3.

- Outcome Level 1 (L1) answers the question: Did the Permittees implement the components of the Permit?
- Outcome Level 2 (L2) answers the question: Can the Permittees demonstrate that the control measure/performance standard significantly increased the awareness of its target audience?
- Outcome Level 3 (L3) answers the question: Can the Permittees demonstrate that the control measure/performance standard changed a target audience’s behavior, resulting in the implementation of recommended BMPs?

The following is an assessment regarding the effectiveness of the Public Outreach Program.

PO1 – Public Reporting

The Permittees have identified staff to serve as contact persons for public reporting. (L1)

The Permittees maintain two types of public reporting hotlines, one for general stormwater information and the other for reporting water pollution problems. (L1)

The Permittees are promoting and publicizing the public reporting hotlines and contact information. The information is available on Permittee websites and is published in the government pages of the local phone book and other appropriate locations. (L1)

The Permittees are raising awareness about the public reporting hotline numbers. (L2)

PO2 – Public Outreach Implementation

The Permittees have developed and are implementing the public outreach program that provides key stormwater messages. (L1)

Education of Ethnic Communities – The Permittees have developed and implemented a strategy to educate ethnic communities through culturally effective methods. The Permittees educated ethnic communities by reaching out to the Spanish language community in Ventura County via Spanish language advertising in the media. Elements of each campaign were created in Spanish, including transit shelters and radio commercials. In 2018/19, Spanish language advertising accounted for approximately 13% of the annual media impressions.

Storm Drain Inlet Markers and Signage – The Permittees have labeled or marked 99.5% of the storm drain inlets for the entire storm drain system and maintain the stencils/markers through the Public Agency Activities Program. In addition, 90% of the Permittees' public access points to creeks and channels have signage with language that discourages illegal dumping, this includes access points that are outside of Permittee jurisdiction.

Educational Materials – The Permittees have developed and are providing a variety of stormwater pollution prevention outreach materials, including those for specific pollutants and activities. The materials include pamphlets, brochures, and BMP posters. These are provided via a number of mechanisms, including at community events, at specific businesses, utility billing inserts, and the Countywide stormwater website (cleanwatershed.org/). In addition, the Permittees distributed activity-specific stormwater pollution prevention educational materials to residents regarding the following activities: proper disposal of litter, green waste; pet waste; proper vehicle maintenance; lawn care; and water conservation practices.

Mixed Media Campaigns – The Countywide program has continued to work with their media consultant, Sagent, to develop and implement Community for a Clean Watershed campaigns. The Permittees have provided the public with various stormwater-related articles or messages via radio and public access cable channel PSAs, print ads (including newspaper), signage on outdoor bulletins and at transit shelters, online ads, and website banners. During 2018/19, the Permittees conducted a comprehensive effort for an estimated 6.7 million total impressions through mixed media campaigns.

Countywide Stormwater Website – The Permittees continue to maintain and utilize both websites (cleanwatershed.org/ and vcstormwater.org/) to provide regularly updated outreach to the public.

Community Events – The Permittees provided outreach to the general public by sponsoring, organizing, and/or exhibiting at multiple community events and providing information to event attendees. These events included Coastal Cleanup Day; a total 3,008 volunteers to 26 different beaches and inland waterways

countywide covering a distance of 45.2 miles. A total 12,195 pounds of trash including 749 pounds of recyclables were collected.

Pollutant-Specific Outreach – The Permittees are implementing a pollutant-specific outreach program rotating through metals, urban pesticides, bacteria, and nutrients in coordination with multi-media campaigns and retail partnerships with auto shops, pet stores, and home improvement stores and nurseries. Pollutant-specific outreach materials have been distributed via these retail partnerships.

As a result of the above efforts, along with the individual efforts of the Permittees in 2018/19, an estimated total of over 6.7 million impressions were made, well exceeding the goal of five million stormwater quality impressions per year.

PO3 – Youth Outreach and Education

The Program's efforts towards youth continued to build on last year's outreach when a specific plan was created to reach 50% of all Ventura County school children (K-12) once every two years to comply with the NPDES Permit #CAS004002. Persons under 18 in Ventura County is 187,212, according to the 2018 Census Bureau, but many are under 5, with less than 145,000 school aged children enrolled in Ventura County schools, this translates to reaching approximately 75,000 in that target group every two years. While that goal was met and exceeded during the last Permit year with over approximately 628,000 media impressions made on children 6-18 and teens, the Program continues to speak to this important audience with a targeted media plan and a creative strategy that appeals to youth. In addition, the Facebook page has a sizeable percentage of young fans, allowing for a consistent message to be delivered to youth. Through radio, classrooms, cleanups, and new techniques such as twitter and Facebook well over 1,000,000 impressions were made on school aged children. (L2)

PO4 – Business Outreach

On-site consultation to businesses are provided during inspections regarding their responsibility to reduce discharge of pollutants. Inspectors are also available for consultation via telephone and e-mail. (L1)

The Permittees distributed educational materials to specific businesses during inspections, when business licenses are obtained, and when problematic businesses are reported. In addition, information is made available on the Countywide website, and businesses are referred to the website as appropriate. (L1)

PO5 – Effectiveness Assessment

The Ventura County Watershed Permittees are committed to tracking performance of their outreach efforts. To that end, periodic research surveys are conducted to measure awareness, perceptions, and actions taken by Ventura County residents to protect the local Watershed. The research also gives insight into whether outreach messaging is effective, along with providing some insight into local media preferences.

In order to establish a baseline of both our adult and K-12 target audiences' understanding of the watershed and surrounding stormwater pollution web surveys are routinely conducted, usually every other year for each target audience.

The research results indicate a clear connection between key outreach messages and increases in understanding and shifts in behavior/attitude. This supports continued use of new and traditional media to educate youth on watershed protection.

The results outlined above show that the Public Outreach program efforts have increased awareness among Ventura County residents regarding some key issues impacting the health of Ventura County's watersheds. (L2) (L3)

3.6.3 **Public Outreach Program Element Modifications**

On an annual basis, the Permittees plan to evaluate the results of the Annual Report, as well as the experience that staff has had in implementing the program, to determine if any additional program modifications are necessary to comply with the Clean Water Act requirement to reduce the discharge of pollutants to the maximum extent practicable (MEP). Any key modifications made to the Public Outreach Program Element during the next fiscal year will be reported in the following Annual Report.

4 Industrial/Commercial Facilities Programs

4.1 OVERVIEW

The purpose of the Industrial/Commercial Facilities Program Element is to effectively prohibit unauthorized non-stormwater discharges and reduce pollutants in stormwater runoff from industrial and commercial facilities to the maximum extent practicable (MEP).

The daily activities of many businesses create a potential for pollutants to enter a storm drain system through both intentional and unintentional actions. The Permittees have developed programs to address this source of pollutants through inspections of targeted businesses and by providing educational outreach and enforcement if needed. These efforts include information on the potential for illicit discharges and illegal connections from businesses, assistance in the selection and use of proper BMPs, and may result in formal enforcement action and fines if environmental directions are ignored.

The program for industrial and commercial facilities is accomplished by tracking, inspecting, and ensuring compliance at industrial and commercial facilities identified as critical sources of pollutants in stormwater. Industrial and commercial facilities are managed under a single Program Element due to the similarities among these types of facilities and the effort involved to implement the program.

The Permittees use the Business Outreach and Illicit Discharge/Illegal Connection Subcommittee meeting to coordinate and implement a comprehensive program to control pollutants in stormwater discharges to municipal systems from targeted commercial facilities. The Subcommittee is comprised of representatives of the Permittee cities and other municipal staff from various departments (e.g. Environmental Health, Environmental Services, and Wastewater Services). The subcommittee provides an opportunity for the Permittees to learn from each other's experiences, and to develop and share resources. Each Permittee has implemented an Industrial/Commercial Business Program using the control measures identified below.

4.2 CONTROL MEASURES

Several Control Measures and accompanying performance standards have been developed by the Permittees to ensure that the Industrial/Commercial Facilities Program requirements found in the Permit are met and provide information for optimizing the Program. At the end of this chapter these control measures are evaluated to determine the effectiveness of this program element.

The Industrial/Commercial Facilities Program Control Measures are organized to be parallel to the organization of the Permit and consist of the following:

Table 4-1 Control Measures for the Industrial/Commercial Facilities Program Element

IC	Control Measure
IC1	Facility Inventory
IC2	Inspection
IC3	Industrial/Commercial BMP Implementation
IC4	Enforcement
IC5	Training
IC6	Effectiveness Assessment

4.3 FACILITY INVENTORY (Control Measure IC1)

The Facility Inventory Control Measure addresses the need to develop and maintain a complete and comprehensive database of industrial and commercial facilities that are determined to be critical sources of stormwater pollution. Information for the database is primarily derived from new business licenses and sanitary sewer connection permits. Facility inspections performed by the Permittees also continues to provide the details needed for the database. Some Permittees perform surveys of the industrial zoned areas in their jurisdiction to help maintain their industrial facility inventory. This survey is usually associated with industrial waste pretreatment inspections required for agencies operating a wastewater collection system.

4.3.1 Maintain and Annually Update the Industrial and Commercial Facility Inventory

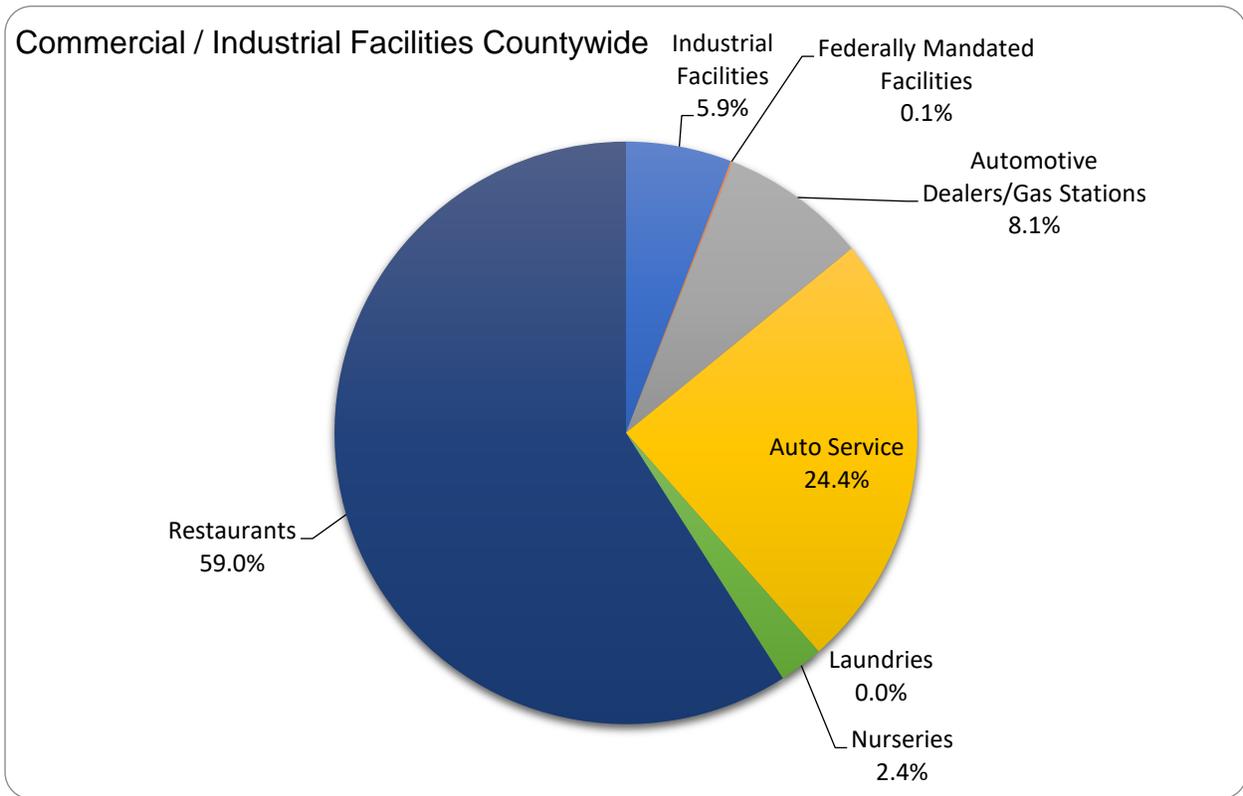
As required by the Permit, the Permittees maintain an inventory of industrial and commercial facilities within their jurisdictions, including those covered under the state Industrial General Permit. This inventory identifies the type of business, the watershed it is located in, and inspections and enforcement action history.

The Permittees supplement their inventory by utilizing data from County Environmental Health to obtain current facility numbers prior to planned inspections. The Regional Water Board's website and the Storm Water Multiple Application and Report Tracking System (SMARTS) also provides useful information for all Industrial General Permit holders and is used extensively for that program. These data were first compiled during the 2009/10 reporting period and are updated on an ongoing basis as the next round of inspections discovers new facilities, as well as companies that are no longer in operation. Some businesses, such as restaurants, have a high turnover with many new ones opening each year and many permanently closing their doors. Because of the continued turnover of businesses, the Industrial and Commercial Inventory can never be assumed to be 100% accurate, it is a snapshot in time and is continually updated as information becomes available. The current development of inventory for 2018/19 is summarized in the following Tables.

Performance Standard 4-1

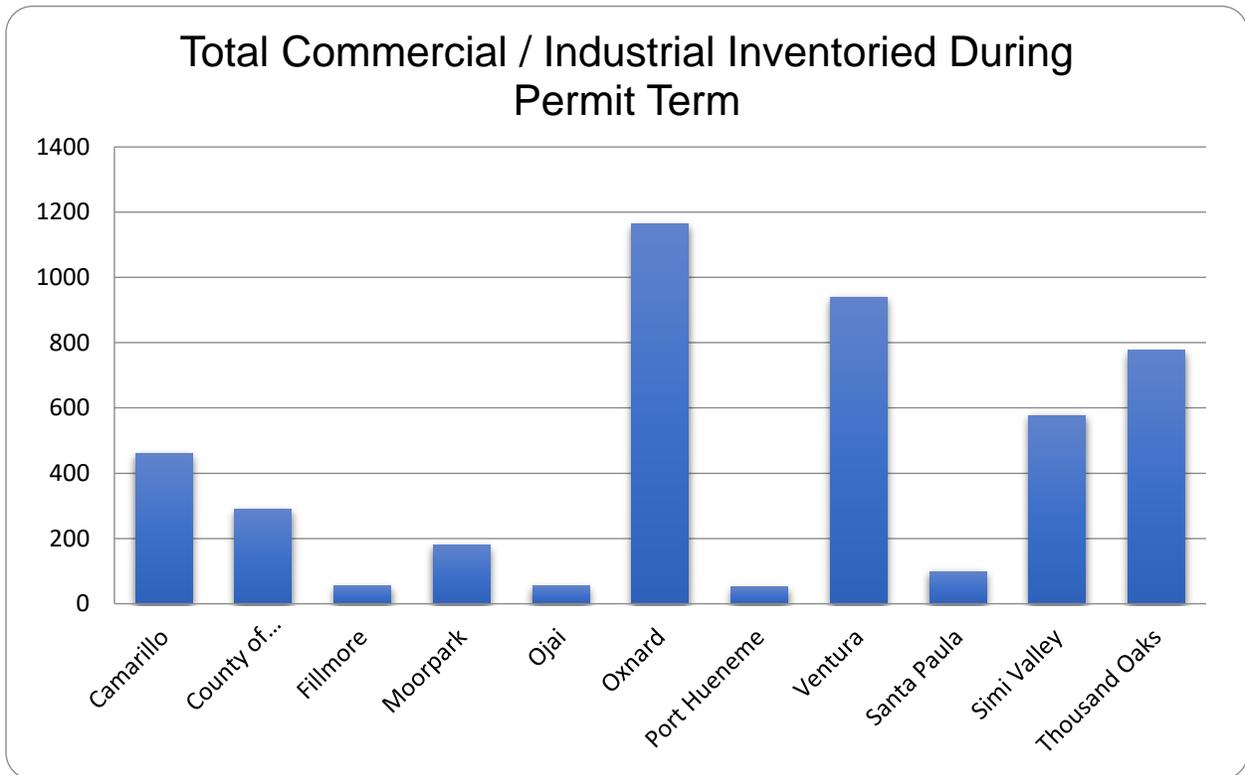
Did the Permittees maintain and update the Industrial and Commercial Facility Inventory			
	<i>Yes</i>	<i>No</i>	<i>N/A</i>
<i>Camarillo</i>	<input checked="" type="checkbox"/>		
<i>Ventura County</i>	<input checked="" type="checkbox"/>		
<i>Fillmore</i>	<input checked="" type="checkbox"/>		
<i>Moorpark</i>	<input checked="" type="checkbox"/>		
<i>Ojai</i>	<input checked="" type="checkbox"/>		
<i>Oxnard</i>	<input checked="" type="checkbox"/>		
<i>Port Hueneme</i>	<input checked="" type="checkbox"/>		
<i>Ventura</i>	<input checked="" type="checkbox"/>		
<i>Santa Paula</i>	<input checked="" type="checkbox"/>		
<i>Simi Valley</i>	<input checked="" type="checkbox"/>		
<i>Thousand Oaks</i>	<input checked="" type="checkbox"/>		

Figure 4-1 Commercial/Industrial Facilities Inventory



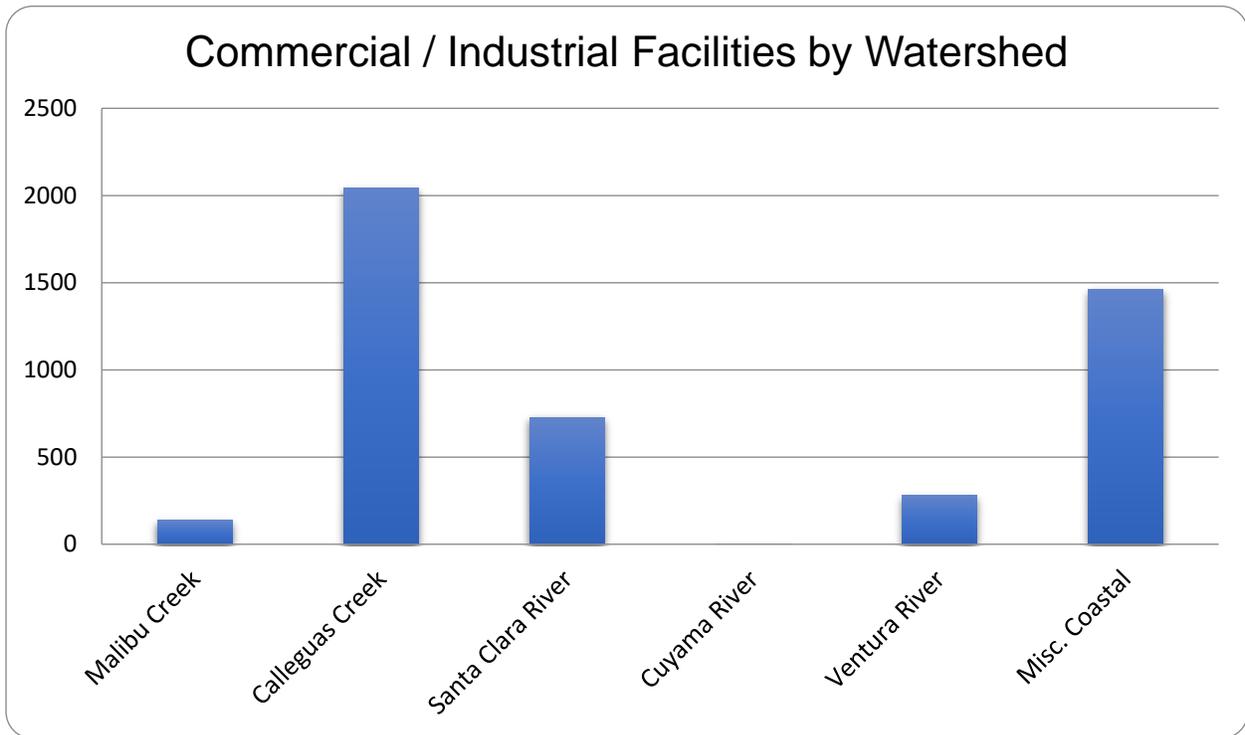
Materials stored in a covered shed with secondary containment

Figure 4-2 Commercial/Industrial Facilities by Permittee



An inspector reviews the Industrial Stormwater Permit requirements with the business manager

Figure 4-3 Commercial Industrial Facilities by Watershed



4.4 INSPECT INDUSTRIAL AND COMMERCIAL FACILITIES TWICE DURING PERMIT TERM (Control Measure IC2)

To satisfy the requirement of inspecting these facilities twice during the Permit term the Permittees began their inspection of industrial and commercial facilities in the 2009/10 Permit year. With respect to industrial facilities, if the initial inspection revealed no risk of exposure of industrial activities to stormwater at a facility, then that facility may be categorized as *No Exposure Status*. Second inspections are required at a rate that provides annual re-inspection of a minimum of 20% of all such facilities determined to have non-exposure.

All initial industrial and commercial facility inspections must be completed no later than July 8, 2012. A minimum interval of six months between the first and second compliance inspection is required at all industrial and commercial facilities. It is possible that a site will be visited sooner than six months if requested by the Regional Board staff to assist with their investigations, or if an illicit discharge is suspected. The status of the industrial commercial inspection program through the end of the reporting period is represented in the following tables.

Figure 4-4 Industrial Stormwater General Permit Facilities Inventories

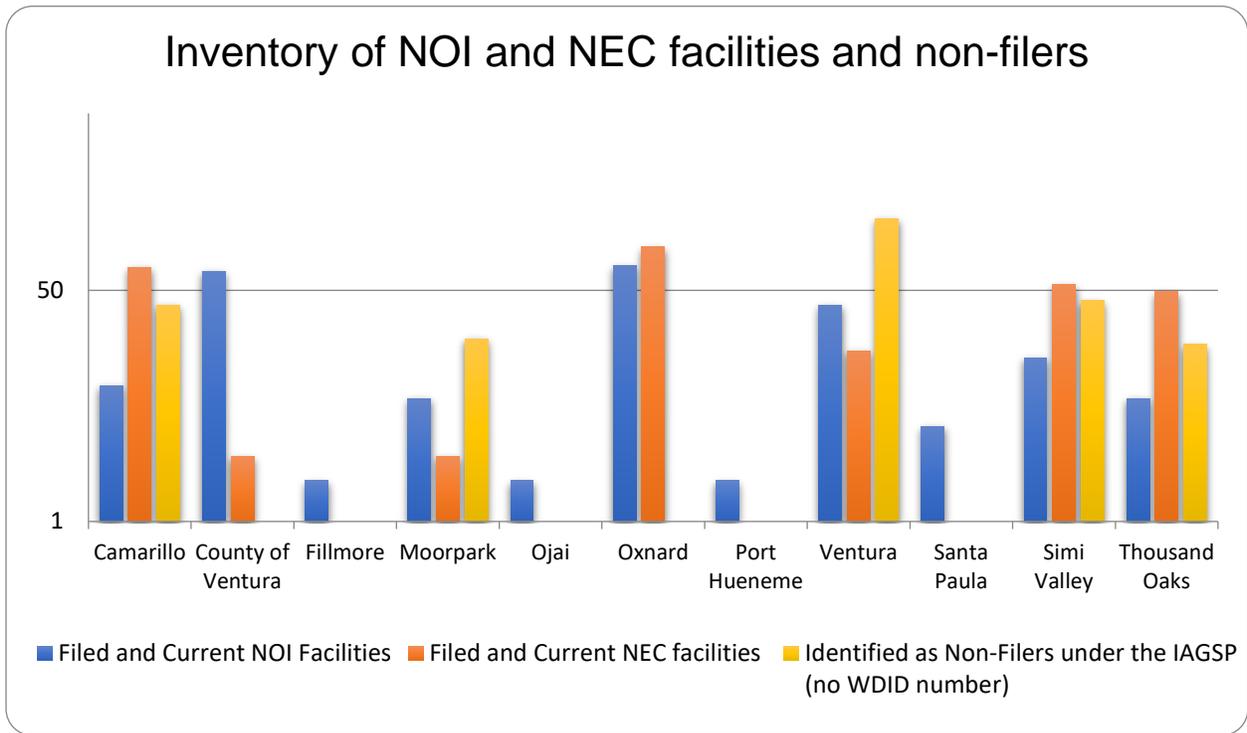


Figure 4-5 Industrial Facilities Filed as Non-Exposure

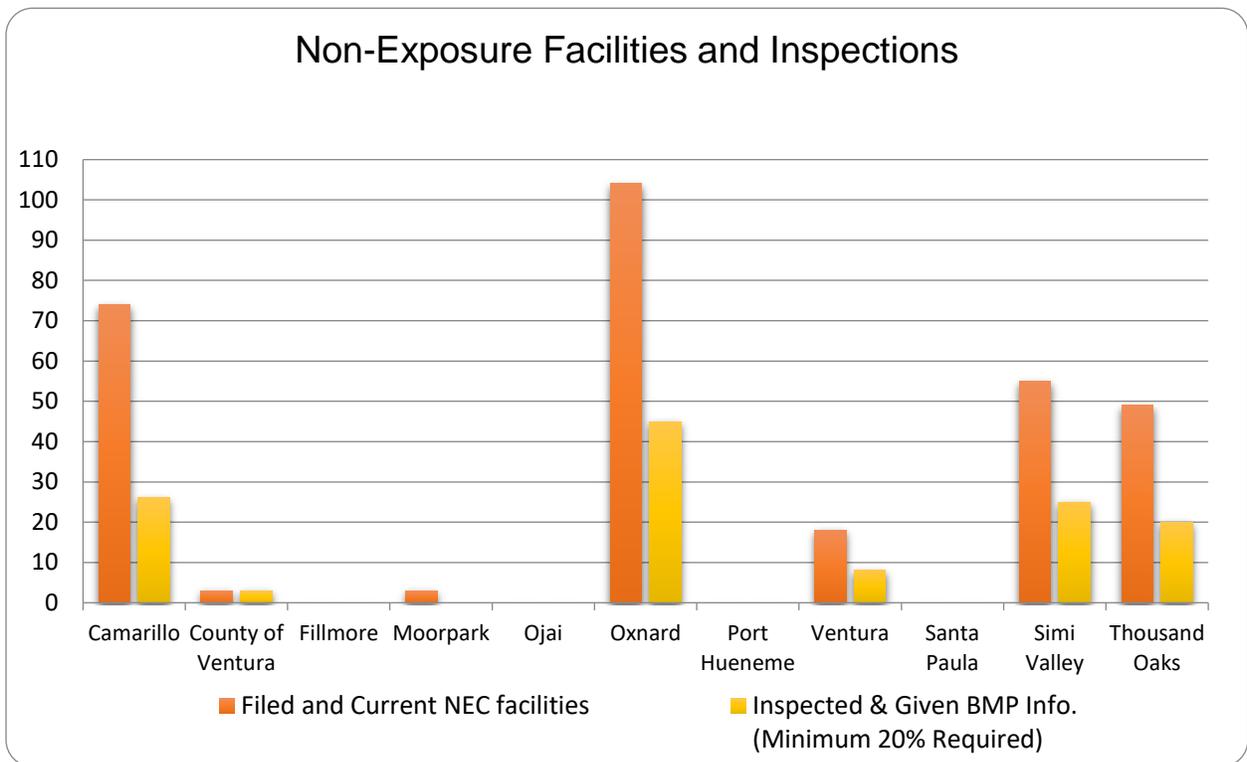
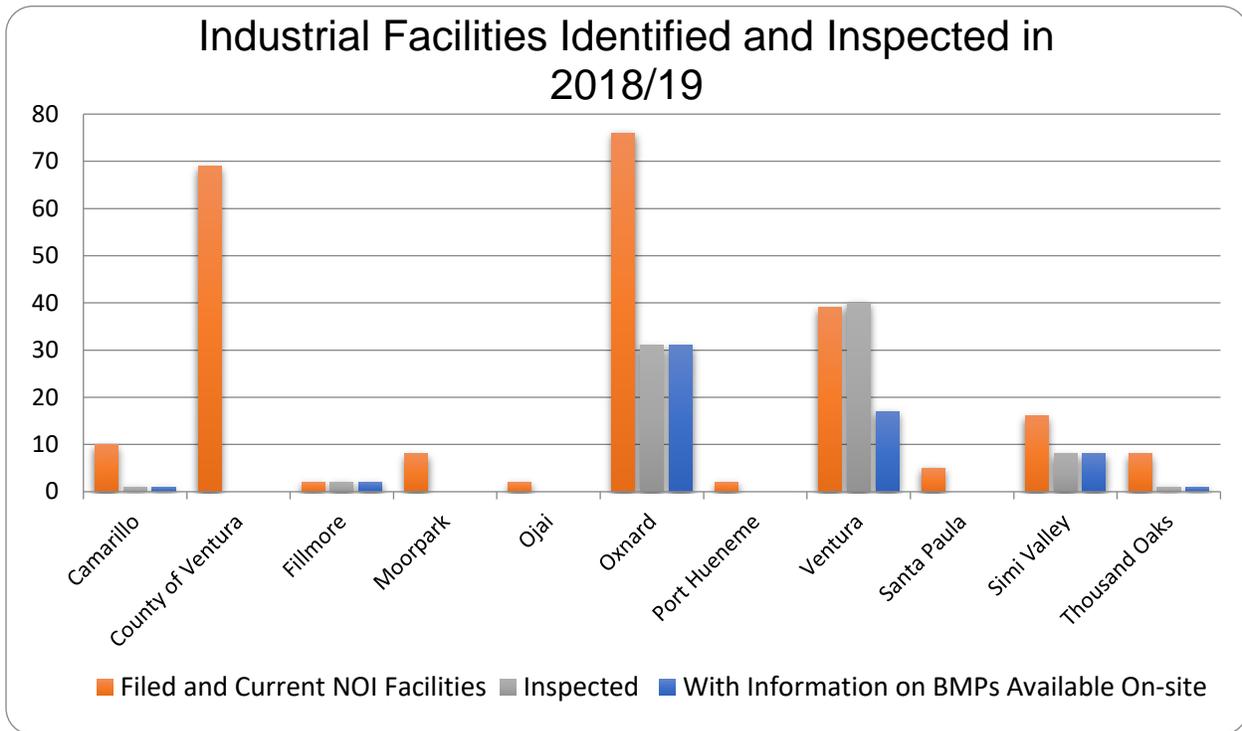


Figure 4-6 Industrial Facilities Inspections



Industrial Facilities includes U.S. EPA Phase I, II Facilities required to obtain coverage under the Industrial Activities Stormwater General Permit (IAGSP). These facilities are identified by either the Standard Industrial Classifications (SIC) or the North American Industry Classification System (NAICS). Facility ownership (federal, state, municipal, private) are not factors in this definition and so the inventory includes facilities such as the Naval Base Ventura County at Point Mugu.

The City of Ventura relies on numerous sources for identifying industrial and commercial facilities which may require inspection for stormwater permit compliance. Business licensing, water records, surveillance, phone book, newspaper ads and the internet provide a wide source list. Staff utilizes the State General Industrial Permit database to supplement and update the industrial business list. All initial "Critical Source" business inspections have been completed as well as second inspections for this permit cycle. All General Industrial Permittees were visited and given a packet of information outlining General Industrial Permit requirements. The City has reviewed and continues to utilize the approved inspection checklists for

COUNTY OF VENTURA
County Unincorporated Area
Stormwater Management Program
800 South Victoria Avenue
Ventura, CA 93009-1010

STORMWATER INSPECTION CHECKLIST
INDUSTRIAL AND FEDERALLY MANDATED FACILITIES

INSPECTION TYPE:
 INITIAL INSPECTION
 1st Follow-up after INITIAL INSPECTION
 2nd Follow-up after INITIAL INSPECTION
 2nd Inspection of Facilities with Exposure
 1st Follow-up after 2nd Inspection of Facilities with Exposure
 2nd Follow-up after 2nd Inspection of Facilities with Exposure
 2nd Inspection of NON-EXPOSURE FACILITIES (maximum 20% annually)
 Compliant Response

INSPECTOR NAME: _____ INSPECTION DATE & TIME: _____
 FACILITY NAME: _____
 FACILITY ADDRESS: _____
 FACILITY CONTACT NAME: _____ PHONE: _____
 FACILITY CONTACT SIGNATURE (acknowledging receipt): _____
 FACILITY'S SIC/NAICS CODE: _____ FACILITY CATEGORY: _____
 STATUS OF EXPOSURE: Exposed No Exposure
 THIS FACILITY IS COVERED UNDER:
 Industrial Activities Stormwater General Permit (IAGSP) WQID # _____
 Is SWPPP available on the site? YES NO N/A
 No Exposure Certification: the most recent re-certification date: _____
 "Notice of Non-applicability" file date: _____
 FACILITY IS LOCATED IN ONE OF THE FOLLOWING WATERSHEDS:
 Calleguas Creek Malibu Creek Santa Clara River
 Ventura River Coyajana River Mac. Coastal

A. Brief Description of Facility Operations:

		Yes	No	N/A
Does this facility discharge to MS4s that directly discharge to (ESA or SCB) listed waterbodies? If YES, make a note if BMPs are sufficient or recommend additional BMPs.				
Describe activities that have potential to pollute stormwater:				
BMP	Stormwater Management Criteria	Yes	No	N/A
SC-10	Unauthorized Non-stormwater discharges Are controls being implemented to eliminate non-stormwater discharges?			
SC-11	Accidental Spills/Leaks Is the facility effectively preventing and responding to spills and leaks?			

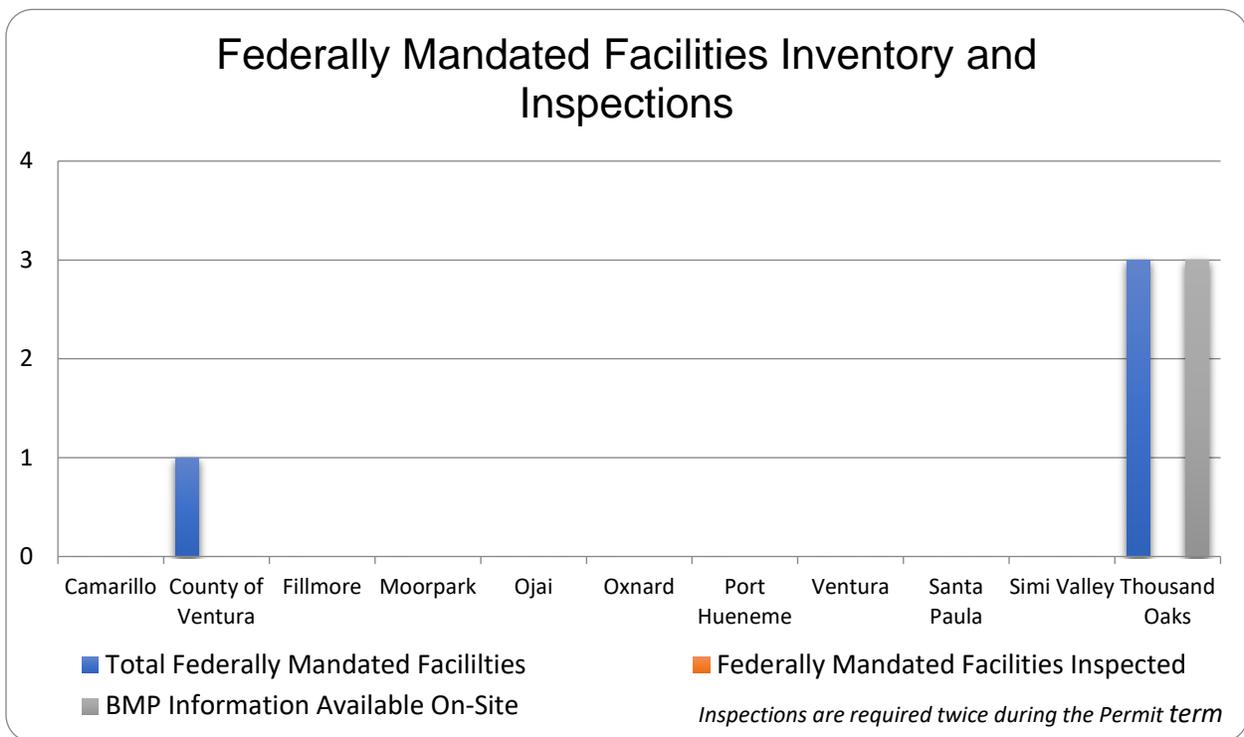
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Industrial facilities inspection form

inspections. The City provides BMP guidance materials to enhance clean business practices. Any business that does not meet compliance during inspection is issued corrective actions and a follow-up inspection is performed. Progressive enforcement begins when the initial order is not followed or ignored. All facilities met compliance initially or after corrective actions were taken. No referrals were made to the Regional Board. City of Ventura business inspection program is changing their record keeping software during reporting year 2019-2020. During this software transition, the City will be reviewing their existing business inspection list (critical sources) as well as collecting new information on local businesses to identify if additional businesses in their jurisdiction require stormwater inspections or State General Industrial Permit coverage. New information identified that there are possibly 281 industrial businesses in the City's jurisdiction, with 55 businesses already determined to not require IGP coverage requirements, 57 businesses with current IGP coverage, and 169 businesses identified as possible non-filers. The City is in the process of inspecting these 169 businesses to verify if IGP coverage is required.

Within the City of Simi Valley there are currently 17 facilities operating within the City that have not filed an NEC or an NOI and have not been reported to the RWQCB. The City of Simi Valley continues to actively work with these Industrial facilities and if compliance has not been achieved within the next few months these facilities will be reported as Non-filers.

Figure 4-7 Federally Mandated Facilities Inventory and Inspections



Other Federally-mandated Facilities as specified in 40 CFR 122.26(d)(2)(iv)(C) are also required to obtain coverage under the IAGSP. Again, facility ownership (federal, state, municipal, private) and are not factors in this definition. Included in this category are:

- Municipal landfills
- Hazardous waste treatment, disposal, and recovery facilities

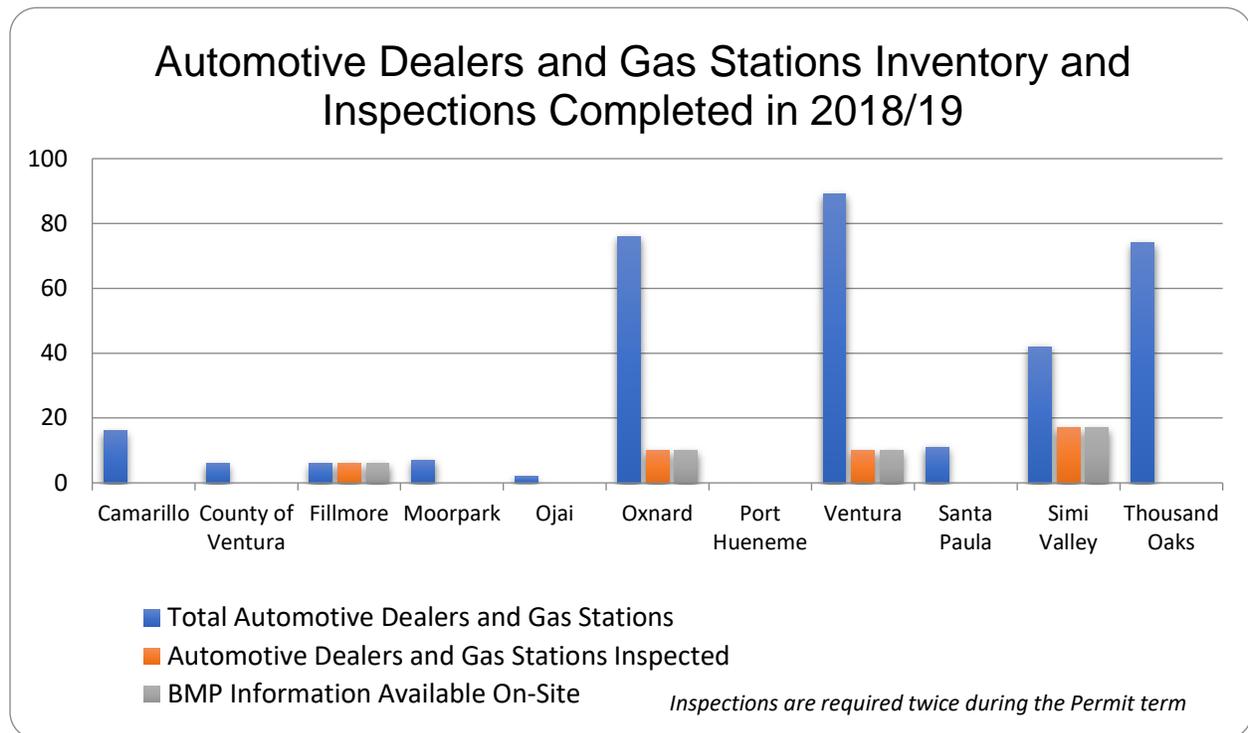
- Facilities subject to SARA Title III (also known as the Emergency Planning and Community Right-to-Know Act (EPCRA))

Inspections are conducted at all automotive and gas station facilities even if these facilities do not have outdoor activities or storage that are exposed to stormwater. In addition, the Permittees have identified other facilities where engine oil is present and represents a potential threat to stormwater pollution, e.g., boat dealers, RV dealers, motorcycle dealers, etc. Facilities that are only inspected if they have outdoor activities or outside storage that are exposed to stormwater are auto parts stores and tire dealers.



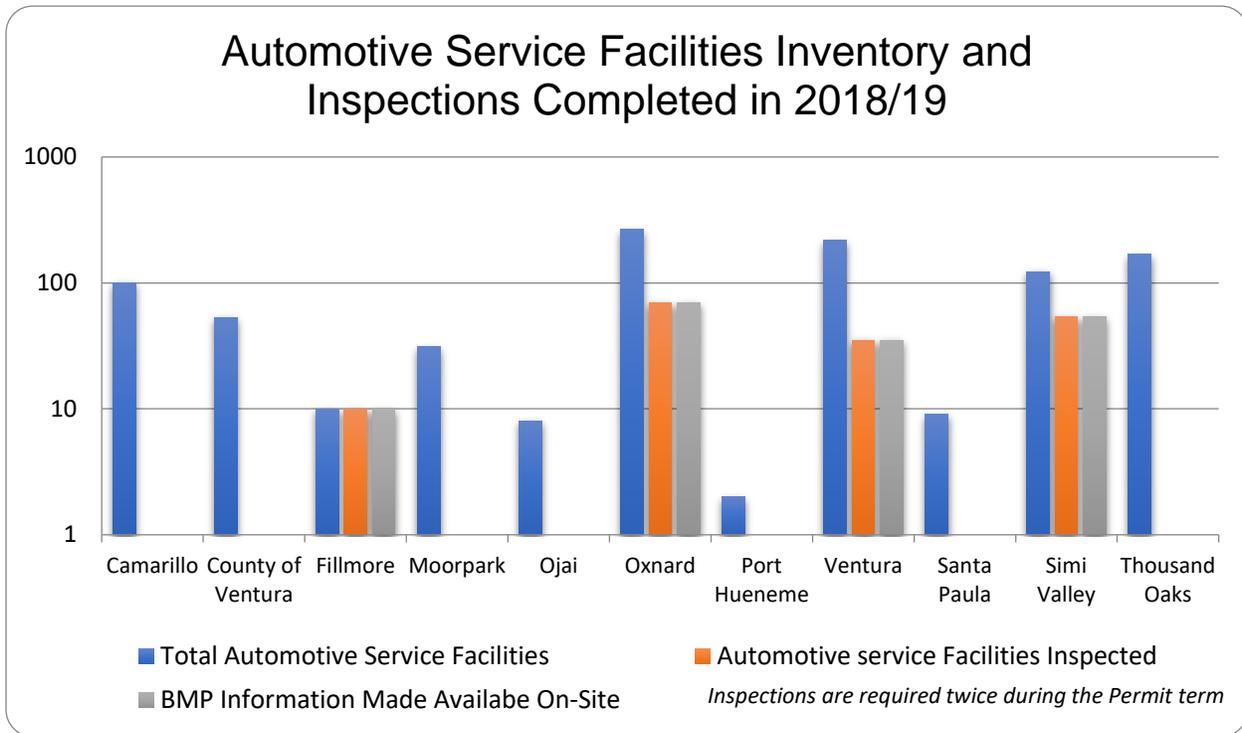
An inspector reviews the findings of an inspection with the business manager

Figure 4-8 Automotive Dealers and Gas Stations Inventory and Inspections



All automotive service facilities are included in the inventory for inspection, this category also includes motorcycle and boat repair if there is a potential for stormwater pollution.

Figure 4-9 Automotive Service Facilities Inventory and Inspections



The Permit includes requirements for the Permittees to confirm that nursery operators that are exposed to stormwater implement pollutant reduction and control measures with the objective of reducing pollutants in stormwater runoff discharges. “Nurseries” comprises establishments primarily engaged in the merchant wholesale distribution of flowers, florists' supplies, and/ or nursery stock (except plant seeds and plant bulbs). The industry in NAICS Code 444220 comprises establishments primarily engaged in retailing nursery and garden products, such as trees, shrubs, plants, seeds, bulbs, floriculture products and sod, which are predominantly grown elsewhere. These establishments may sell a limited amount of a product they grow themselves.

This is interpreted by the Permittees to not include stores that may have some plants or a small nursery section although it is not their primary business. Florists that specialize in cut flowers are also not included because their business and inventory is kept indoors. However, most Permittees have extended this to include the large home improvement centers due to the size of their nursery section.

Figure 4-10 Nursery Facilities Inventory and Inspections

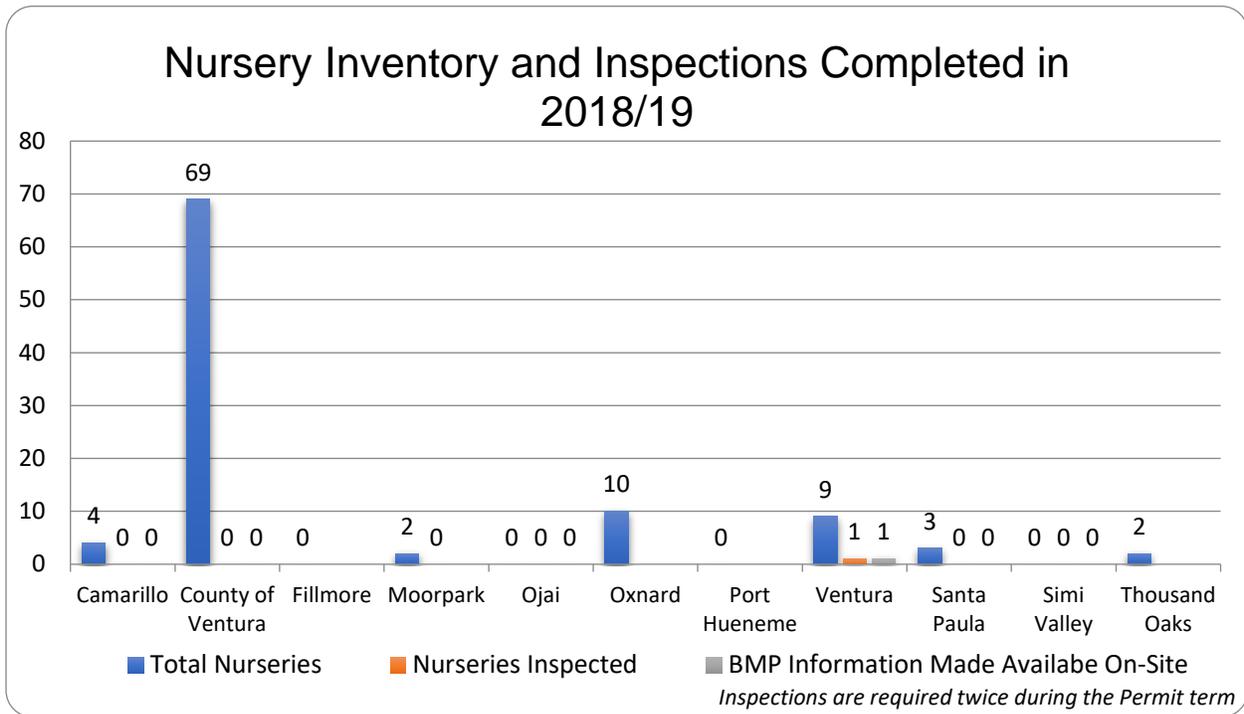
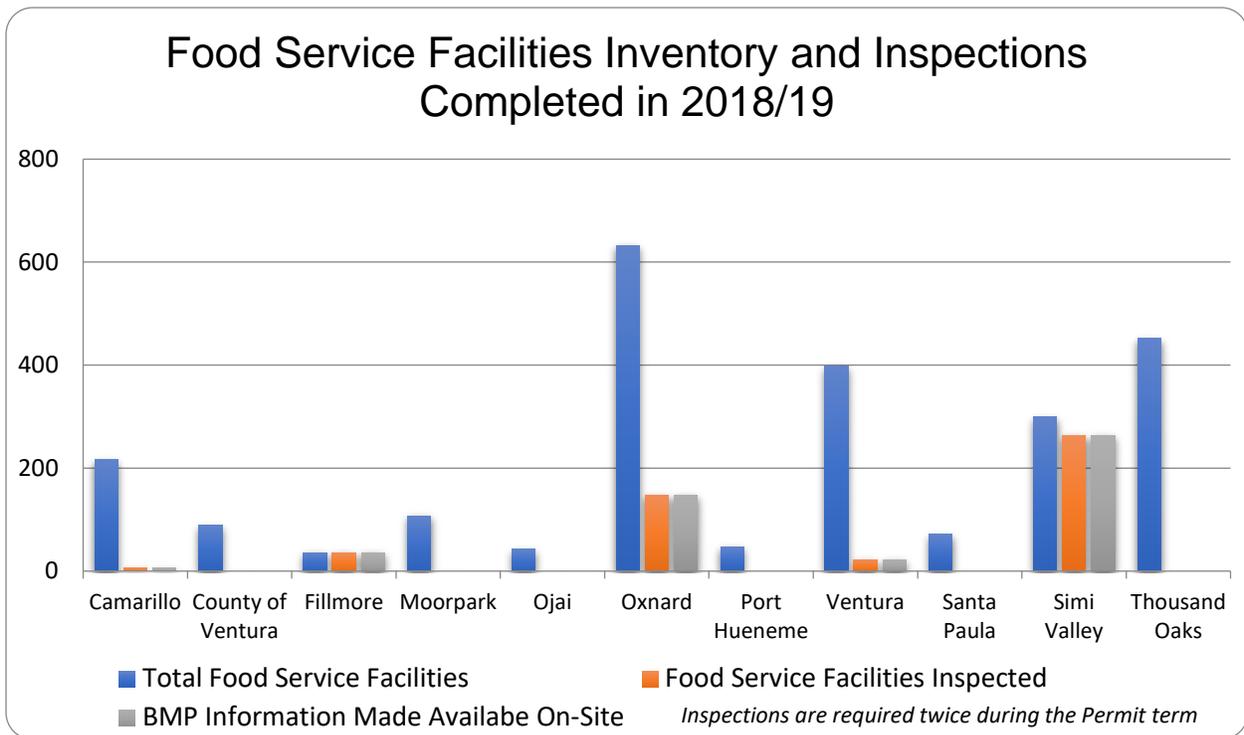


Figure 4-11 Food Service Facilities Inventory and Inspections



For the purposes of inventory and inspection the term food service facility means a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC Code 5812). This will include supermarkets if they have a deli selling food which is prepared on-site, but will not include grocery stores, bakeries, and candy stores not engaged in food preparation.

4.5 INSPECTIONS (Control Measure IC2)

The Inspection Control Measure establishes the inspection requirements associated with on-site visits. The inspections ensure that the facility operator is effectively implementing source control BMPs, is in compliance with municipal ordinances, has pertinent educational materials, and is not producing unauthorized non-stormwater discharges. Inspection of facilities covered under the IASGP also ensures that the operator has a current Waste Discharge Identification (WDID) number, a Stormwater Pollution Prevention Plan (SWPPP) is available on site, and the operator is effectively implementing BMPs. Stopping unauthorized discharges is the primary purpose of the inspections, however it is also just as important to educate businesses on proper disposal of wastes and other BMPs to prevent future discharges to the storm drain system. To accomplish this educational information is made available to businesses that do not immediately have it available for their staff.

4.5.1 Inspections

The Permittees' municipal ordinances currently allow authorized officers to enter any property or building to perform inspections. On refusal to allow inspection by the owner, tenant, occupant, agent, or other responsible party, the Permittees may seek an Administrative Search Warrant. All the Permittees have or are reviewing their ordinances to determine if there is a need to strengthen their ability to perform inspections, as well as the enforcement tools at their disposal to bring an uncooperative business into compliance.

Restaurant Inspection Checklist

The vast majority of site visits performed were unannounced providing the inspectors with an honest look at daily activities of the facility. During these site visits, Permittee inspection staff would meet with the business owner/manager to review the objectives of the inspection. After performing a walk-through of the facility, inspection results were discussed with the business owner/manager. In the event a Permittee determined a facility's stormwater BMPs were insufficient, the Permittee provided their recommendations to the facility owner/manager. Source control BMPs were recommended as a first step in BMP implementation before requiring the facility to implement costly structural BMPs. In all cases, inspection staff informed facilities' owners/managers that BMP implementation does not guarantee compliance nor relieve them from additional regulations, and that it is their continued responsibility to ensure that pollutants do not escape the facility.

The City of Oxnard Technical Services Program-Stormwater staff assembled inspection handouts which included general stormwater outreach information, BMP guidance, IASGP application materials and

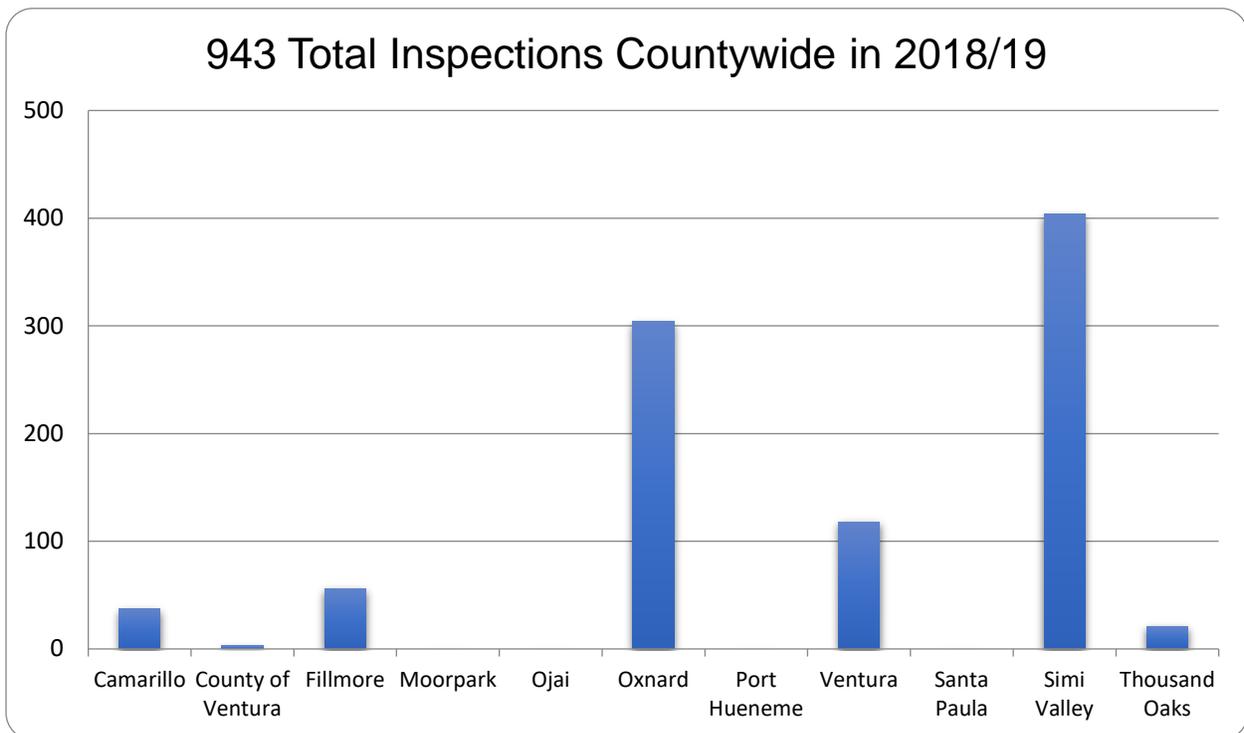
contact information. TSP-SW staff maintained and updated an inventory spreadsheet of industrial and commercial facilities. Follow-up inspections were conducted as needed. In addition, TSP-SW staff conducted joint inspections with Oxnard Fire CUPA, Building and Engineering Services, and Code Compliance to ensure that environmental compliance was achieved.

The City of Simi Valley utilized a detailed database to track businesses operating within the City. New businesses are identified by reviewing the monthly report of new Business Tax Certificates and the new businesses are added to the database with their SIC and NAICS codes.

Performance Standard 4-2

Review/revise the industrial inspection checklist to be consistent with the permit			
	<i>Yes</i>	<i>No</i>	<i>N/A</i>
<i>Camarillo</i>	<input checked="" type="checkbox"/>		
<i>Ventura County</i>	<input checked="" type="checkbox"/>		
<i>Fillmore</i>	<input checked="" type="checkbox"/>		
<i>Moorpark</i>	<input checked="" type="checkbox"/>		
<i>Ojai</i>	<input checked="" type="checkbox"/>		
<i>Oxnard</i>	<input checked="" type="checkbox"/>		
<i>Port Hueneme</i>	<input checked="" type="checkbox"/>		
<i>Ventura</i>	<input checked="" type="checkbox"/>		
<i>Santa Paula</i>	<input checked="" type="checkbox"/>		
<i>Simi Valley</i>	<input checked="" type="checkbox"/>		
<i>Thousand Oaks</i>	<input checked="" type="checkbox"/>		

Figure 4-12 Total Inspections Countywide



Review/Revise the Industrial Inspection and Commercial Business-Specific Checklists as Needed

In order to ensure that the inspectors conduct thorough and consistent inspections, industrial and commercial checklists have been developed for different targeted businesses. Permittee industrial inspectors receive proper training to adequately assess facilities and offer assistance in suggesting remedies. County and municipal ordinances with support from City Attorney's and County Counsel offices also provide the proper legal backing for inspections and any necessary enforcement. Checklists are periodically updated as necessary to ensure that they provide an adequate and sufficiently comprehensive basis upon which to conduct inspections. Currently, the Program has inspection checklists for general industry, restaurants, automobile related businesses, nurseries, and laundries. Examples of the checklists are included as Attachment A.

Performance Standard 4-3

Review/revise the industrial inspection checklist to be consistent with the permit			
	Yes	No	N/A
<i>Camarillo</i>	<input checked="" type="checkbox"/>		
<i>County of Ventura</i>	<input checked="" type="checkbox"/>		
<i>Fillmore</i>	<input checked="" type="checkbox"/>		
<i>Moorpark</i>	<input checked="" type="checkbox"/>		
<i>Ojai</i>	<input checked="" type="checkbox"/>		
<i>Oxnard</i>	<input checked="" type="checkbox"/>		
<i>Port Hueneme</i>	<input checked="" type="checkbox"/>		
<i>Ventura</i>	<input checked="" type="checkbox"/>		
<i>Santa Paula</i>	<input checked="" type="checkbox"/>		
<i>Simi Valley</i>	<input checked="" type="checkbox"/>		
<i>Thousand Oaks</i>	<input checked="" type="checkbox"/>		

Performance Standard 4-5

Review/revise the commercial business-specific checklists to be consistent with the permit			
	Yes	No	N/A
<i>Camarillo</i>	<input checked="" type="checkbox"/>		
<i>County of Ventura</i>	<input checked="" type="checkbox"/>		
<i>Fillmore</i>	<input checked="" type="checkbox"/>		
<i>Moorpark</i>	<input checked="" type="checkbox"/>		
<i>Ojai</i>	<input checked="" type="checkbox"/>		
<i>Oxnard</i>	<input checked="" type="checkbox"/>		
<i>Port Hueneme</i>	<input checked="" type="checkbox"/>		
<i>Ventura</i>	<input checked="" type="checkbox"/>		
<i>Santa Paula</i>	<input checked="" type="checkbox"/>		
<i>Simi Valley</i>	<input checked="" type="checkbox"/>		
<i>Thousand Oaks</i>	<input checked="" type="checkbox"/>		

Performance Standard 4-4

Conduct follow-up inspections as necessary			
	Yes	No	N/A
<i>Camarillo</i>	<input checked="" type="checkbox"/>		
<i>County of Ventura</i>	<input checked="" type="checkbox"/>		
<i>Fillmore</i>	<input checked="" type="checkbox"/>		
<i>Moorpark</i>	<input checked="" type="checkbox"/>		
<i>Ojai</i>	<input checked="" type="checkbox"/>		
<i>Oxnard</i>	<input checked="" type="checkbox"/>		
<i>Port Hueneme</i>			<input checked="" type="checkbox"/>
<i>Ventura</i>	<input checked="" type="checkbox"/>		
<i>Santa Paula</i>	<input checked="" type="checkbox"/>		
<i>Simi Valley</i>	<input checked="" type="checkbox"/>		
<i>Thousand Oaks</i>	<input checked="" type="checkbox"/>		

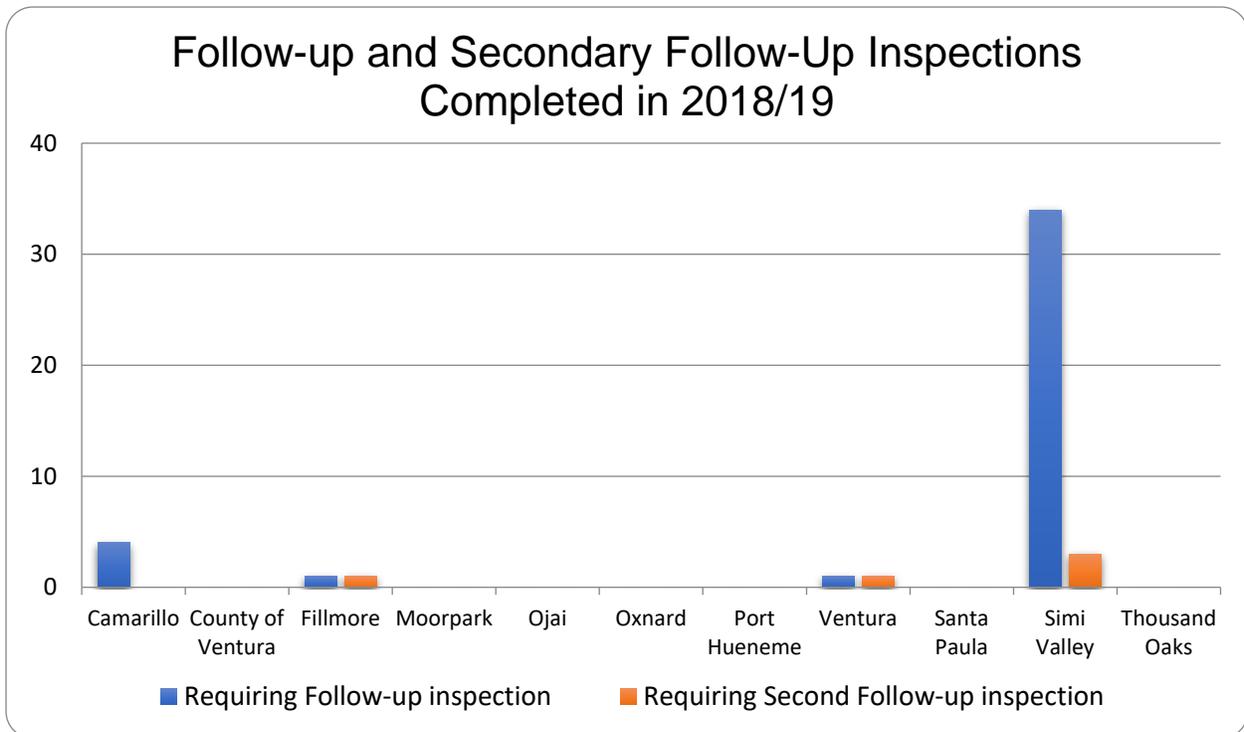
Conduct Follow-up Inspections as Necessary

Whenever the Permittee determined that an operator had failed to adequately implement all necessary BMPs as required by the Permit, or otherwise were deemed out of compliance, the Permittee engaged in progressive enforcement action. If the facility can be brought into compliance while the inspector is still on-site a follow-up inspection is not deemed necessary. All other facilities that failed to implement all necessary BMPs were advised there would be follow-up visits. The Permit requires that re-inspection occurs within four weeks of the initial inspection. Follow-up visits may be scheduled, especially if the facility operator is difficult to get a hold of, but for the majority of businesses the follow-up inspections are unannounced surprise inspections. If continued stormwater violations were found progressive enforcement actions were initiated, and another visit was scheduled if necessary. Enforcement

actions may include any of the following: Warning Notice, Notice of Violation(s), Administrative Civil Liability actions, and monetary fines. These actions are described in detail and reported in Section 8 - Programs for Illicit Discharges.



Figure 4-13 Follow-up and Secondary Inspections



The number of required Initial Follow-Up Inspections and Secondary Follow-Up Inspections can be seen by Permittee in Figure 4-13 Follow-up and Secondary Inspections.

4.6 INDUSTRIAL/COMMERCIAL BMP IMPLEMENTATION (Control Measure IC3)

The Industrial/Commercial BMP Implementation Control Measure requires industrial and commercial businesses to reduce pollutants in stormwater discharges and cease any unauthorized non-stormwater discharges to the storm drain system. Although the Permittees may provide guidance to facility operators on appropriate Source and Treatment Control BMP selection and application, the selection of specific BMPs to be implemented is the responsibility of the discharger. The Permittees developed business specific guidance (fact sheets) that is updated as necessary to reflect new requirements and/or knowledge.

4.6.1 BMP Fact Sheets and Selection

In order to assist the industrial and commercial facilities in selecting and implementing the appropriate types of BMPs, the Permittees developed BMP Fact Sheets for industrial and commercial businesses. The BMP Fact Sheets are distributed during the inspections and made available on the Ventura Countywide Stormwater Quality Management Program's website at the following address:

<http://www.vestormwater.org/index.php/publications/fact-sheets>

BMP fact sheets were updated and new ones created for several target audiences during this reporting period including:

- Building and Grounds Maintenance.
- Pool and Spa Maintenance.
- Commercial Pesticide Application.
- Mobile Cleaning Services.
- Mobile Auto Detailing and Charity Car Wash Events, and
- Building Repair and Remodeling.

These have been added to the library of fact sheets the Program has already developed for automotive service facilities, RGOs, and nurseries



Fact Sheet for Mobile Cleaning Services

4.6.2 **Distribute BMP Fact Sheets during Inspections**

The Permittees distribute BMP Fact Sheets to facility owners/operators as a part of the inspection process. The development and distribution of these fact sheets, along with the inspection program where inspectors meet with the local facility managers about stormwater regulations and BMPs also serves to meet the Permit requirement for Corporate Outreach under the Public Information and Participation Program.

4.7 **ENFORCEMENT (Control Measure IC4)**

The Enforcement Control Measure outlines the progressive levels of enforcement applied to industrial and commercial facilities that are out of compliance with County and municipal ordinances and establishes the protocol for referring apparent violations of facilities subject to the Industrial Activities Storm Water General Permit to the Regional Water Board. The Enforcement Control Measure has been developed to address specific legal authority issues related to industrial and commercial facility discharges and should be implemented in coordination with the Permittees' efforts to maintain adequate legal authority for the Stormwater Program in general.

4.7.1 **Implement the Progressive Enforcement and Referral Policy**

The Permittees have a progressive enforcement and referral policy so that the enforcement actions match the severity of a violation and include distinct, progressive steps initiated to bring a facility into compliance. Options are available for progressive corrective actions for repeat offenders. Inspections are performed to assess compliance with municipal stormwater ordinances and any noncompliance is managed through the enforcement policy. Noncompliance may include failure to implement adequate source control or structural BMPs, or other violations of County and municipal ordinances.

The Permittees' facility inventory contains an "inspection findings" data field for comments pertaining to the specific facility. If there is an unsatisfactory inspection, then a comment is made in this data field and the facility is marked for re-inspection within four weeks of the date of initial unsatisfactory inspection. Past experience with facilities has shown that facility operators are cooperative and willing to bring facilities into compliance.

**The Permittees
identified 68
non-filers under
the Industrial
General Permit.**

During this permit year, some of the permittees provided outreach to the facilities that were determined as having no exposure under the 2015 IGP on the requirements of the General Industrial Permit that took effect July 1, 2015. As a result of that outreach, several of the no exposure facilities have submitted No Exposure Certifications (NECs) to the State Board. An example of a form letter sent to facilities under the Industrial Activities General Permit is included in Attachment A.

Implementation of Referral Policy

As a means to enhance interagency coordination, the Permittees may refer industrial business violations of County and/or municipal stormwater ordinances and California Water Code §13260 to the Regional Water Board, provided that Permittees have made a good faith effort of progressive enforcement under applicable stormwater ordinances. Referral to the Regional Water Board is required so that they can enforce the conditions of their permit on non-compliant industries. Every effort is taken at the local level to achieve compliance before referring a facility, including using the threat of calling in the Regional Board and their ability to levy hefty fines. It is possible that the Regional Board would be notified immediately if very egregious problems were discovered at a site covered by the Industrial Activities Stormwater General Permit (IASGP). At a minimum the Permit requires Permittees provide a good faith effort to bring a facility into compliance, which must be documented with:

- Two follow-up inspections
- Two warning letters or notices of violation

For those facilities in violation of municipal ordinances and subject to the IASGP, the Permittees may escalate referral of such violations to the Regional Water Board after one inspection and one written notice (copied to the Regional Water Board) to the operator regarding the violation. This is up to the discretion of the Permittee and is only likely to be used in cases where there is a severe discharge causing or contributing to a water quality exceedance.

Such referrals are filed electronically with the Regional Water Board for any inspection that led to a notice of violation or the discovery of a non-filer. In making such referrals, Permittees are required to include at a minimum the following information in their referral:

1. Name of facility
2. Operator of facility
3. Owner of facility
4. WDID number (if applicable)
5. Industrial activity being conducted at the facility that is subject to the IASGP
6. Records of communication with the facility operator regarding the violation, which shall include at least an inspection report
7. The written notice of the violation copied to the Regional Water Board

Performance Standard 4-6

Implement a progressive enforcement policy			
	<i>Yes</i>	<i>No</i>	<i>N/A</i>
<i>Camarillo</i>	<input checked="" type="checkbox"/>		
<i>Ventura County</i>	<input checked="" type="checkbox"/>		
<i>Fillmore</i>	<input checked="" type="checkbox"/>		
<i>Moorpark</i>	<input checked="" type="checkbox"/>		
<i>Ojai</i>	<input checked="" type="checkbox"/>		
<i>Oxnard</i>	<input checked="" type="checkbox"/>		
<i>Port Hueneme</i>	<input checked="" type="checkbox"/>		
<i>Ventura</i>	<input checked="" type="checkbox"/>		
<i>Santa Paula</i>	<input checked="" type="checkbox"/>		
<i>Simi Valley</i>	<input checked="" type="checkbox"/>		
<i>Thousand Oaks</i>	<input checked="" type="checkbox"/>		

In Permit Year 2018/19, 20 industrial facilities were referred to the Regional Board after the Permittees provided a good faith effort to bring the facilities into compliance and documented those efforts. In many other cases the Permittees were able to gain compliance through a progressive enforcement program. Three industrial facilities were brought into compliance following progressive enforcement, which included sending two NOV letters to those facilities that were required to take out coverage under the Industrial Stormwater Permit. An example of an NOV letter is included in Attachment A.

Investigation of Complaints Transmitted by Regional Water Board

On occasion, Regional Board staff will receive information on an industry within a Permittee’s jurisdiction that needs to be investigated in a timely manner. The Permittees implement procedures for responding to complaints forwarded by the Regional Water Board to ensure initiation of inspections within one business day. Permittees may comply by taking initial steps (such as logging, prioritizing, and tasking) to “initiate” the investigation within one business day. However, the Regional Water Board expects that the initial investigation, including a site visit, would occur within four business days. Complaint-initiated inspections include, at a minimum, a limited inspection of the facility to confirm the complaint, to determine if the facility is effectively complying with municipal stormwater urban runoff ordinances and, if necessary, to initiate corrective action.

The Permittees have (and will continue to) work closely with the Regional Water Board when a facility is identified as requiring a compliance inspection.

Table 4-2 Complaints Transmitted by Regional Water Board for Investigation by Permittees

Facility Category	Nature of Complaint	Confirmation of Complaint	Permittee Assistance and/or Corrective Action
<i>Industrial</i>			
None			
<i>Other Federally-Mandated Facilities</i>			
None			

4.7.2 Task Force Participation

The Permittees will participate in an interagency workgroup, such as the Environmental Crimes Task Force or the Storm Water Task Force, as a means to communicate information and concerns regarding stormwater enforcement actions undertaken by the Permittees. Participation in such a workgroup should facilitate communication of special cases of stormwater violations and address a coordinated approach to enforcement action.

The Ventura County Stormwater Program and Permittees, including different divisions such as CUPA or County Environmental Health, participate on the Ventura County Environmental Crimes Task Force. This task force is led by the District Attorney’s office and includes representatives from different environmental agencies including the Ventura Air Pollution Control District, California EPA, Federal EPA and the FBI. The purpose is to work together to share sensitive information on enforcement activities to increase the chances of eliminating the problem.

4.8 TRAINING (Control Measure IC5)

The Training Control Measure is important for the implementation of the Industrial/Commercial Program Element. An effective training program is one of the best pollution prevention BMPs that can be implemented because it provides for consistency in inspections and enforcement, gives the inspector the ability to respond to a variety of situations and questions, and ultimately encourages the inspectors to initiate behavioral changes that are fundamentally necessary to protect water quality.

Each Permittee identified inspection staff and other personnel for training based on the type of stormwater quality management and pollution issues that they might encounter during the performance of their regular inspections or daily activities. Targeted staff may include those who perform inspection activities as part of the HAZMAT and wastewater pretreatment programs as well as staff who may respond to questions from the public or industrial/commercial businesses, such as those working with business licenses.

Staff was trained in a manner that provided adequate knowledge for effective business inspections, enforcement, and answering questions from the public or industrial/commercial operators. Training included a variety of forums, ranging from informal “tailgate” meetings, to formal classroom training and self-guided training methods. When appropriate, staff training included information about the prevention, detection, and investigation of illicit connections and illegal discharges (IC/ID). See **Section 8** for more information regarding IC/ID training.

Figure 4-14 Business and Industrial Facilities Inspections Training depicts the number of staff trained in the program area for each Permittee. Some agencies contract out their inspections to trained consultants and therefore did not target any of their employees. During this reporting period, the Permittees trained 44 inspection staff in stormwater pollution prevention.

Performance Standard 4-7

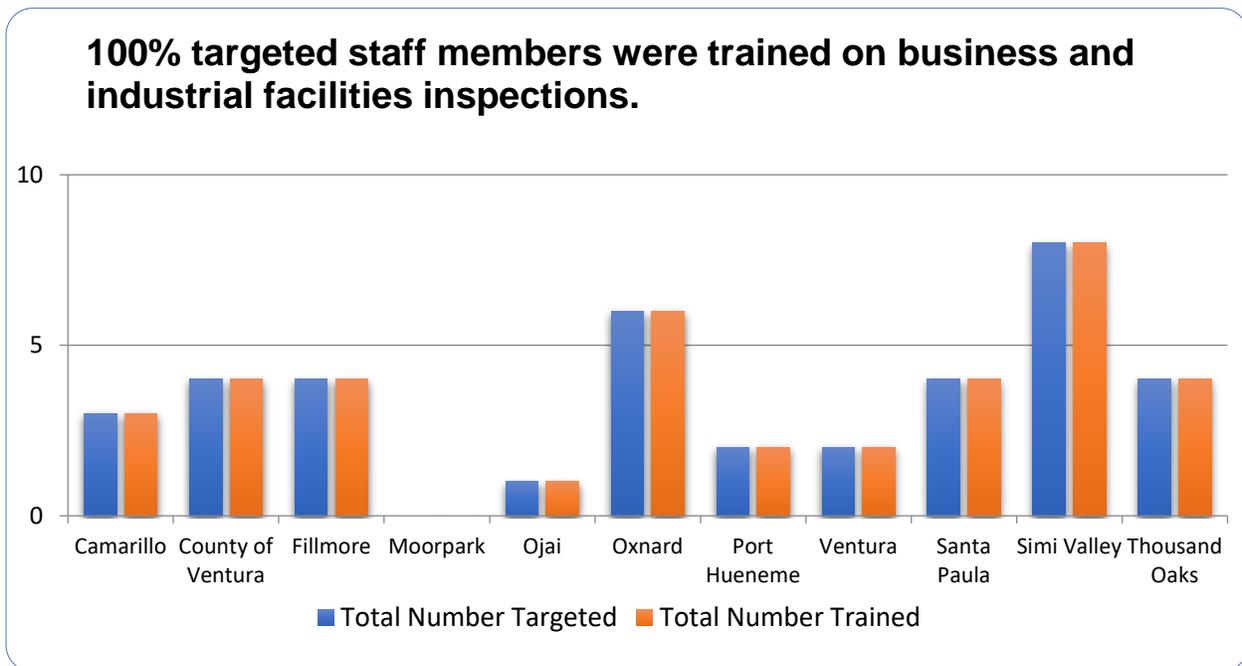
Conduct training for key staff involved in the Business Inspection program			
	<i>Yes</i>	<i>No</i>	<i>N/A</i>
<i>Camarillo</i>	<input checked="" type="checkbox"/>		
<i>Ventura County</i>	<input checked="" type="checkbox"/>		
<i>Fillmore</i>	<input checked="" type="checkbox"/>		
<i>Moorpark</i>	<input checked="" type="checkbox"/>		
<i>Ojai</i>	<input checked="" type="checkbox"/>		
<i>Oxnard</i>	<input checked="" type="checkbox"/>		
<i>Port Hueneme</i>	<input checked="" type="checkbox"/>		
<i>Ventura</i>	<input checked="" type="checkbox"/>		
<i>Santa Paula</i>	<input checked="" type="checkbox"/>		
<i>Simi Valley</i>	<input checked="" type="checkbox"/>		
<i>Thousand Oaks</i>	<input checked="" type="checkbox"/>		

Table 4-3 Training Areas of Focus for the Industrial/Commercial Program Element

Target Audience	Format	Subject Material	Comments
<ul style="list-style-type: none"> • Industrial/Commercial inspectors • County Health restaurant inspectors 	<ul style="list-style-type: none"> • Classroom • Field Demos • Video 	<ul style="list-style-type: none"> • Overview of stormwater management program • Stormwater ordinance and enforcement policy • BMPs for facilities • Facility inventory tracking 	<ul style="list-style-type: none"> • Training seminars or workshops related to the program may be made available by other organizations



Figure 4-14 Business and Industrial Facilities Inspections Training



4.9 EFFECTIVENESS ASSESSMENT – IC6

Effectiveness assessment is a fundamental component required for the development and implementation of a successful stormwater program. In order to determine the effectiveness of the Industrial/Commercial Facility Program Element, a comprehensive assessment of the program data is conducted as part of the Annual Report. The results of this assessment are used to identify modifications that need to be made to the Program Element. Each year the effectiveness assessment is reviewed and revised as necessary.

By conducting these assessments and modifying the Program Element as necessary, the Permittees ensure that the iterative process is used as an effective management tool. Due to the types of data collected for the Industrial/Commercial Facility Program, current and future assessments will primarily focus on Outcome Levels 1 and 2 though behavior changes that can be seen as a reduction in discharges is observed and the need for enforcement drops.

- Outcome Level 1 (L1) answers the question: Did the Permittees implement the components of the Permit?
- Outcome Level 2 (L2) answers the question: Can the Permittees demonstrate that the control measure/performance standard significantly increased the awareness of its target audience?
- Outcome Level 3 (L3) answers the question: Can the Permittees demonstrate that the control measure/performance standard changed a target audience’s behavior, resulting in the implementation of recommended BMPs?

The following is an assessment regarding the effectiveness of the Industrial/ Commercial Program.

4.9.1 Facility Inventory Maintain and Annual Update Inventory

All Permittees maintain an inventory of industrial and commercial facilities. Permittees completed all initial inspections by July 8, 2012 and inspecting facilities twice during the Permit term. Initially inspections

focused on industrial facilities, auto dealers, auto service shops, laundry facilities, nurseries, and restaurants. (L1)

4.9.2 **Inspection**

Initial and second inspections were completed prior to this reporting year. Some Permittees initiated inspections beyond permit requirements and continued them through the 2018/19 period. (L1) Permittees conducted 45 follow-up inspections when needed to ensure compliance. Since the Permit adoption over 13,000 inspections were conducted Countywide (L2).

The Permittees have reviewed and revised their inspection checklists, as necessary to be consistent with the Permit. (L1)

4.9.3 **Industrial/Commercial BMP Implementation**

BMP Fact Sheets and Selection

Industrial and commercial BMP Fact Sheets were developed and are available at the Ventura Countywide Stormwater Quality Management Program website. (L1)

Distribute BMP Fact Sheets

Permittees that have initiated an inspection program distribute fact sheets as part of the inspection process. (L1)

4.9.4 **Enforcement**

Implement Progress Enforcement and Referral Policy

The Permittees have a progressive enforcement and referral policy so that enforcement actions match the severity of a violation and include distinct, progressive steps introduced to bring a facility into compliance. (L1)

Implementation of Industrial Referral Policy

All Permittees may refer industrial business violations to the Regional Water Board provided that Permittees have made a good faith effort of progressive enforcement. (L1)

Investigation of Complaints Transmitted by Regional Water Board

The Permittees implement procedures for responding to complaints forwarded by the Regional Water Board to ensure initiation of inspections within one business day. (L1)

Task Force Participation

The Permittees participate in an interagency workgroup, such as the Environmental Task Force or the Storm Water Task Force, as a means to communicate information and concerns regarding stormwater enforcement actions undertaken by the Permittees. (L1)

4.9.5 Training

During this reporting period, the Permittees trained 38 staff in business inspections and enforcement. Permittees effectively trained 100% of targeted staff. (L1)

4.9 INDUSTRIAL/COMMERCIAL PROGRAM ELEMENT MODIFICATIONS

On an ongoing basis, the Permittees evaluate the experience that staff has had in implementing the program and the results of the Annual Report to determine if any additional program modifications are necessary to comply with the Clean Water Act requirement to reduce the discharge of pollutants to the MEP.

Many key modifications have been made to the Industrial/Commercial Program Element since the adoption of the Permit. Key modifications that have been made are utilization of electronic inspection forms in the field, tracking facilities by watershed, implementing a self-certification process when obtaining a business license, an expanded list of businesses and industries that are tracked, and clearly defining how to identify those businesses and industries. Future efforts may look into the inspections or outreach to the owners of multi-tenant commercial retail areas with common trash areas.

5 Planning and Land Development

5.1 OVERVIEW

The addition of impervious areas in the development of homes, industrial and commercial areas, parking lots, and streets and roads increase the amount of stormwater runoff, as well as the potential for pollution. The Planning and Land Development Program Element ensures that the impacts on stormwater quality from new development and redevelopment are limited through implementation of general site design measures, site-specific source control measures, low impact development strategies, and treatment control measures. The general strategy for development is to avoid, minimize, and mitigate (in that order) the potential adverse impacts to stormwater. The potential for long-term stormwater impacts from development is also controlled by requiring ongoing operation and maintenance of post-construction treatment controls.

The Permittees have developed and implemented a Program for Planning and Land Development to address stormwater quality in the planning and design of development and redevelopment projects. The term “development project” as used in this Program encompasses those projects subject to a planning and permitting review/process by a Permittee. A development project includes any construction, rehabilitation, redevelopment, or reconstruction of any public and private residential project, industrial, commercial, retail, and other non-residential projects, including qualifying public agency projects.

To help meet the goals and objectives of the Program, the Permittees attend Planning and Land Development Subcommittee meetings to coordinate and implement a comprehensive and consistent program to mitigate impacts on water quality from development projects to the MEP. However, the Permittees may modify their programs to address particular issues, concerns, or unique constraints to a watershed such as local geology or known water quality impairments.

5.2 CONTROL MEASURES

The Permittees have developed several Control Measures and accompanying performance standards to ensure that the planning and land development program requirements are effectively developed and implemented. For each Control Measure there are accompanying performance standards which, once accomplished, constitute compliance with the Permit requirements. The Planning and Land Development Program Control Measures consists of the following:

Table 5-1 Control Measures for the Planning and Land Development Program Element

LD	Control Measure
LD1	State Statute Conformity
LD2	New Development/ Redevelopment Performance Criteria
LD3	Plan Review and Approval Process
LD4	Maintenance Agreement and Transfer
LD5	Tracking, Inspection and Enforcement
LD6	Training
LD7	Effectiveness Assessment

5.3 STATE STATUTE CONFORMITY (CONTROL MEASURE LD1)

Traditional methods of land development can lead to increased stormwater discharge volumes and flow velocities. These alterations to the natural hydrologic regime may reduce infiltration to groundwater, and increase erosion and flooding as well as decrease habitat integrity. Water quality and watershed protection principles and policies such as minimization of impervious areas, pollutant source controls, preservation of natural areas, and peak runoff controls can help to minimize the impacts of urban development on the local hydrology and aquatic environment. Integration of stormwater quality and watershed principles into the Permittees' general conditions serve as the basis for directing future planning and development in order to minimize these adverse effects. In addition, the California Environmental Quality Act (CEQA) process provides for consideration of water quality impacts and appropriate mitigation measures.

5.3.1 Review/Revise CEQA Review Documents

The California Environmental Quality Act (CEQA) sets forth requirements for the processing and environmental review of many projects. The Permittees use the CEQA process and review as an excellent opportunity to address stormwater quality issues related to proposed projects early in the planning stages. The National Environmental Quality Act (NEPA) comes into play less often than CEQA, but may be included for projects involving federal funding. Like CEQA, NEPA process and review provides opportunities to address stormwater quality issues related to proposed projects early in the planning stages. The CEQA review process is necessary for determining what impacts a proposed development project could have on the environment. The Permittees' current CEQA review process includes procedures for considering potential stormwater quality impacts and providing for appropriate mitigation. Permittees will review and revise the CEQA review documents as needed for consistency with the new Permit.

Each Permittee has reviewed their internal planning procedures for preparing and reviewing CEQA (and NEPA when applicable) documents and has linked stormwater quality mitigation conditions to legal discretionary project approvals. When appropriate, the Permittees consider stormwater quality issues when processing environmental checklists, initial studies, and environmental impact reports. The Permit required that stormwater controls be incorporated into the Permittees CEQA process by July 8, 2011; the Permittees have been successful in meeting that obligation.

5.3.2 Revise the General Plan

The Permittees' General Plans provide the foundation and the framework for land use planning and development. Therefore, the General Plan is a useful tool to promote the policies for protection of stormwater quality. The Permittees are to include watershed and stormwater management considerations in the appropriate elements of their General Plans whenever these elements are significantly rewritten. Table 5-2 indicates the scheduled date



of a significant rewrite to the Permittees' General Plan elements when known. Note that some Permittees have already modified their General Plan to include stormwater requirements under the previous permit, the table reflects if stormwater issues have been incorporated. The Permit additionally requires that when General Plan elements are being updated drafts are provided to the Regional Board for their review. These Permit requirements do not have an absolute due date other than as General Plan elements are updated.

Performance Standard 5-1

CEQA process include the procedures necessary to consider potential stormwater quality impacts			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		



Before and after pictures of infiltration area of parking lot during construction.

Table 5-2 Scheduled Dates for Permittees' General Plan Rewrite

Land Use	General Plan includes Stormwater Requirements (Y/N)	Scheduled Date for Significant Rewrite of General Plan	Date Submitted to Regional Board
Camarillo	Yes	10/1/2003	
County of Ventura	Yes	8/1/2020	9/1/10
Fillmore	Yes	7/1/2005	
Moorpark	Yes	12/1/2019	
Ojai	Yes	3/31/2022	
Oxnard	Yes	1/1/2020	1/1/2011
Port Hueneme	No	12/31/2021	
Ventura	Yes	12/1/2021	
Santa Paula	Yes	5/1/2019	1/1/1998
Simi Valley	Yes		
Thousand Oaks	No	12/31/2020	
Housing			
Camarillo	Yes	1/8/2014	9/13/2013
County of Ventura	No	1/1/2021	
Fillmore	No	1/8/2014	
Moorpark	No	12/1/2019	
Ojai	Yes	3/31/2022	
Oxnard	Yes	1/1/2020	1/1/2011
Port Hueneme	No	12/31/2021	
Ventura	No	7/1/2021	
Santa Paula	Yes	1/1/2021	1/1/1998
Simi Valley	Yes		
Thousand Oaks	Yes	12/31/2020	
Conservation			
Camarillo	Yes	7/12/2006	
County of Ventura	Yes	8/1/2020	9/10/10
Fillmore	No	1/1/1998	
Moorpark	Yes	12/1/2019	
Ojai	Yes	3/31/2022	
Oxnard	Yes	1/1/2020	1/1/2011
Port Hueneme	Yes	12/31/2021	1/1/2011
Ventura	No	12/1/2021	
Santa Paula	Yes	5/1/2019	1/1/1998
Simi Valley	Yes		
Thousand Oaks	Yes	12/31/2020	
Open Space			
Camarillo	Yes	7/12/2006	
County of Ventura	Yes	8/1/2020	9/10/10
Fillmore	No	1/1/1998	
Moorpark	Yes	12/1/2019	
Ojai	Yes	3/31/2022	
Oxnard	Yes	1/1/2020	1/1/2011
Port Hueneme	Yes	12/31/2021	
Ventura	No	12/1/2021	
Santa Paula	Yes	5/1/2019	1/1/1998
Simi Valley	Yes		
Thousand Oaks	Yes	12/31/2020	

Specific efforts some Permittees have made to address stormwater issues in the planning process are detailed below:

County of Ventura - The Ventura County Non-Coastal Zoning Ordinance (NCZO) supports the goals and policies of the General Plan, including the Housing Element. While some of the General Plan elements contain specific policies regarding stormwater, the Housing Element does not. However, since all development is required to comply with current standards by following state law and/or meeting development standards contained within the NCZO, the Housing Element is inherently consistent with stormwater requirements. The Ventura County General Plan was last updated on November 15, 2005 and has a horizon year of 2020. The 2014-2020 Housing Element was certified by HCD in December 2013.

The County is now actively working on an update to the General Plan, which is scheduled to be complete by the end of 2020. It will have a horizon year of 2040. The next scheduled update of the Housing Element is planned for completion in 2021.

Oxnard - The 2030 General Plan was adopted by the Oxnard City Council on October 11, 2011. The plan is available for review at cityofoxnard.org. The City of Oxnard Planning Division develops and maintains an active spreadsheet of projects that are proposed, approved, under plan check review, or under construction. Technical Services Program-Stormwater staff participate in Business-Community meetings with planning staff, conduct plan check activities, and work closely with Building and Engineering staff to make sure Stormwater Quality Control Measures are being properly implemented.

Simi Valley - The City of Simi Valley's General Plan was adopted by City Council at the June 4, 2012 Council meeting. The Council asked for some changes to be made to the adopted version, those changes were made, and the final version was submitted to the Regional Board in September 2012. An update is not scheduled at this time.

Ventura – Refinement of the 2005 General Plan for the Land Use Element related to commerce, industrial and mixed-use designations has been delayed until the adoption of the Regional MS4 Permit in 2020. The next targeted comprehensive General Plan update is projected for 2021, using technical data on water (2015 UWMP), City specific infrastructure needs, the 2016 and 2018 RTP's, and the anticipated 6th cycle Regional Housing Needs (RHNA) in 2019 (for a state mandated 2021 Housing Element update).

5.4 NEW DEVELOPMENT PERFORMANCE CRITERIA (CONTROL MEASURE LD2)

Post-construction BMPs, including site design, source control, low impact development techniques, and stormwater quality treatment, are necessary for development and re-development projects to mitigate potential water quality impacts. In addition, priority projects identified within the Permit require specific mitigation measures. In order to assist developers in meeting these requirements, the Permittees developed a Technical Guidance Manual for Stormwater Quality Control Measures for new development and redevelopment in 2002 (2002 TGM). This Manual was updated to conform to the new Permit requirements in 2011 (2011 TGM), and these requirements became effective during the 2011/12 reporting period. Errata updates to the 2011 TGM occurred in 2015 (2015 TGM) and most recently in 2018 (2018 TGM).

5.4.1 Update to the 2002 Ventura County Technical Guidance Manual for Stormwater Quality Control Measures (TGM)

In May 2010 the Permittees updated the 2002 TGM for the selection, design, and maintenance of BMPs for new development and redevelopment projects as identified in Order 2009-0057. This Manual was never approved by the Regional Board Executive Officer due to the Permit being remanded and subsequently re-heard by the Board. As an outcome of that hearing new language was adopted for the Permit and a new date set for the revisions to TGM. The TGM was rewritten to address the five-percent effective impervious area requirement, retention and biotreatment, alternative compliance for technical infeasibility, interim hydro-modification requirements, water quality criteria, and maintenance agreements (see also Control Measure LD4 for more information). The 2011 TGM was submitted to the Regional Board on June 16, 2011. The Regional Board approved the 2011 TGM on July 13, 2011 and it became effective on October 11, 2011.

To correct minor typos, discrepancies, and diagrams an errata version of the TGM was released in May 2015 and another update was initiated again in June 2018. The June 2018 update also includes information related to the Statewide Trash Amendment. At 600 pages there are possibly other errors that will need to

be corrected. To address this, it is the Program’s intention to plan regular errata updates. This would include providing a complete version of the TGM along with the specific pages where changes were made. This will allow users to substitute the correct pages into a hardcopy without having to print the entire document.

5.4.2 Require Compliance with Performance Criteria

New development and redevelopment projects, as outlined in Permit Provision 4.E.II., are subject to Permittee conditioning and approval for the design and implementation of post-construction controls to mitigate stormwater pollution. New performance criteria outlined within the Permit include reducing the percentage of effective impervious area to five-percent or less of the total project area, the interim hydromodification control criteria, and water quality mitigation criteria. These Permit conditions became effective on October 11, 2011, 90 days after the TGM was approved by the Regional Board Executive Officer.

Project Review and Conditioning

Projects must comply with one of two standards. For projects whose applications were deemed complete after the 2011 TGM effective date the Permittees are to ensure they comply with the requirements in the 2010 Permit. Those deemed complete prior to the effective date must comply with the previous performance criteria under the Stormwater Quality Urban Impact Mitigation Plan (SQUIMP) and the 2002 TGM. Under both manuals the Permittees’ approach to stormwater comes early in the project development process when the options for pollution control are greatest, and the cost to incorporate these controls into new development or redevelopment projects is the least. In planning and reviewing a development project, the

Permittees consider three key questions with respect to stormwater quality control: 1. What kind of water quality controls are needed? 2. Where should controls be implemented? 3. What level of control is appropriate? During the planning and review process, the Permittees identify potential stormwater quality problems, communicate design objectives, and evaluate the plan for the most appropriate design alternatives.



Low Impact Development BMP

Low Impact Development (LID)

LID is a concept in the overall watershed process which promotes the coordinated development and management of water, land, and related resources. By linking traditional development topics such as land use, water supply, wastewater treatment/reclamation, flood control/drainage, water quality, and

hydromodification management into a cohesive hydrologic system developments should recognize their interdependencies and minimize their potentially negative effects on the environment. An example is combining stormwater treatment, hydromodification control, and flood control in a single regional infiltration basin that recharges groundwater, incorporates recreation, and provides habitat. Another example is using Smart Growth principles to help reduce the environmental footprint while still accommodating growth.

Similar to Source Control Measures, which prevent pollutant sources from contacting stormwater runoff, Retention BMPs use techniques to infiltrate, store, use, and evaporate runoff onsite to mimic pre-development hydrology, to the extent feasible. The goal of LID is to increase groundwater recharge, enhance water quality, and prevent degradation of downstream natural drainage channels. This goal may be accomplished with creative site planning and with incorporation of localized, naturally functioning BMPs into the project. Implementation of Retention BMPs will reduce the size of additional Hydromodification Control Measures that may be required for a new development or redevelopment project, and, in many circumstances, may be used to satisfy all stormwater management requirements.

Applicable projects must reduce Effective Impervious Area (EIA) to less than or equal to five percent ($\leq 5\%$) of the total project area, unless infeasible. Impervious surfaces are rendered “ineffective” if the design storm volume is fully retained onsite using Retention BMPs. Biofiltration BMPs may be used to achieve the 5% EIA standard if Retention BMPs are technically infeasible.

Generally, the 2011 TGM advises to first design for the largest hydrologic controls (such as matching post development 100-year flows with pre-project 100-year flows for flood mitigation requirements), according to the appropriate City or County drainage requirements. Secondly, the 2011 TGM advises to check if flood mitigation will reduce or satisfy the stormwater management requirements. If it does not, then more controls are necessary. Flood mitigation may provide the necessary sediment and pollution control, thereby reducing maintenance requirements for the stormwater management BMPs. A sequence of hydrologic controls should be considered, such as site design, flood drainage mitigation, and Retention BMPs. Biofiltration BMPs and Treatment Control Measures can be considered where the use of Retention BMPs is technically infeasible. Each of these controls will have an influence on stormwater runoff from the new development or redevelopment project.

Stormwater Quality Urban Impact Mitigation Plan (SQUIMP)

For those projects deemed complete before October 11, 2011 the Permittees require the implementation of the Stormwater Quality Urban Impact Mitigation Plan (SQUIMP) for new development projects categories described in the 2000 Permit. Redevelopment projects in one of the SQUIMP categories that result in the creation, addition or replacement of 5,000 square feet or more of impervious surfaces, not a part of routine maintenance, are subject to SQUIMP requirements. If a redevelopment project creates or adds 50% or more impervious surface area to the existing impervious surfaces, then stormwater runoff from the entire area (existing and redeveloped) must be conditioned for stormwater quality mitigation. Otherwise, only the affected area of the redevelopment project requires mitigation.

The SQUIMP lists the minimum required BMPs that must be implemented for new development and redevelopment projects subject to the SQUIMP. The minimum requirements include control peak stormwater runoff discharge rates, conserve natural areas, properly design trash storage areas, meet design standards for structural or treatment control BMPs, and provide proof of ongoing BMP maintenance among others designed to reduce the long term pollutant effects of development.

Performance Standard 5-2

Require compliance with performance criteria under SQUIMP			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		

5.4.3 BMP Selection and Design Criteria

The Permittees consider site-specific conditions of development projects and pollutants of concern on the watershed when determining which BMPs are most appropriate for a site. Prior to approving BMPs, the staff conditioning the project evaluates post-construction activities and potential sources of stormwater pollutants. The project proponent is required to consider BMPs that would address the potential pollutants reasonably expected to be present at the site once occupied. BMPs to protect stormwater during the construction phase may also be a part of this conditioning process, although these are addressed through the grading permit process through the Construction Program

In order to achieve appropriate stormwater quality controls, the Permittees use the following common criteria in screening and selecting, or rejecting BMPs during the planning stage with a priority given to non-proprietary designed BMPs:

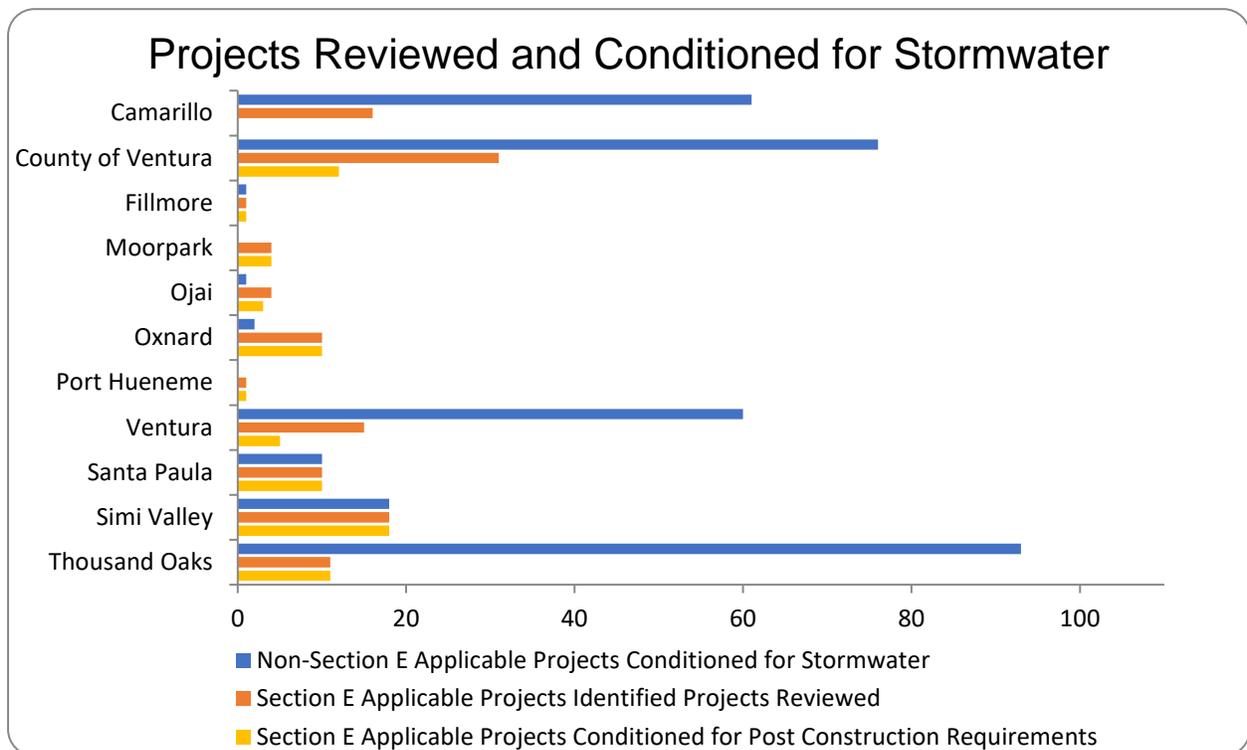
- Project characteristics;
- Site factors (e.g., slope, high water table, soils, etc.);
- Pollutant removal capability;
- Short term and long term costs;
- Responsibility for maintenance;

- Contributing watershed area; and
- Environmental impact and enhancement.

The BMP selection criteria listed above is applied by the Permittees in accordance with the overall objective of the Planning and Land Development Program, i.e. to reduce pollutants in discharges to the MEP. In some site-specific situations there will be certain BMPs that are clearly more appropriate and effective than others, the BMP selection process reflects this variability.

The number of projects required to comply with the performance criteria during the Permit year is outlined in Figure 5-1. This includes projects required by the Permit to implement stormwater treatment controls, but beyond that projects that, due to their nature or potential to discharge pollutants of concern, were also required to implement stormwater management controls of either source control or water quality treatment.

Figure 5-1 Projects Reviewed and Conditioned



*Total number of projects reviewed only account for 1st time reviews. It doesn't count multiple reviews of the same project within the same annual reporting period or reviews of projects first reviewed as part of a prior annual reporting period. Total SQUIMP or Section E projects are newly reviewed projects that have been conditioned with SQUIMP or PCSMP that will have actual physical BMPs requiring annual maintenance. There were several single family hillside homes that were conditioned with PCSMP (< 1 acre Hillside Home) but are only required to meet site design requirements not physical BMPs requiring maintenance. Thus, these projects are included in the non-SQUIMP, or non-section E numbers.

5.4.1 Potential of Offsite Mitigation Projects

The requirements of the Permit allow an alternative to compliance with the land development criteria of onsite retention and biotreatment for projects with technical infeasibilities through the use of offsite mitigation. New developments and significant re-developments that have identified technical infeasibilities, and therefore cannot comply with the retention and biofiltration requirements onsite have the option of utilizing alternative mitigation offsite.

The Permittees have developed a preliminary offsite mitigation framework and identified potential locations. Infill and redevelopment projects that demonstrate technical infeasibility may be eligible for offsite mitigation. The Permittees researched potential management and funding structures for creating a new offsite stormwater alternative mitigation program as identified in the Permit. The project focused on general funding mechanisms, accounting, and the program management structure needed to implement and sustain a long term stormwater retention and/or biofiltration program. The second prong of the project focused on potential locations for the offsite program using an integrated water resources approach. The first step was to determine the potential need for offsite mitigation to understand the scale of projects that may be needed.

Because development projects are required to manage as much water on site as possible the final results of the projected needs assessment yielded a volume of only eight-acre feet countywide that would need to be managed offsite by 2030. This volume of water is not a significant amount and did not attract the potential for integrated water resource management programs with third party partners (e.g. local water agencies) to support the development of offsite BMPs. From these studies the Permittees learned that the offsite need for any one project is likely to be small enough to be manageable in the public right-of-way of the permitting agency and maintained through conventional funding mechanisms.

5.4.2 Hydromodification Criteria

The purpose of Hydromodification Control Measures is to minimize impacts to natural creeks due to changes in post-development stormwater runoff discharge rates, velocities, and durations by maintaining, within a certain tolerance, the project's pre-project stormwater runoff flow rates and durations. Hydromodification Control Measures may include onsite, sub regional, or regional Hydromodification Control Measures; retention BMPs; or stream restoration measures. Preference will likely be given to onsite Retention BMPs and Hydromodification Control Measures; however in-stream restoration measures may be determined to be the best use of resources and may more effectively and quickly address the beneficial uses of natural drainage systems.

Permittees currently require the interim hydromodification criteria as specified in Permit provision 4.E.III.3(a)(3). Interim criteria was required until the Southern California Water Monitoring Coalition



Low Impact Development BMP incorporated into the landscaping

(SMC) completes the Hydromodification Control Study (HCS), and a Hydromodification Control Plan (HCP) for the county is approved by the Executive Officer. A Hydromodification Control Plan was submitted to the Regional Board Executive Officer on September 16, 2013. Until the approval of the HCP, the Interim Hydromodification Control Criteria will be applicable to non-exempt new development and redevelopment projects deemed complete after the TGM 2011 effective date. Those which disturb less than 50 acres shall be complying by meeting the stormwater management standards contained in the 2011 TGM. Projects disturbing 50 acres or greater must develop and implement a Hydromodification Analysis Study (HAS) to demonstrate that post development conditions are expected to approximate the pre-project erosive effect of sediment transporting flows in receiving waters. The HAS must lead to the incorporation of project design features intended to approximate, to the extent feasible, an Erosion Potential value of 1, or any alternative value that can be shown to be protective of the natural drainage systems from erosion, incision, and sedimentation that can occur as a result of flow increases from impervious surfaces and damage stream habitat in natural drainage systems.

To ensure the HCP adequately addressed the Permit requirements, and the concerns of the stakeholders, a public stakeholder meeting was held on July 30, 2013. The goals of the meeting were to explain the new hydromodification control requirements, where they apply, and how the HCP will assist the development community in meeting them. This well attended meeting included representatives from the Regional Board, Heal the Bay, the development community, public agency staff, and a BMP manufacturer. Comments were received from four stakeholders and incorporated into the draft HCP as appropriate. All written comments were reviewed by our working group comprised of land development and planning staff from all Ventura County Permittees. Consensus was reached on how to best incorporate the comments while maintaining the HCP's usefulness and compliance with the Permit requirements.

Performance Standard 5-3

Participate in the Stormwater Monitoring Committee's Hydromodification Control Study			
	Yes	No	N/A
Ventura Countywide Stormwater Quality Program	<input checked="" type="checkbox"/>		

Performance Standard 5-4

Develop watershed specific HCPs? (180 days after the completion of the SMC HCS)			
	Yes	No	In Progress
Ventura Countywide Stormwater Quality Program	<input checked="" type="checkbox"/>		

The Permit states that “Permittees may exempt projects from implementation of hydromodification controls where assessments of downstream channel conditions and proposed discharge hydrology indicate that adverse hydromodification effects to present and future beneficial uses of Natural Drainage Systems are unlikely: Projects that discharge directly or via a storm drain into concrete or improved (not natural) channels (e.g., rip rap, sackcrete, etc.)” The susceptibility of receiving waters to hydromodification impacts is summarized by identifying non-susceptible receiving waters and describing the location of modified conveyance systems. Water bodies within and downstream of each Permittee’s jurisdiction have been mapped as either susceptible or non-susceptible to hydromodification impacts. Per the Permit, non-

susceptible water bodies include: lakes, sumps, tidally influenced water bodies, large rivers, and modified conveyances. Water bodies that are considered susceptible to hydromodification impacts are the remaining natural stream channels. The Receiving Water Susceptibility Map was created to provide quick information to the development community. This map is considered a living document that will be updated by the Permittees if more accurate information on drainage infrastructure is obtained in the future.

While hydrologic analyses for flood control, such as those contained in the Ventura County Hydrology Manual (VCWPD, 2017), are based on evaluating the magnitude of one or a few large discrete events (on the order of hours to days), hydromodification analysis focuses on continuous simulations (spanning over several decades) which take into account both flow magnitude and duration. Because hydromodification analysis looks at both magnitude and duration of the long-term record, the large but rare flowrates that are crucial to flood control can be relatively insignificant when considering sediment transport and changes in channel form. The most important range of flows from the perspective of affecting channel form are the relatively frequent flows that are contained primarily within the active channel and not the rare, high magnitude flows which exceed the rate of flow that can be contained in the normally wetter perimeter of the channel.

Flows which create high enough shear stresses to initiate sediment transport within the channel and which occur frequently enough to have influence over long-term stream morphology are considered “geomorphically-significant” flows. To provide perspective on the timescales of interest, a peak storm discharge may contribute to a bed scour hole, which slowly fills in with sediment over days to months after the event takes place. But if the time scale considered for stream stability is on the order of several decades, then the contribution of the short duration peak discharge to that scour hole may be a negligible perturbation on the overall record of channel form.



Curb bump-out in residential neighborhood

5.5 PLAN REVIEW AND APPROVAL PROCESS (CONTROL MEASURE LD3)

Stormwater quality controls should be considered throughout the development plan review and approval process. Comprehensive review by the Permittees of development plans must be provided in order to ensure that stormwater controls minimize stormwater quality impacts.

5.5.1 Conduct BMP Review

Permittees conducted a detailed review of site designs and the proposed BMPs. Review included matching BMPs to the pollutants of concern, sizing calculations, pollutant removal performance, and municipal approval. Project designs are not approved unless all conditions have been met.

5.5.1 Establish Authority among Municipal Departments with Project Review Jurisdiction

Permittees have an established structure for communication and delineated authority between municipal departments that have jurisdiction over project review, plan approval, and project construction. Each Permittee has approached this in the manner that will be most effective within their organization.

Interdepartmental communication and coordination does not represent a complicated hurdle for the smaller agencies, however, larger agencies such as the County of Ventura have formally drafted Memorandums of Understanding to establish the structure and define responsibilities.

Performance Standard 5-5

Conducted a detailed review of proposed BMPs. Review included sizing calculations and pollutant removal performance			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		

Performance Standard 5-6

Established authority among municipal departments with project review jurisdiction control BMPs. (by July 8, 2011)			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		

5.6 TRACKING, INSPECTION AND ENFORCEMENT (CONTROL MEASURE LD4)

Permittees have implemented a tracking system and an inspection and enforcement program for new development and redevelopment post-construction stormwater BMPs.

5.6.1 Develop/Implement a Tracking System for Post-Construction Treatment Control BMPs

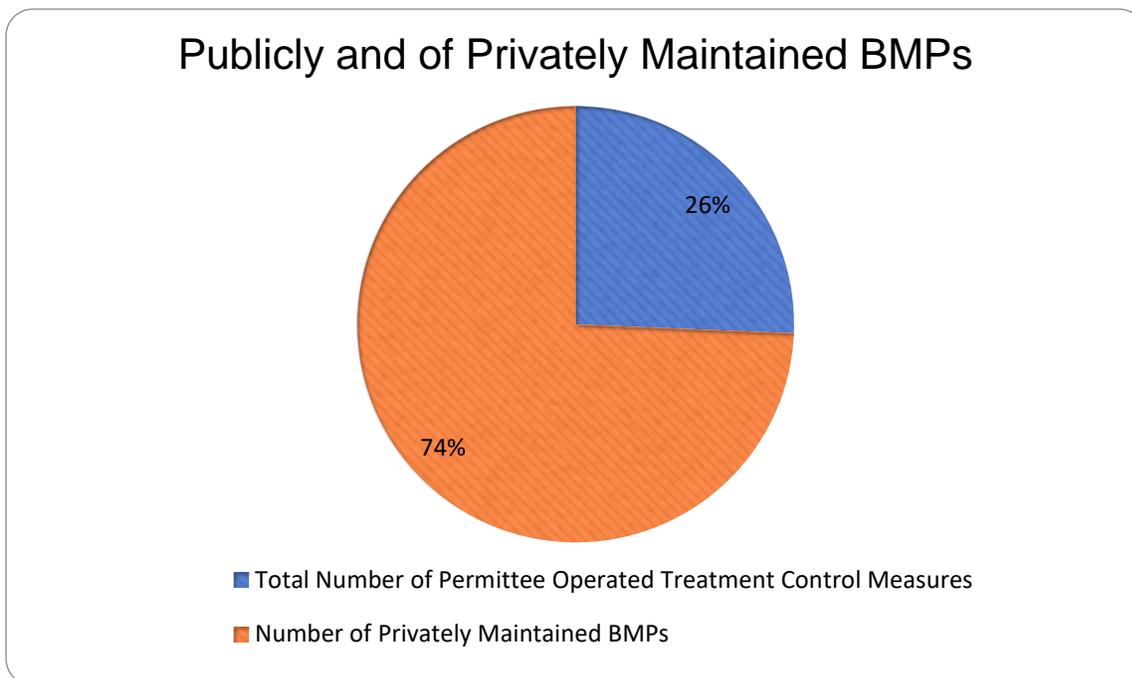
Permittees have been conditioning development projects for stormwater controls since the 2002 TGM and understand that maintenance of these BMPs is instrumental to their performance of improving water quality. Developing and implementing a system for tracking projects that have been conditioned for post-

construction treatment control BMPs is necessary to ensure that BMPs are properly maintained and working. The Permit requires this tracking system be in place by July 8, 2011.

Each Permittees' electronic system should contain the following information:

- Municipal Project ID
- State WDID No.(IAGSP)
- Project Acreage
- BMP Type and Description
- BMP Location (coordinates)
- Date of Acceptance
- Date of Maintenance Agreement
- Maintenance Records
- Inspection Date and Summary
- Corrective Action
- Date Certificate of Occupancy Issued
- Replacement or Repair Date

Figure 5-2 Publicly and Privately Maintained BMPs



5.6.2 Conduct Inspections of Completed Projects

Beginning July 8, 2011 the Permittees are required to conduct inspections of completed projects subject to the Planning and Land Development Program requirements to ensure proper installation of all approved control measures have been implemented and are being maintained. Identifying and tracking these projects will follow the development permitting process. The Certificate of Occupancy is withheld until a project can show that BMPs have been installed as designed on approved plans. See Attachment B for an example inspection checklist from the City of Camarillo.

Performance Standard 5-7

Develop and implement a system for tracking projects that have been conditioned for post-construction treatment control BMPs? (by July 8, 2012)			
	Yes	No	In Progress
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark			<input checked="" type="checkbox"/>
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		

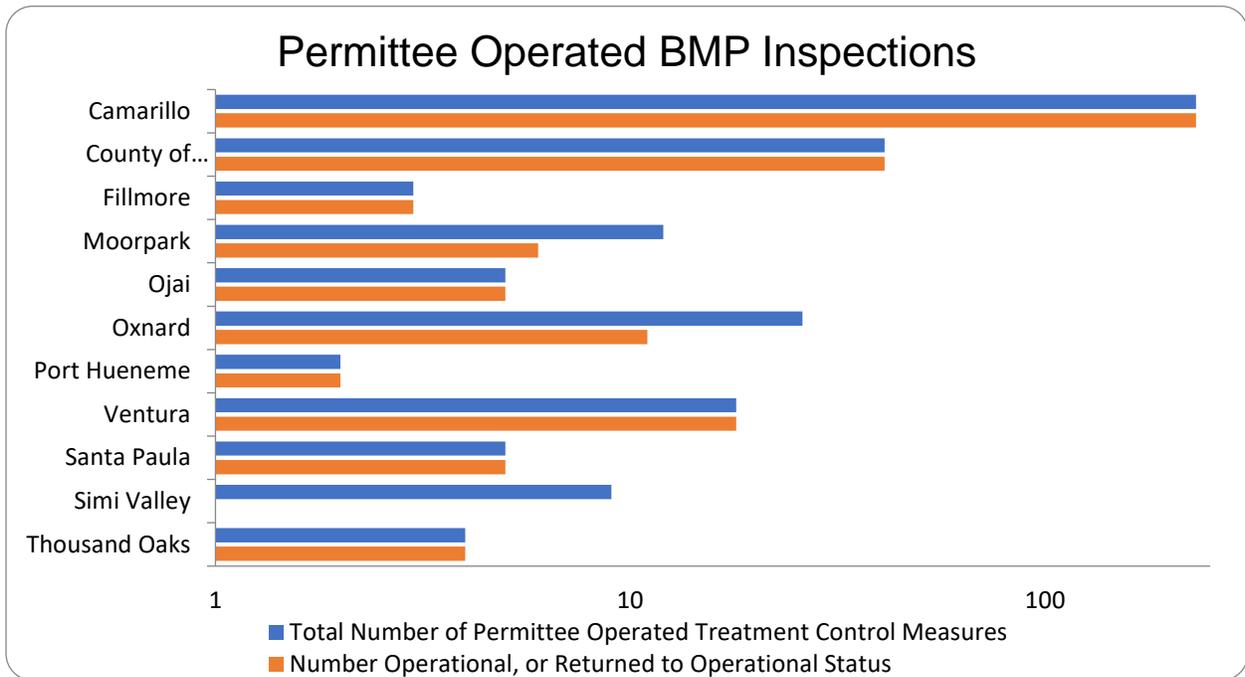
Performance Standard 5-8

Conduct inspections of completed projects subject to the Planning and Land Development Program requirements to ensure proper installation of BMPs (effective 90 days after approval of Manual)			
	Yes	No	In Progress
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		

5.6.3 Conduct Inspections of Permittee Owned BMPs

The Permittees are responsible for the inspection and maintenance of BMPs they own and operate. Sometimes Permittees will accept this responsibility from a development as a way to ensure that proper maintenance is performed. Not all Permittees own and operate BMPs, and some have not yet installed or accepted ownership of permanent BMPs. These inspections are required once every two years. The first inspection was due July 8, 2012, which is outside the reporting period of this Annual Report.

Figure 5-3 Permittee Operated BMPs



Specific efforts some Permittees have made to inspect BMPs and additional information are detailed below:

Camarillo - City treatment control measures include: 206 full capture trash devices, 4 curb face trash screens, 11 catch basin filters, 1 pervious paver area, 6 detention basins, 2 bioswales, and 1 bioretention area. The city's enforcement action included a fee collected for conducting an inspection of the privately maintained BMPs that did not return a maintenance report.

Moorpark - Number of treatment control devices are lumped by project. For example, the "Pheasant Run Area" is counted as 1 BMP; however, there are 4 debris basins.

County of Ventura – Department of Harbor's BMP project operational issues were noted during 2018 inspections; in 2019, Department of Harbor reported that corrective actions had been completed. A new additional Permittee operated treatment control measure was added to County of Ventura's BMP inventory: BMP #1) Dept. of Airports East Hangers - (1) Detention Basin - Joint maintenance agreement associated with Airport Properties LLC. The following Permittee operated treatment control measured were removed from the County's BMP inspections List: BMP # 1) Channel Islands Boating Center Facility - Has a Restrictive Covenant for Stormwater Quality Control Measures Maintenance and Access with the City of Oxnard. BMP #2) County of Ventura Fire Station # 40 - Contains a Sand / Oil Clarifier that discharges to a Sewer Lateral not MS4. BMP #3) Ventura County Sheriff's Air Unit Facility - Contains vehicle wash water drywell, but property is not in operation and has no tenant, so no vehicle washing is occurring.

Ojai - City corporate yard is Permittee operated BMP's covered in public agency activities.

Oxnard - City of Oxnard Collections staff inspect and maintain City owned treatment control devices. A vacor truck is used to pump out and remove sludge and debris as needed. All residual wastewater is disposed of in the Oxnard Wastewater Collection System. Technical Services Program-Stormwater staff work with the City Civil Engineers to maintain a database for all the privately owned BMPs. As projects are completed, developers are required to file a covenant of agreement detailing the location of the BMP device along with a maintenance plan/schedule. The storm water maintenance agreement for privately maintained BMPs has been revised to include language with requirements for annual report submittal.

Ventura – Publicly owned BMPs are routinely inspected by either Parks personnel or private contractors who are responsible for the cleaning and maintenance of treatment devices operated by the City. Private owners are notified annually by mail, requesting maintenance records for the post construction BMP's. A City inspection may satisfy the requirement for reporting from the private party. After inspection by private owners or City staff, if maintenance is required, an additional letter is sent requiring follow-up and reporting. Enforcement may follow no reply and/or non-compliance.

Performance Standard 5-9

Inspect post-construction BMPs operated by the Permittees at least once every 2 years			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		

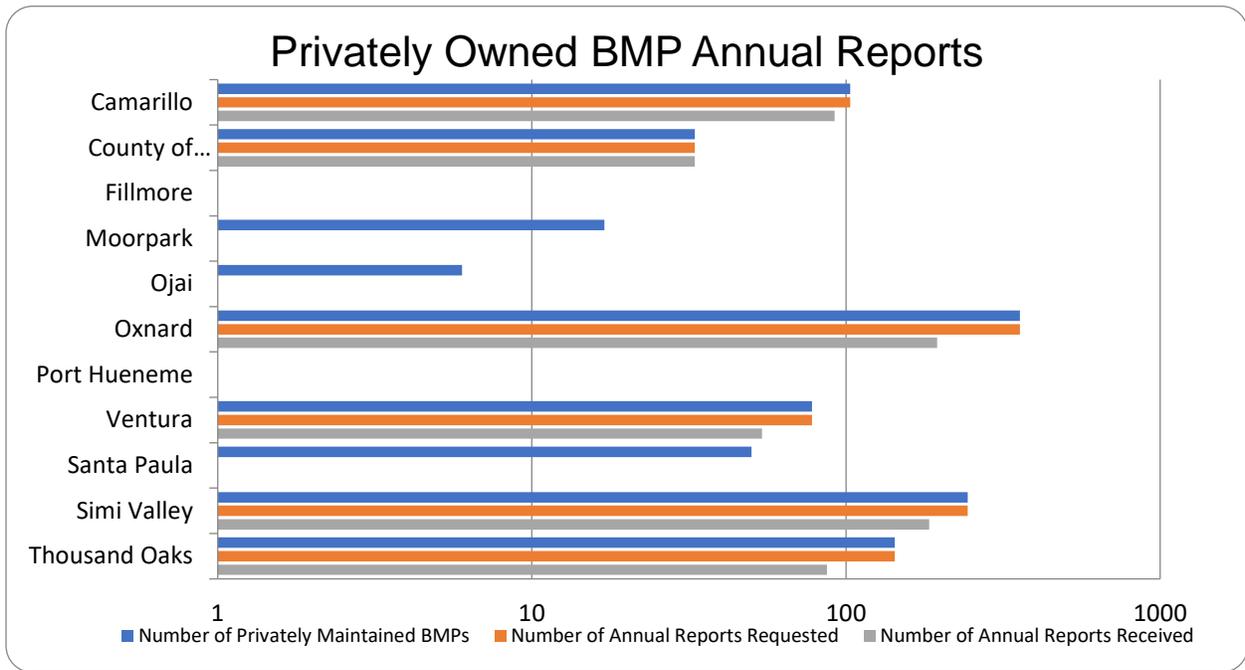
Performance Standard 5-10

Require annual reports for private post-construction BMPs to demonstrate proper maintenance and operations			
	Yes	No	In Progress
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark			<input checked="" type="checkbox"/>
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		

5.6.1 Require Annual Reports for Post-Construction BMPs

In July of 2011 the Permittees were required to require the submittal of Annual Reports for BMPs maintained by parties other than the Permittees. The annual statements provide information to the Permittees showing that the BMPs have been properly maintained. In many cases a copy of an invoice from a service provider showing the date maintenance performed will suffice for an annual report.

Figure 5-4 Private BMP Annual Reports



5.6.2 Take Enforcement Action

Inspections and the requirement for annual reports are only the first steps towards ensuring BMPs are operational. Enforcement actions based on the results of the inspection may be needed in order to bring the facility into compliance. The Permit requires inspections of Permittee owned BMPs and enforcement is not necessary in that scenario. To ease future compliance the Permittees are performing educational outreach to the owner/operators of BMPs.

A performance standard on enforcement may be developed in future reports, however, enforcement would only be needed when there is non-compliance. Low enforcement numbers (high level of compliance) may represent an effective program just as well as high enforcement numbers would represent a determined effort to return BMPs to compliance.

5.7 MAINTENANCE AGREEMENT AND TRANSFER (CONTROL MEASURE LD5)

Maintenance agreements and transfers ensure that post-construction BMPs will remain effective upon project completion and continued occupancy. As a condition of approval for all priority development projects, Permittees require the owner/developer/successor-in-interest of stormwater BMPs to provide proof of control measure maintenance in the form of a Stormwater Treatment Device Operation and Maintenance Agreement and a Maintenance Plan.



Low Impact Development infiltration BMP

5.7.1 **Require Stormwater Treatment Device Operation and Maintenance Agreement**

Permittees integrated the development/submittal of a stormwater maintenance agreement as a condition within the project approval process for projects subject to the Permit’s Planning and Land Development Program requirements. To enforce the requirements of post-construction BMPs, a Maintenance Agreement is required to be executed between the Permittee and the owner/developer/successor-in-interest for any private facilities who remain the responsible party in operating and maintaining the post-construction Treatment Control Measures.

The 2002 TGM and the 2011 TGM revisions, including the 2015 and 2018 errata updates, address the development and submittal of Maintenance Agreements when a developer is responsible for ongoing maintenance of onsite treatment BMPs.

Performance Standard 5-11

Require an operation and maintenance plan for applicable stormwater BMPs			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		

5.8 TRAINING (CONTROL MEASURE LD6)

Training is important to the successful implementation of the Planning and Land Development Program Element. An effective training program is one of the best pollution prevention BMPs that can be implemented because this subject is complicated and requires many interpretations and judgment calls.

To provide continuous training in the implementation of the Technical Guidance Manual a special training session was held in June of 2018. This training was focused on City and County planning, engineering, and inspection staff including contractors who interpret and implement the standards. It was important to have everybody in the same room receiving the same training to minimize confusion and conflict at the counter when actual projects come in for approval. This eight-hour training was

attended by over seventy people. The training was also professionally recorded and is available online for future reference and continuous training opportunities. In August 2018 the Program held a modified training workshop on current Ventura County stormwater quality post construction mitigation requirements for the private development community including planners, engineers, and support staff.

June 2018 Training Session



June 2018 Training Session



The City of Moorpark also holds monthly 1 hour Training (in addition to the Field) on design and implementation of Construction BMP's, Design and Implementation of various Post-Construction BMP's; Infiltration Rate Testing and Design Methods; Industrial and Municipals SWPPP's and Management Practices; IDDE Training; Effluent Testing; TMDL assessments; Watershed Management Practices including Green Street Designs.

Figure 5-5 Land Development Training

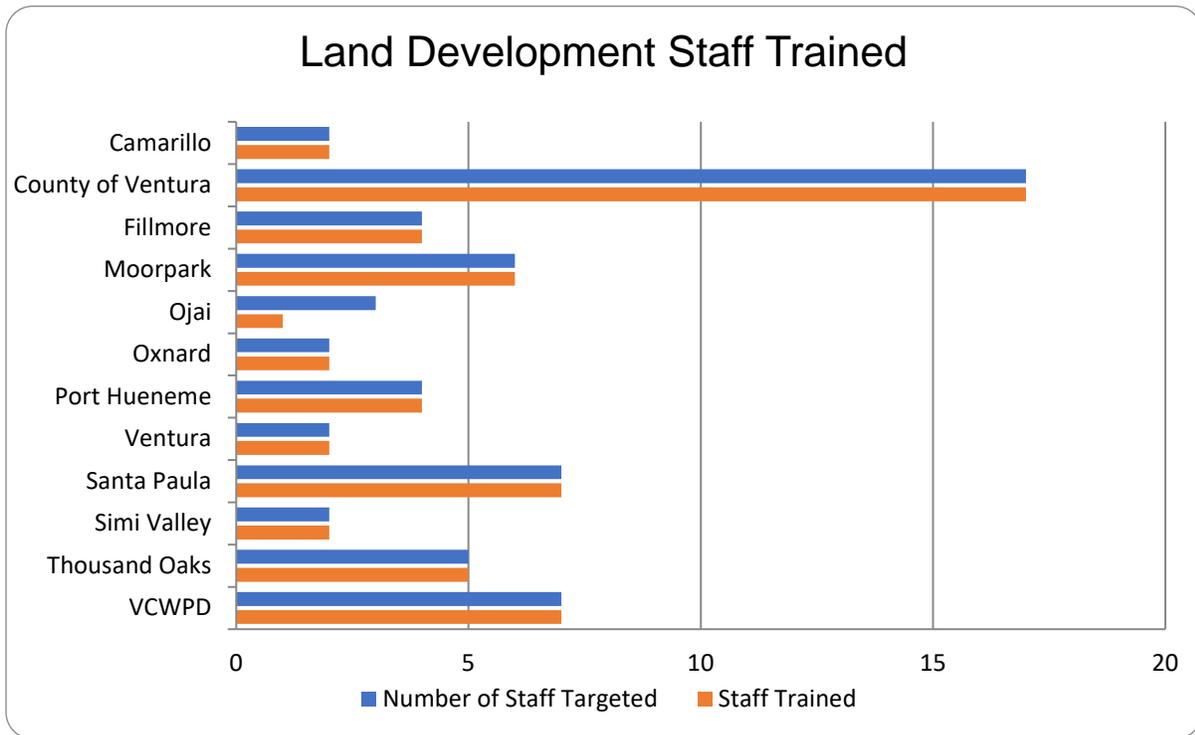


Table 5-3 Training Areas of Focus for the Planning and Land Development Program Element

Target Audience	Format	Subject Material
<ul style="list-style-type: none"> • Plan Checkers • Engineers • Building and Construction Inspectors • Builders • Design Professionals • Regulators • Resource Agencies • Other Stakeholders 	<ul style="list-style-type: none"> • Classroom • Video • Online 	<ul style="list-style-type: none"> • Overview of 2011 TGM • Integration of LID at various project scales • Guidance on relationship between LID strategies, source control BMPs, and hydromodification control requirements • Highlight LID pilot projects and demonstration projects • Current Ventura County stormwater quality post construction mitigation requirements

5.9 EFFECTIVENESS ASSESSMENT (CONTROL MEASURE LD7)

Effectiveness assessment is a fundamental component for developing and implementing successful stormwater programs. In order to determine the effectiveness of the Planning and Land Development Program, a comprehensive assessment of the program data is conducted as a part of the annual report. The results of this assessment are used to identify modifications that need to be made to the program. Each year the effectiveness assessment is reviewed and revised as needed.

By conducting these assessments and modifying the program as needed, the Permittees ensure that the iterative process is used as an effective management tool. Due to the types of data collected for the Planning and Land Development Program, current and future assessments will primarily focus on Outcome Levels 1, 2 & 3.

- Outcome Level 1 (L1) answers the question: Did the Permittees implement the components of the Permit?
- Outcome Level 2 (L2) answers the question: Can the Permittees demonstrate that the control measure/performance standard increased awareness of a target audience?
- Outcome Level 3 (L3) answers the question: Can the Permittees demonstrate that the control measure/performance standard changed a target audience's behavior, resulting in the implementation of recommended BMPs?

The following is an assessment regarding the effectiveness of the Planning and Land Development Program.

5.9.1 State Statute Conformity

Review/Revise CEQA Review Documents

The CEQA process and plan review process is an effective mechanism for addressing stormwater quality issues early in the planning stages. Where applicable, all Permittees have reviewed their internal planning procedures for preparing and reviewing CEQA documents. All Permittees have formally integrated stormwater quality issues into the CEQA review process (L1).

Revise the General Plan

The majority of Permittees have either already incorporated or are in the process of incorporating stormwater requirements into their General Plans (L1). This control measure is dependent on the scheduled updates/amendments to General Plans which varies greatly by municipality. Once updated, Permittees will submit draft elements to the Regional Board for review. Effectiveness of this control measure will continue to be evaluated as progress is made.

5.9.2 New Development Performance Criteria

Update the 2002 Ventura County TGM

The 2002 Ventura County TGM was updated and submitted to the Regional Board on June 16, 2011 (L1). The updated TGM (2011 TGM) includes:

- Interim hydromodification criteria (addressed in Section 2 of the TGM);
- Expected BMP pollutant removal performance (addressed in Section 3 and Appendix D);
- Improved correlation of BMPs with stormwater POCs (addressed in Section 3 and Appendix D);
- BMP maintenance and cost considerations (addressed in Section 7, Appendices H & I);
- Integration of integrated water resources planning and management goals (Sections 1 and 4).

Require Compliance with Performance Criteria

Permittees continued to require compliance with 2002 TGM for all SQUIMP new development and redevelopment project categories (L1). As indicated in Figure 5-1, Permittees reviewed 514 projects and required 397 projects to implement source control and/or water quality treatment (note these numbers apply to both SQUIMP and non-SQUIMP project categories) (L2). The 2011 TGM became effective October 11, 2011, 90 days after its approval by the Regional Board Executive Officer. With the 2011 TGM in effect,

priority new development and redevelopment projects will be required to comply with the 5% EIA Requirement and other new development provisions contained within Order No. R4-2010-0108.

Documentation of Offsite Mitigation Projects

Individually the Permittees are in the process of developing an offsite mitigation framework and creating a list of potential locations.

Require Hydromodification Criteria

The Permittees currently require SQUIMP project categories to comply with the interim hydromodification criteria (L1). Permittees will implement the Hydromodification Control Plan once approved by the Regional Board's Executive Officer (L1).

5.9.3 Plan Review and Approval Process

Conduct BMP Review

Proposed post-construction BMPs were reviewed by each of the Permittees. BMP review included calculation sizing and pollutant removal performance. Permittees have effectively conducted BMP review for several years now and current review mechanisms are considered adequate (L1).

Establish Authority among Municipal Departments

Each Permittee has successfully established the authority for review of stormwater quality measures. The mechanism varies by Permittee and for the larger Permittees may consist of a formal MOU (L1).

5.9.4 Tracking, Inspection and Enforcement

Develop/Implement Tracking Mechanism

Permittees have been conditioning development projects for stormwater controls since the last permit and understand that maintenance of these BMPs is instrumental to their performance of improving water quality. Developing and implementing a system for tracking projects that have been conditioned for post-construction treatment control BMPs is necessary to ensure that BMPs are properly maintained and working. (L1)

Conduct Inspections of Completed Projects

This performance measure was due July 8, 2011 and all 11 Permittees have conducted inspections of completed projects to ensure they were done in accordance with the land development requirements, or do not have completed projects and are in the process of developing their inspections programs (L1) (L2).

Conduct Inspections of Permittee Owned BMPs

All of the Permittees are inspecting the BMPs they own and operate, while others have not built or adopted BMPs. (L1) (L4)

Take Enforcement Action

Six of the Permittees have needed to take enforcement action to ensure proper BMP maintenance – the rest reported that enforcement actions were not necessary to achieve compliance. (L2)

5.9.5 Maintenance Agreement and Transfer

Require Stormwater Treatment Device Access and Maintenance Agreement

Permittees have required since 2002, and will continue to require, a maintenance agreement to ensure proper maintenance and permission to enter property and access BMPs (L1).

Require Annual Reports for Post-Construction BMPs

All Permittees reported that they have required annual reports as required by the Permit. (L1).

5.9.6 Training

Conduct Training

During this reporting period, Permittees trained 59 staff. Training primarily focused on updates to and compliance with the 2011 TGM and 2018 errata update (L1).

5.10 PLANNING AND LAND DEVELOPMENT PROGRAM MODIFICATIONS

On an annual basis, the Permittees plan to evaluate the results of the Annual Report, as well as the experience that staff has had in implementing the program, to determine if any additional program modifications are necessary to comply with the Clean Water Act requirement to reduce the discharge of pollutants to the MEP. Any key modifications made to the Land Development Program Element during the next fiscal year will be reported in the following Annual Report, such as the implementation of any new requirements that became effective during the 2018/19 Permit year.

6 Development Construction

6.1 OVERVIEW

During construction projects, a number of activities have the potential to generate or mobilize pollutants. The purpose of the Development Construction Program Element is to coordinate programs and resources to effectively reduce pollutants in runoff from construction sites during all construction phases.

Reducing pollutants from construction activities has been a focus of the Permittees' compliance program since the stormwater program's inception. The Permittees regulate private construction activities, and also have responsibility for the construction and renovation of municipal facilities and infrastructure (these projects are reported in Section 7 Public Agency Activities). Major components of the Permittee's Construction Program include:

- Review of local SWPPPs for compliance with local codes, ordinances, and permits;
- Inspection of all construction sites for the implementation of stormwater quality controls a minimum of once during the wet season. Follow-up inspections take place within two weeks for sites found to have not adequately implemented their Local SWPPP;
- Require proof of filing a Notice of Intent (NOI) for coverage under the State Construction General Permit prior to issuing a grading permit for all projects requiring coverage.

Additionally, the Construction Program provides construction site owners, developers, contractors, and other responsible parties information on the requirements and guidelines for pollution prevention/BMP methods. To ensure construction sites are implementing the SWPPPs properly, each jurisdiction conducts inspections during the rainy season to verify the appropriateness and implementation of BMPs, taking enforcement action as necessary. Inspectors are also visiting the sites in the dry season to ensure the potential for illicit discharges has been reduced. Training and outreach is done regularly to improve the quality and consistency of program implementation throughout Ventura County.

The Permittees attend the Construction Subcommittee meetings to coordinate and implement a comprehensive program to mitigate impacts on water quality from construction sites to the MEP. In order to facilitate effective inspections and to document compliance with this requirement the Construction Subcommittee developed a model Stormwater Quality Checklist for Permittee use, which can be found in Attachment C. The checklist and the meetings create countywide consistency in the programs, however, the Permittees usually modify their programs to address particular issues, concerns, or constraints that are unique to a particular watershed, or to an individual municipality. The subcommittee is attended by representatives of the Permittee's municipal staff from various departments including Engineering Services, Planning and Land Development, and Inspection Services.

6.2 CONTROL MEASURES

The Permittees have developed several Control Measures and accompanying performance standards to provide information for optimizing the program and ensure that the construction-related requirements in the Permit are met. For each Control Measure there are accompanying performance standards which, once accomplished, constitute compliance with the Permit.

The Development Construction Program Control Measures consist of the following:

DC	Control Measure
DC1	Plan Review and Approval Process
DC2	Inventory
DC3	Inspections and BMP Implementation
DC4	Enforcement
DC5	Training
DC6	Effectiveness Assessment

Table 6-1 Control Measures for the Development Construction Program Element

At the end of this chapter these control measures are evaluated to determine the effectiveness of this program element.

6.3 PLAN REVIEW AND APPROVAL PROCESS (CONTROL MEASURE DC1)

The Plan Review and Approval Process control measure provides the Permittees with the mechanism to review and approve construction plans to address sediment and erosion controls. Effective planning of construction site activities leads to minimizing erosion and preventing pollutants from entering the storm drain system. The Permittees require all projects that disturb less than one acre of land to address pollutants and activities during the construction phase of the project by implementing the erosion control, sediment control, non-stormwater management, and waste management BMPs identified in the NPDES Permit. For larger projects greater than one acre and less than five acres, the list of required BMPs gets progressively larger, more complex, and more protective. Prior to issuing a grading permit, the Permittees review construction and grading drawings to ensure that necessary erosion and sediment control BMPs and source and treatment control BMPs are identified and properly designed to control runoff pollution to the MEP. In the case of construction that encroaches in the Watershed Protection District’s right-of-way, those projects are inspected but are invariably part of a larger project and the lead agency for that project is the jurisdiction with land use authority to permit the design and building of that larger project.

6.3.1 Review Grading and Construction Permit Applications for SWPPP Requirements

Prior to approving a grading permit, the Permittees require a SWPPP be submitted for projects greater than one acre. Additionally, as is mandatory for all construction related activity disturbing one or more acres, Permittees require proof of filing an NOI for projects subject to the Construction General Permit. The SWPPP remains in effect until the construction site is stabilized and all construction activity is completed. The SWPPP includes identification of potential pollutant sources and the design, placement, and maintenance of BMPs to effectively prevent the entry of pollutants from the construction site to the storm drain system. In addition, the Permittees require construction projects to include the following requirements:

- Erosion from slopes and channels will be eliminated by implementing BMPs;
- Sediments generated on the project site shall be retained using structural drainage controls;
- No construction-related materials, wastes, spills, or residues shall be discharged from the project site to streets, drainage facilities, or adjacent properties by wind or runoff;

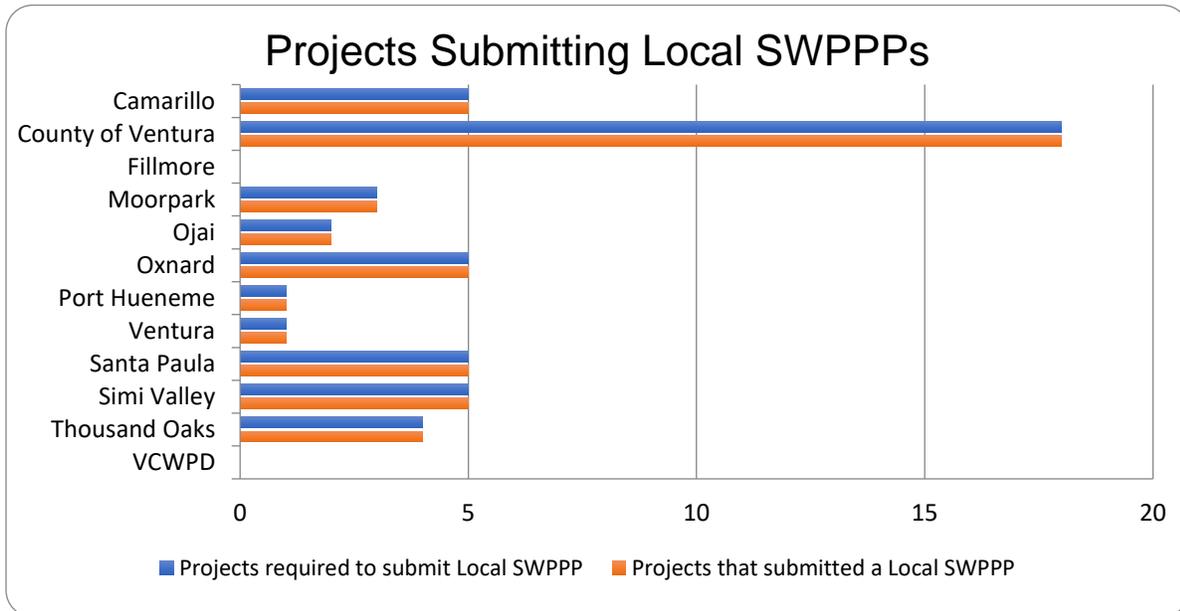
- Non-stormwater runoff from equipment and vehicle washing and any other activity shall be contained at the project site;

The Permittees have also incorporated SWPPP provisions in their own construction projects resulting in soil disturbance of one acre or more, located in hillside areas, or directly discharging to an ESA. Many Permittees have multiple Construction General Permit Qualified SWPPP Developers (QSD) and/or Qualified SWPPP Practitioners (QSP) on staff. The Permittees also include provisions delineating contractor responsibilities for SWPPP preparation, implementation, for performance of the work and ancillary activities in accordance with the SWPPP approved by the Permittee for the project. In some jurisdictions, Local SWPPPs were required and submitted for nearly all projects, including those not exceeding Permit thresholds. This conservative approach underlines the importance the Permittees place on ensuring implementation of stormwater controls at construction sites.

The number of grading permits issued during this reporting period does not directly reflect the number of active construction projects. This is due to the fact that larger projects can take longer than a year to complete. Conversely, not all projects that received grading permits granted during the Permit year actually broke ground on grading and construction. Because of these facts the number of active projects requiring inspection does not always match the number of grading permits granted. A project may be operating under a grading permit granted the previous year, or the grading permits may have been granted after the wet season so there was no opportunity for a wet season inspection, for these reasons the number of permits and projects inspected rarely match.

Permittees inspect more construction sites than are required to submit a SWPPP and inspect them more frequently for stormwater compliance than the permit requires.

Figure 6-1 Local SWPPPs



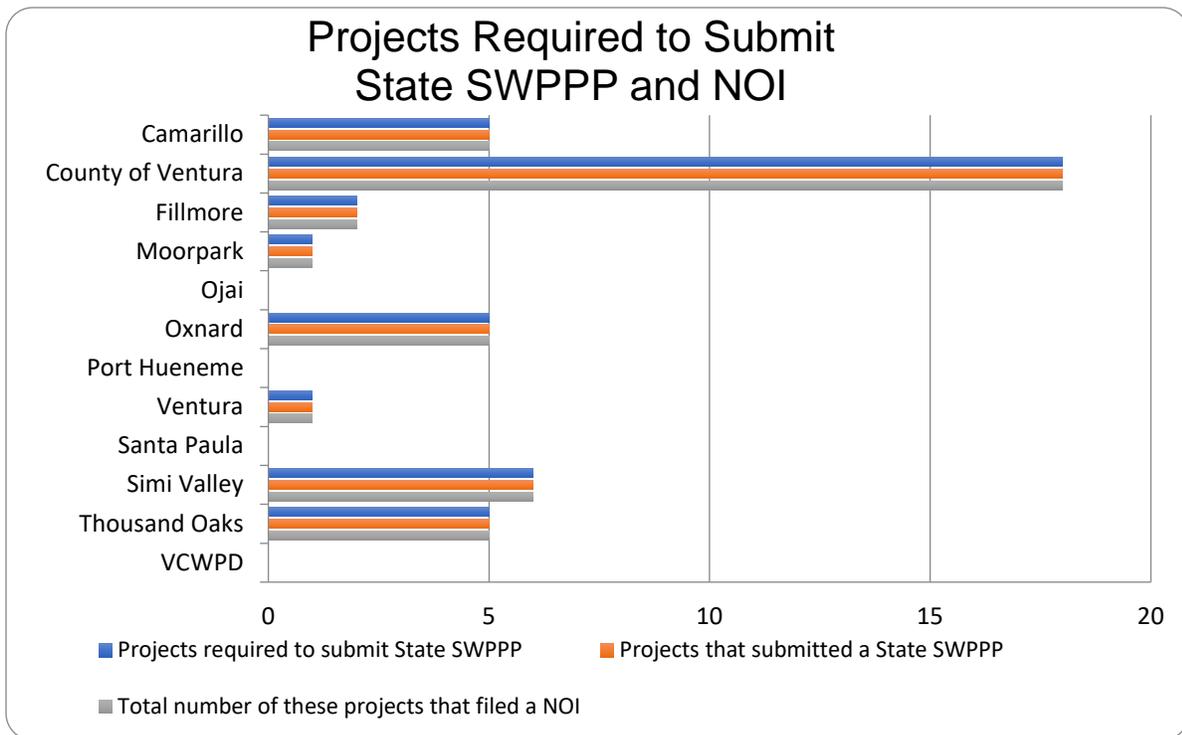
6.3.2 Requirements for Projects Subject to the General Stormwater Permit

The Permittees require all construction projects subject to the General Stormwater Permit for Construction Activities to submit proof of filing an NOI prior to issuing a grading permit. Proof of filing an NOI can include a copy of the completed NOI form and a copy of the check sent to the State Water Resources Control Board (SWRCB), or a copy of the letter from the SWRCB with the Waste Discharge Identification Number (WDID) for the project.

In addition, the Permittees will file NOIs with the SWRCB and pay the appropriate fees when Permittee construction projects require coverage under the Construction General Permit. The NOIs and appropriate fees are sent to the State prior to the commencement of any construction activity covered by the Construction General Permit. A copy of the NOI is kept with the project files and in the SWPPP for the project.

Projects subject to the requirements of the Construction General Permit currently include those involving clearing, grading, or excavation resulting in soil disturbances of at least one acre. Permittee emergency work and routine maintenance projects do not require preparation of a SWPPP. That does not imply that stormwater controls are not implemented during these activities. Routine maintenance and emergency projects are performed in accordance with the Permit’s requirements for Public Agency Activities.

Figure 6-2 State SWPPPs and NOIs



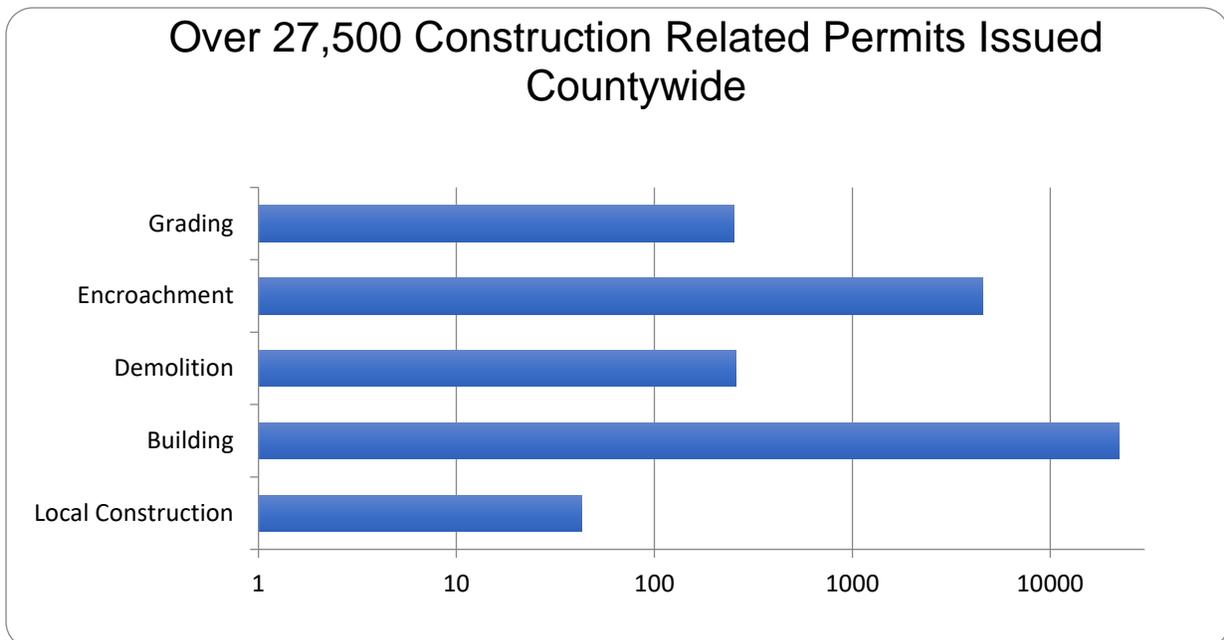
6.4 INVENTORY (CONTROL MEASURE DC2)

The Construction Projects Inventory Control Measure involves tracking construction sites from the planning stage to completion. This is essential for ensuring that stormwater pollutants are reduced to the MEP. Maintaining a database to track all stages of the construction process is the foundation of construction-related source identification and helps to ensure that pollution prevention and source control are emphasized during all phases of the construction project. The permitting process is also an opportunity to provide stormwater education and outreach to the construction community and to emphasize the penalties that can be incurred with non-compliance.

The Permittees have programs in place to track all grading, encroachment, demolition, and building permits as required by the NPDES Permit. In order to ensure the appropriate BMPs are being implemented when soil disturbing activities are taking place, the Permittees focus on the grading permit process to identify projects and the level of BMPs required. This has been determined as the most effective way to track projects with a potential to impact water quality as many encroachment, building, and other permits that are not associated with grading activities do not present the same level of risk to stormwater quality.

The City of Ventura utilizes an electronic tracking system throughout the City for grading permits, encroachment permits, demolition, building and CIP projects. On site SWPPP/SWPCP compliance is also tracked for Permit compliance. Grading permits during reporting period are higher than typically reported due to the Thomas Fire redevelopment in impacted areas. Within the City, only 1 of 72 grading permits issued during the reporting period was for a project disturbing over 1 acre of soil. The remaining 71 grading permits were associated with projects under 1 acre of disturbed soil, with 70 grading permits associated with Thomas Fire redevelopment projects.

Figure 6-3 Construction Permits Issued



Performance Standard 6-1

Maintain an electronic system to track grading permits, encroachment permits, and any other municipal authorization to move soil			
	Yes	No	In Progress
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

Performance Standard 6-2

Required proof of Change of Information form (COI) and a copy of the modified SWPPP(s) at any time a transfer of ownership takes place			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard			<input checked="" type="checkbox"/>
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula		<input checked="" type="checkbox"/>	
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		

6.5 INSPECTIONS AND BMP IMPLEMENTATION (CONTROL MEASURE DC3)

The Inspection and BMP Implementation Control Measure is critical to the ultimate success of the Development Construction Program Element. An effective construction site inspection program requires having adequate legal authority to enforce Permittee requirements, conducting inspections to ensure the sources are identified and that BMPs are being implemented and maintained, and tracking active construction sites to identify repeat violators. The inspection program also provides the basis for notifying the Regional Water Board when inspectors identify non-compliant sites including non-filers or repeat violators.

Figure 6-4 Site Inspections and Follow-Up

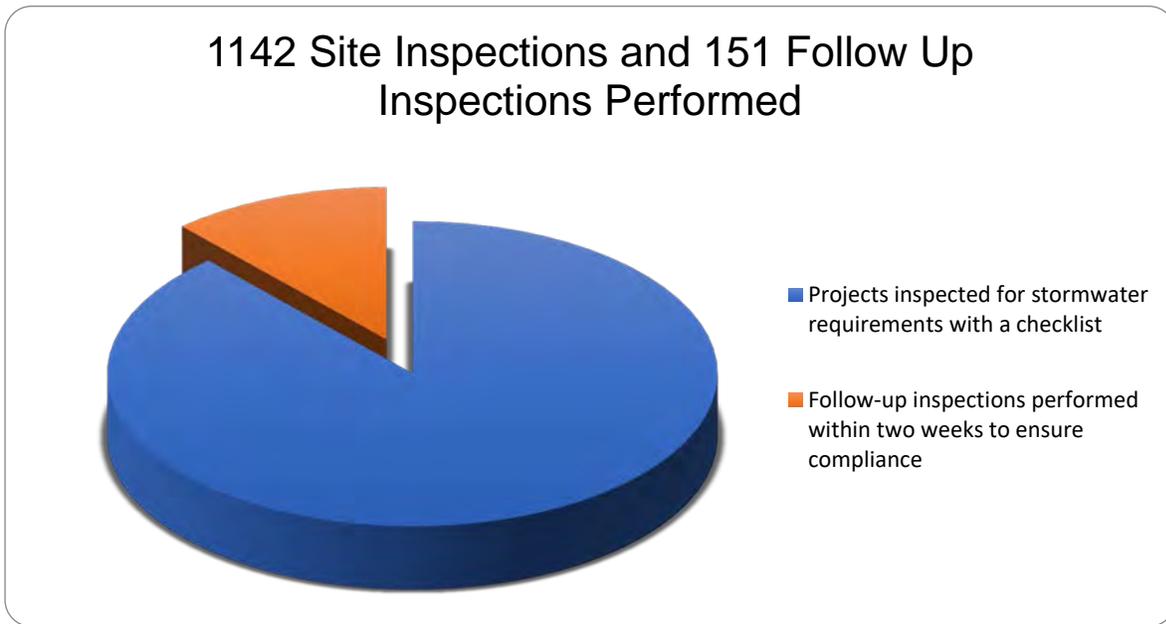




Figure 6-5 Construction Inspections and Follow-up Inspections



6.5.1 Inspect Construction Sites

The Permittees inspect all active construction sites for the implementation of stormwater quality controls a minimum of once during the wet season, including all construction sites with SWPPPs to determine if the SWPPP is adequately implemented. During these site inspections, a checklist is completed to document inspection results. If it is determined the SWPPP is not adequately implemented, or when there is evidence of a reasonable potential for sediment, construction materials, wastes, or non-stormwater runoff to be discharged from the project site, the Permittees will inform the responsible party of what needs to be corrected and conduct a follow-up inspection within two weeks, but most often it is much sooner. The follow-up inspections are not always scheduled and often the response needed to correct the situation does not require two weeks to implement.

Within the City of Ventura all construction sites that require grading permits are required to submit a Local SWPPP (over 1 acre) or SWPCP (under 1 acre) that is enforced through City of Ventura Municipal Code. Construction stormwater BMPs are checked weekly by superintendents, City construction inspectors and third-party stormwater inspectors who are either QSPs or work under a QSP. Post construction BMPs are inspected prior to final approval and issuance of the Certificate of Occupancy. This is to verify that all BMPs were constructed as per plan and that all Permit requirements were met.

Performance Standard 6-3

Construction sites less than 1 acre were inspected to ensure that the minimum set of BMPs was implemented			
	Yes	No	In Progress
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

Performance Standard 6-4

Construction sites greater than 1 acre and less than 5 acres inspected to ensure that the minimum set of BMPs was implemented			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai			<input checked="" type="checkbox"/>
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

Performance Standard 6-5

Construction site greater than 5 acres inspected to ensure that the minimum set of BMPs was implemented			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai			<input checked="" type="checkbox"/>
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme			<input checked="" type="checkbox"/>
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

The Permittees inspect each road project that includes roadbed or street paving, repaving, patching, digouts, or resurfacing roadbed surfaces to ensure that the minimum set of BMPs are implemented. This is routinely done at the same time inspections are performed to ensure all work is being performed according to the design and the standards required of public works projects.



Inspection of catch basin BMPs

Performance Standard 6-6

Projects that include roadbed or street paving, repaving, patching, digouts, or resurfacing roadbed surfaces inspected to ensure that the minimum set of BMPs was implemented			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai			<input checked="" type="checkbox"/>
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme			<input checked="" type="checkbox"/>
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

6.5.2 Implementation of Enhanced Practices at “High Risk” Sites

Construction sites located on hillsides, adjacent to CWA 303(d) listed waters for siltation or sediment, and directly adjacent to ESAs are termed "high risk" sites. The Permittees ensure implementation of enhanced practices such as increased BMP inspection and maintenance requirements at "high risk" sites to ensure that they do not create a threat to water quality.

The Permit requires that "high risk" sites be inspected by the project proponent's Qualified SWPPP Developer or Qualified SWPPP Practitioner or personnel or consultants who are Certified Professionals in

Erosion and Sediment Control (CPESC) at the time of BMP installation, at least weekly during the wet season, and at least once each 24 hour period during a storm event that generates runoff from the site. Many of the Permittees did not have any designated high risk construction sites, but did have the program in place to identify and implement the added requirements.

Performance Standard 6-7

Ensure implementation of enhanced practices such as increased BMP inspection and maintenance requirements at high risk sites			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore		<input checked="" type="checkbox"/>	
Moorpark			<input checked="" type="checkbox"/>
Ojai			<input checked="" type="checkbox"/>
Oxnard			<input checked="" type="checkbox"/>
Port Hueneme			<input checked="" type="checkbox"/>
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley			<input checked="" type="checkbox"/>
Thousand Oaks			<input checked="" type="checkbox"/>
Watershed Protection	<input checked="" type="checkbox"/>		



Catch basin protection

Performance Standard 6-8

Require that high risk sites be inspected by the project proponent's Qualified SWPPP Developer or Qualified SWPPP Practitioner at high risk sites			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore			<input checked="" type="checkbox"/>
Moorpark			<input checked="" type="checkbox"/>
Ojai			<input checked="" type="checkbox"/>
Oxnard			<input checked="" type="checkbox"/>
Port Hueneme			<input checked="" type="checkbox"/>
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley			<input checked="" type="checkbox"/>
Thousand Oaks			<input checked="" type="checkbox"/>
Watershed Protection	<input checked="" type="checkbox"/>		

Construction sites are dynamic and changing environments and must be routinely inspected by the project proponent to ensure that the appropriate BMPs are in place and maintained. Permittees require that the project proponent of high risk sites retain records of the inspection and a determination and rationale of the BMPs selected to control runoff during the wet season.

Performance Standard 6-9

Did the Permittee require that the project proponent retain records of the inspection and a determination and rationale of the BMPs selected to control runoff during the wet season at high risk sites			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore			<input checked="" type="checkbox"/>
Moorpark			<input checked="" type="checkbox"/>
Ojai			<input checked="" type="checkbox"/>
Oxnard			<input checked="" type="checkbox"/>
Port Hueneme			<input checked="" type="checkbox"/>
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley			<input checked="" type="checkbox"/>
Thousand Oaks			<input checked="" type="checkbox"/>
Watershed Protection	<input checked="" type="checkbox"/>		



Post-Construction BMP inspection



Concrete washout at construction site

6.5.3 Inspect for Post-Construction Controls

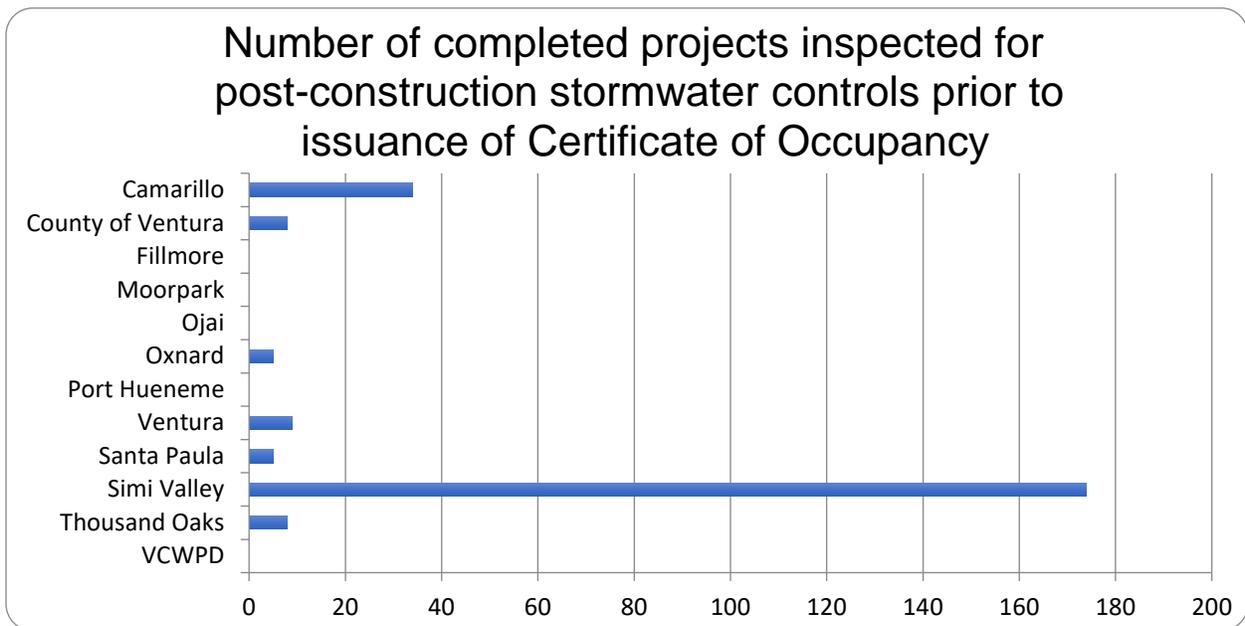
The Permittees inspected the site design as constructed for source control and treatment control BMPs conditioned during the development process to verify that they have been constructed in compliance with all specifications, plans, permits, ordinances, and the MS4 Permit prior to approving and/ or signing off for occupancy and issuing the Certificate of Occupancy for all construction projects subject to post-construction controls. Permanent BMPs may be installed at any point during the construction process and therefore may be exposed to runoff conditions much worse than their intended design. The Permit also requires inspections to ensure that the BMPs are in good operating condition and are not in need of maintenance. These inspections are routinely performed at the same time to be cost efficient and to use the leverage the Certificate of Occupancy provides the Permittee. This requirement is in the Permit in Section F – Construction, and also Section E – Planning and Land Development.

As stated previously, the number of projects reaching the final stages of construction and requesting a Certificate of Occupancy will not directly match the number of active construction sites, or grading permits issued due to the elapsed time from permitting, to project initiation, completion, and finally occupancy.

Performance Standard 6-10

Inspected constructed site design, source control and treatment control BMPs to verify constructed in compliance with all specifications prior to approving issuing the Certificate of Occupancy			
	Yes	No	NA
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore			<input checked="" type="checkbox"/>
Moorpark			<input checked="" type="checkbox"/>
Ojai			<input checked="" type="checkbox"/>
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme			<input checked="" type="checkbox"/>
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection			<input checked="" type="checkbox"/>

Figure 6-6 Inspections Prior to Certificate of Occupancy



6.6 ENFORCEMENT (CONTROL MEASURE DC4)

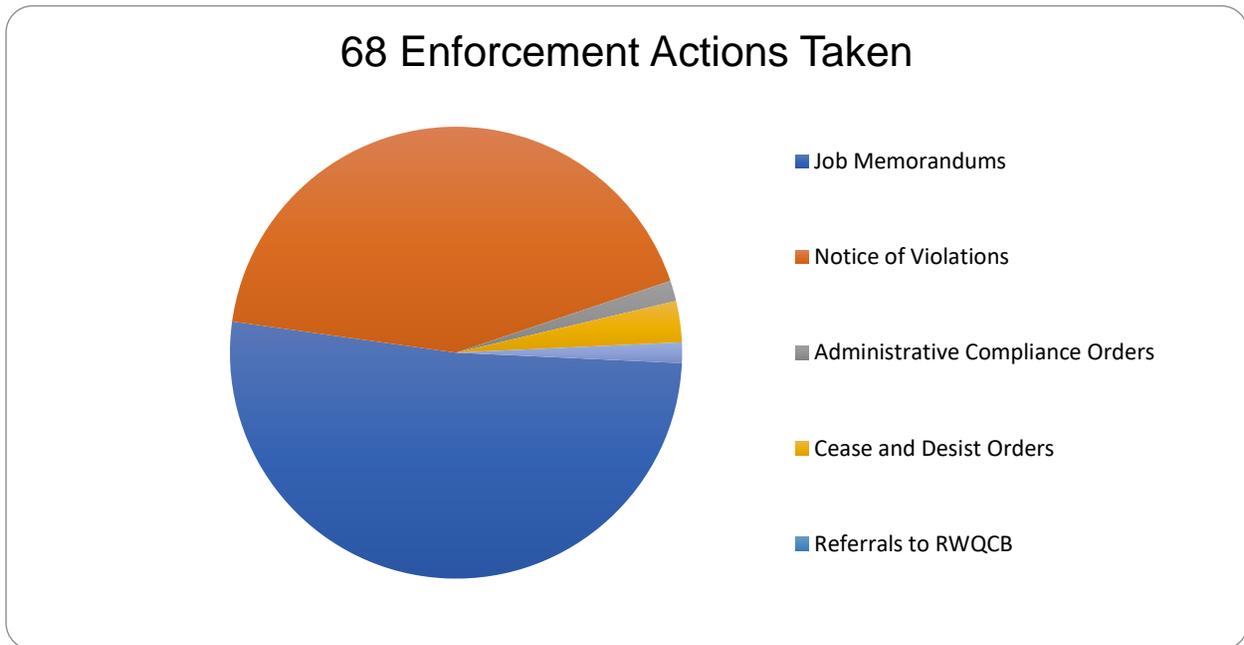
The Enforcement Control Measure outlines the progressive levels of enforcement applied to construction sites that are out of compliance with local ordinances and establishes the protocol for referring apparent violations of construction sites subject to the Construction General Permit to the Regional Water Board. The progressive enforcement and referral policy, as well as the accompanying legal authority, is an important tool for providing a fair and equitable approach to bringing contractors and developers into

compliance with the Permittees’ municipal code requirements. Enforcement actions range from verbal warnings to the issuance of stop work orders. Legal action may also be taken, although is rarely necessary, as in almost all cases preventing work at a site will focus the developers attention to the BMPs. For repeat offenders, or contractors that have not filed appropriate applications, the referral policy includes notification to the Regional Water Board.

6.6.1 Enforcement Action to Achieve Compliance

When a construction site fails to comply with the SWPPP, minimum BMPs, or other stormwater requirements, a Permittee implements the appropriate notification and enforcement procedures. There are five general levels of notification and enforcement for most stormwater related problems for construction projects. These are: Verbal Notification, Job Memorandum, Notice of Violation, Administrative Compliance Order, and Stop Work Order. Sites that are permitted under the construction activities general permit (CASGP) are also referred to the RWQCB if they fail to achieve compliance and a good faith effort has been made by the Permittee to achieve compliance. At a minimum that is two follow-up inspections within three months, and at least two warning letters or NOVs. The decision to use any level of enforcement is based upon the severity of the violation(s). Severe violations may result in all construction activities being stopped at the job site and not allowed to proceed until compliance is achieved. The Regional Board may be notified of severe violations at sites under the CASGP if the situation warrants immediate attention. If such a case occurs, the Permittees will work with Board staff in identification of owners and operators, assist with joint inspections, and other efforts to reduce pollutants from entering an MS4.

Figure 6-7 Enforcement at Construction Sites



6.6.2 Implement Progressive Enforcement and Referral Policy

During the reporting year no construction site failed to return to compliance but one site was referred to the Regional Water Board for enforcement actions under the CAGSP. The contractor at this site failed to construct the BMPs per the SWPPP plan. Additionally, the QSD/QSP were not performing inspections. This referral to the Regional Water Board is summarized in Table 6-2.

Table 6-2 Summary of Referrals

WDID Number	Reason for Referral
4 56C380423	Within the City of Moorpark, one project site was referred to the Regional Water Board for failure of the contractor to properly construct BMPs per the SWPPP plan. Additionally, the QSD/WSP were not performing inspections.

6.6.3 Refer Non-filers Under the CASGP or the Small LUP General Permit

Countywide all construction activities that were required to file for coverage under the CASGP or the Small Linear Underground Project Permit did so. This is because the Permittees have developed the appropriate programs and procedures to ensure that local permits are not granted until the project proponent can provide adequate proof of state permit coverage.

6.6.4 Investigation of Complaints Regarding Facilities - Transmitted by the Regional Water Board Staff

The Permittees are required to initiate an initial investigation of complaints transmitted by the Regional Water Board Staff (other than non-storm water discharges) on the construction site(s) within its jurisdiction. During the reporting period the Regional Board did not transmit any complaints for Permittee investigation; any reports received would be summarized in Table 6-3 Summary of Complaints Transmitted by the Regional Water Board.

Table 6-3 Summary of Complaints Transmitted by the Regional Water Board

Permit #	Initial Investigation conducted within 1 business day? (Y/N)	Inspection of the Facility and its Perimeter? (Y/N)
None	**	**

6.6.5 Support of Regional Water Board Enforcement Actions

If the Regional Water Board is aware of non-compliance at a construction site they may request assistance from the Permittees to support their formal enforcement actions. Fortunately during the reporting period the Permittees were able to use their local authority to keep all construction sites in compliance and assistance to the Regional Water Board enforcement actions was not needed.

Table 6-4 describes what kind of assistance the Permittees could provide and will be used in future reports to summarize any enforcement action assistance.

Table 6-4 Summary of Complaints Transmitted by the Regional Water Board

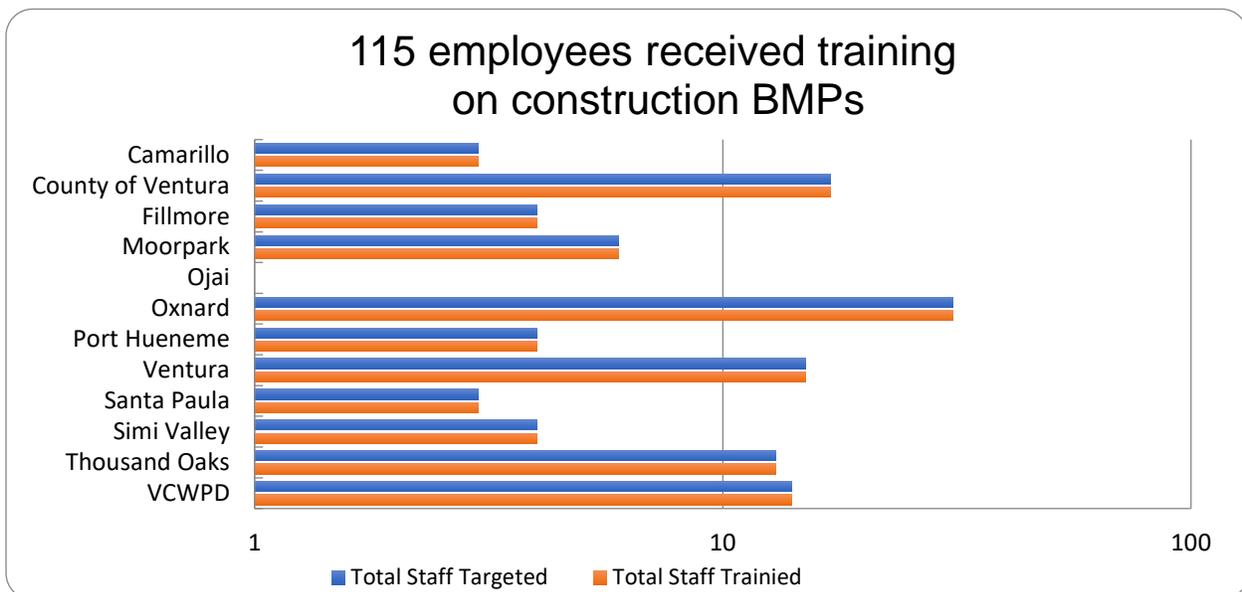
Permit #	Assisted in Identification of Current Owners/ Operators of Properties/Sites? (Y/N)	Provided Staff for Joint Inspections with Regional Water Board Inspectors? (Y/N)	Appeared to Testify as Witnesses in Regional Water Board Enforcement Hearings? (Y/N)	Provided Copies of Inspection Reports and Other Progressive Enforcement Documentation? (Y/N)
**	**	**	**	**

6.7 TRAINING – (CONTROL MEASURE DC5)

Training is important for the implementation of the Development Construction Program Element. An effective training program is one of the best pollution prevention BMPs that can be implemented because it prompts behavioral changes that are fundamentally necessary to protect water quality. The Permittees target employees involved with construction engineering and inspection for training regarding the requirements of the Program for Construction Sites. Training methods varied amongst the Permittees and ranged from informal meetings, formal classroom training, and seminars to self-guided training. The Permittees also trained staff on the prevention, detection and investigation of illicit discharges and illegal connections (IC/ID) associated with construction activities. See Chapter 8 of this Annual Report for more information regarding IC/ID training.

During this reporting period, the Permittees trained 115 key staff, including contractors whose interactions, jobs, and activities affect development construction in stormwater management, construction inspections, SWPCPs, SWPPPs, illicit discharge response, and non-stormwater discharges. Figure 6-8 depicts the number of staff trained in the program areas for each Permittee.

Figure 6-8 Construction Inspection Training



6.8 EFFECTIVENESS ASSESSMENT (CONTROL MEASURE DC6)

Effectiveness assessment is fundamental for developing and implementing successful stormwater programs. In order to determine the effectiveness of the Development Construction Program, a comprehensive assessment of the program data is conducted as a part of the Annual Report. The results of this assessment are used to identify modifications that need to be made to the program. Each year the effectiveness assessment is reviewed and revised as needed. By conducting these assessments and modifying the program as needed, the Permittees ensure that the iterative process is used as an effective management tool. Due to the types of data collected for the Development Construction Program, current assessments will primarily focus on Outcome Levels 1, 2 & 3.

- Outcome Level 1 (L1) answers the question: Did the Permittees implement the components of the Permit?
- Outcome Level 2 (L2) answers the question: Can the Permittees demonstrate that the control measure/performance standard significantly increased the awareness of its target audience?
- Outcome Level 3 (L3) answers the question: Can the Permittees demonstrate that the control measure/performance standard significantly modified the behavior of a target audience?

The following is an assessment regarding the effectiveness of the Development Construction Program.

6.8.1 Plan Review and Approval Process

Review Grading and Construction Permit Applications for SWPPP Requirements

Prior to approving a grading permit, the Permittees require a SWPPP be submitted for projects greater than one acre. (L1) All projects required to submit a State SWPPP, submitted a State SWPPP and filed a NOI. (L1) Proof of filing an NOI included a copy of the completed NOI form and a copy of the check sent to the SWRCB, or a copy of the letter the SWRCB with the WDID for the project. (L1)

In some jurisdictions, Local SWPPPs were required and submitted for nearly all projects, including those not exceeding Permit thresholds. (L1)

The Permittees required proof of state permit coverage so that all construction activities that were required to file for coverage under the CASGP or Small Linear Underground Project Permit did so.

6.8.2 Inventory

The Permittees maintained an electronic system to track grading permits, encroachment permits, and any other municipal authorization to move soil (or are in progress developing the system). (L1) They required a copy of the SWPPP any time a transfer of ownership took place. Ownership transfer did not happen in each jurisdiction, so some Permittees did not have the opportunity to require a revised SWPPP. (L1)

Inspection and BMP Implementation

The Permittees inspected all active construction sites for stormwater quality requirements during routine inspections a minimum of once during the wet season. (L1) (L2) As shown in Figure 6-4, for inspected sites that had not adequately implemented their SWPPPs, the Permittees conducted a follow-up inspection within two weeks. Most often, the follow-up inspection occurred much sooner. (L1) (L2) (L3) In addition, the majority of Permittees inspected each project that included roadbed or street paving, repaving, patching, digouts, or resurfacing roadbed surfaces to ensure that the minimum set of BMPs were implemented. This

was routinely done at the same time inspections were performed to ensure all work was being performed according to the design and standards required of public works projects. (L1) (L2)

The Permittees required a CPESC to inspect the construction sites at the time of BMP installation, at least weekly during the wet season, and at least once each 24-hour period during a storm event that generated runoff from the site if the site was:

- Within, or adjacent to an ESA
- On a hillside
- Discharging into a sedimentation/siltation impaired water body listed on the CWA 303(d) list

Many of the Permittees did not have any of these types of high risk construction sites but did have the program in place to implement the added requirements.

Prior to approving and/or signing off for occupancy and issuing the Certificate of Occupancy for all construction projects subject to post-construction controls, the majority of Permittees inspected the constructed site design, and source control and treatment control BMPs conditioned during the development process to verify that they have been constructed in compliance with all specifications, plans, permits, ordinances, and the MS4 Permit, as shown in Figure 6-6.

6.8.3 Enforcement

Enforcement Action to Achieve Compliance

When a construction site fails to comply with the SWPPP, minimum BMPs or other stormwater requirements, a Permittee implements the appropriate notification and enforcement procedures. (L1) Sites that are permitted under the CASGP are also referred to the RWQCB if they fail to achieve compliance in two weeks and a good faith effort has been made by the Permittee to achieve compliance. (L1) (L2)

Figure 6-7 shows each enforcement level and the relative number of enforcement actions taken. The Permittees did not make any referrals of violation of the new development and redevelopment post construction requirements and municipal stormwater ordinances to the Regional Water Board because there were no violations. (L1) One site were referred to the Regional Water Board to take appropriate enforcement actions under the CAGSP.

Training

During this reporting period, the Permittees trained 115 key staff, including contractors whose interactions, jobs, and activities affect development construction in stormwater management, construction inspections, SWPCPs, SWPPPs, illicit discharge response, and non-stormwater discharges. (L1) 100% of targeted staff members received training on construction BMPs, as shown in Figure 6-8.

6.8.4 Development Construction Program Modifications

On an annual basis the Permittees plan to evaluate the results of the Annual Report, as well as the experience that staff has had in implementing the program, to determine if any additional program modifications are necessary to comply with the Clean Water Act requirement to reduce the discharge of pollutants to the MEP. Any key modifications made to the Development Construction Program Element during the next fiscal year will be reported in the following Annual Report.

7 Public Agency Activities

7.1 OVERVIEW

Public Agencies can help fight stormwater pollution in two ways. One is to stop and remove pollutants generated by the public before they reach receiving waters, and the other is ensuring all the activities performed by the agency do not contribute to stormwater pollution to the MEP. Therefore, public agencies have a dual role in the stormwater program: removing pollutants before they are transported by the storm drain system and preventing pollution from being generated in the operation and maintenance of public facilities.

The Permittees own and operate public facilities and build and maintain much of the infrastructure of the urban and suburban environment throughout their jurisdictions. Maintenance activities include street sweeping and drainage facility inspection and cleaning. As part of their normal operations the Permittees conduct a number of activities (e.g., sewer line cleaning, catch basin cleaning, street repairs) that have the potential to generate or mobilize pollutants. Control Measures in the Public Agency Activities Program Element are designed to ensure that these operations and maintenance activities are performed using procedures that minimize pollutants generated and reduce the potential for pollutants to enter the storm drain system.

7.2 CONTROL MEASURES

The Permittees have developed several Control Measures and accompanying performance standards to ensure that Permit requirements for the public agency activities are effectively developed and implemented. For each Control Measure there are accompanying performance standards.

The Public Agency Activities Control Measures are organized to be parallel to the organization of the Permit and consist of the following:

Table 7-1 Control Measures for the Public Agency Activities Program Element

PA	Control Measure
PA1	Public Construction Activities Management
PA2	Vehicle Maintenance/Material Storage Facilities/Corporation Yards Management/Municipal Operations
PA3	Vehicle and Equipment Wash Areas
PA4	Landscape, Park, and Recreational Facilities Management
PA5	Storm Drain Operation and Management
PA6	Street And Roads Maintenance
PA7	Emergency Procedures
PA8	Training
PA9	Effectiveness Assessment

7.3 PUBLIC CONSTRUCTION ACTIVITIES MANAGEMENT (CONTROL MEASURE PA1)

The Public Construction Activities Control Measure provides protocols to be followed in the design and construction phases of capital projects undertaken by the Permittees. Per the Permit, Permittees will follow the Planning and Land Development, and Construction Programs requirements for all Permittee-owned or operated public construction projects. Those requirements include complying with the Development Planning Program requirements at public construction projects and all the Development Construction Program requirements at Permittee owned or operated construction sites including requiring the development of SWPCP for projects that disturb less than one Acre.

Performance Standard 7-1

Comply with all the Development Planning Program requirements at public construction projects.			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme			<input checked="" type="checkbox"/>
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

Performance Standard 7-2

Comply with all the Development Construction Program requirements at Permittee owned construction sites			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme			<input checked="" type="checkbox"/>
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

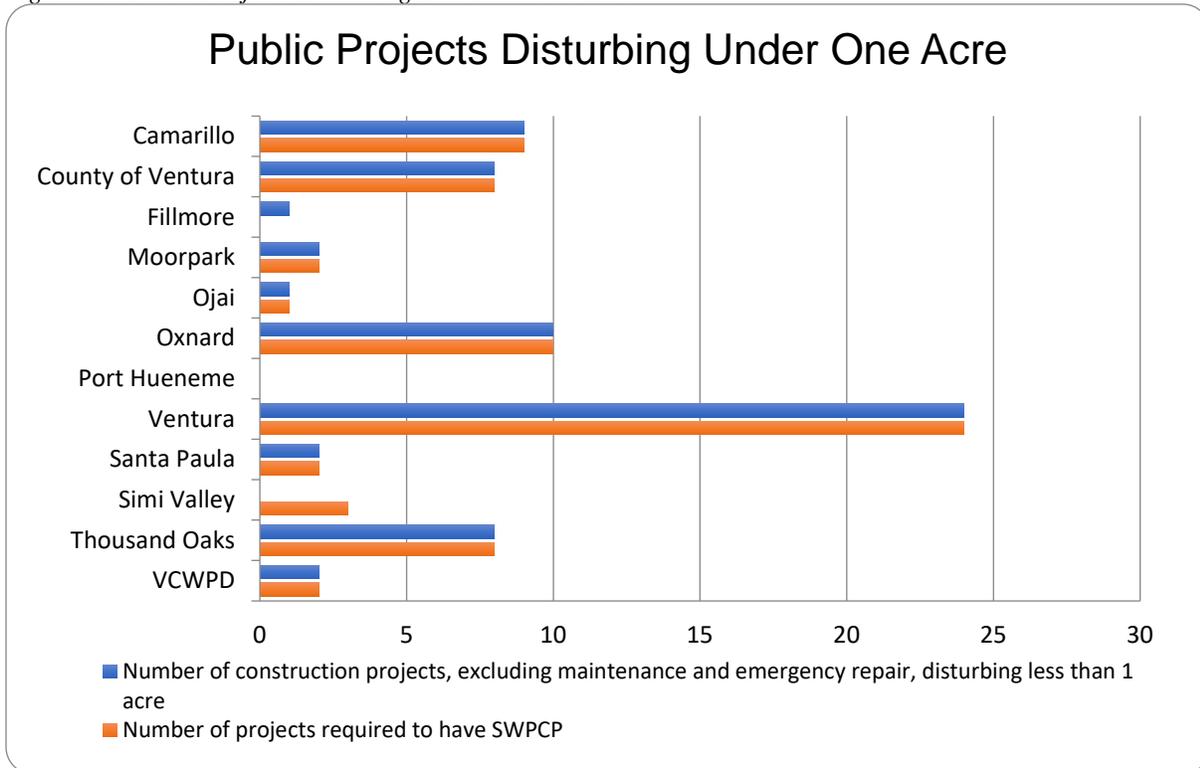
An agency does not routinely grant grading or building permits for its own public construction projects within their jurisdiction. Therefore, identifying and defining small construction projects does not have that

paper trail. To ensure that extremely small projects such as installing a stop sign or providing wheelchair access ramps to a sidewalk meet Permit requirements, the Permittees have adopted standard practices to serve as the SWPCP. The practices include the BMPs identified in the permit for construction projects under one acre.

Performance Standard 7-3

Require the development of a Storm Water Pollution Control Plan for public projects			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore			<input checked="" type="checkbox"/>
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme			<input checked="" type="checkbox"/>
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

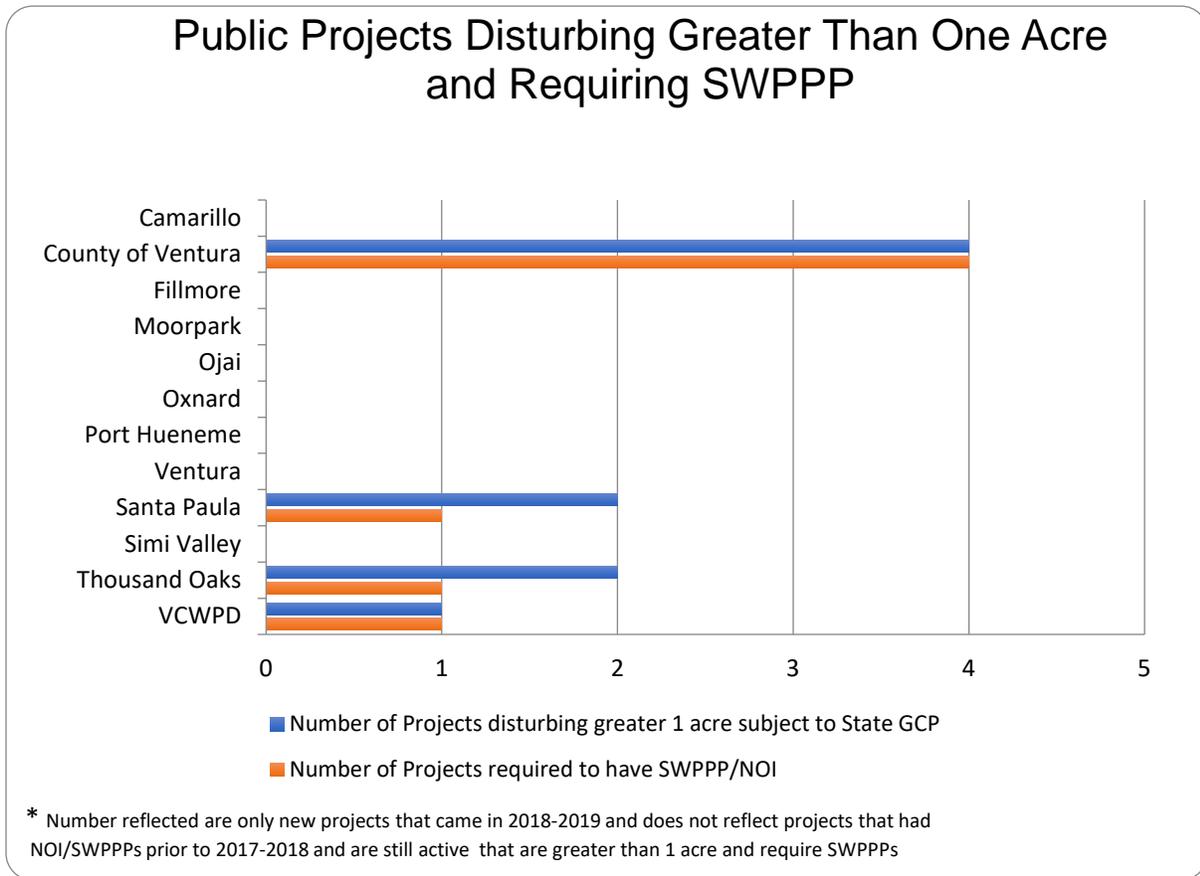
Figure 7-1 Public Projects Disturbing Less Than One Acre



Larger projects have requirements in the construction bid documents which require the contractor to draft and implement an approved SWPPP with the size appropriate BMPs. All public constructions projects are required to be in compliance the State’s requirements under the Construction Activities General Stormwater

Permit (CAGSP). Figure 7-2 identifies how many projects the Permittees had that fell under those requirements.

Figure 7-2 Public Projects Disturbing Greater Than One Acre



7.4 VEHICLE MAINTENANCE/MATERIAL STORAGE FACILITIES/CORPORATION YARDS MANAGEMENT/MUNICIPAL OPERATIONS (CONTROL MEASURE PA2)

The Vehicle Maintenance/Material Storage Facilities/Corporation Yards Management/Municipal Operations Control Measure addresses pollutants entering the storm drain system from Permittee-owned/leased facilities (e.g., vehicle equipment maintenance facilities, material storage facilities, collectively referred to as corporation yards). There are other non-operation oriented facilities that



BMP protected materials in Thousand Oaks

are owned or leased by the Permittees where these Permit conditions are not relevant, such as libraries, parks, and office buildings. However, these facilities are still required to comply with all other applicable Permit requirements such as pesticide use.

The Permittees' corporation yards support operation and maintenance activities within their jurisdiction. Corporation yards are operated and maintained by the Permittees for the following activities or facilities:

- Vehicle and equipment
- Storage and parking
- Maintenance
- Fueling
- Washing and cleaning
- Sign painting activities
- Bulk material storage areas

Table 7-2 Summary of Permittee-Owned and Leased Facilities

Permittee Corporate Yards	Name	Address	Implementation of appropriate BMPs	Address discharges of wash waters from vehicles and equipment washing facilities
Camarillo	Camarillo Corporation Yard	283 South Glenn Drive	☑	☑
County of Ventura	Saticoy Operation Yard	11201/11251 Riverbank Drive Saticoy, CA	☑	☑
	Government Center, Service Building	800 South Victoria Avenue Ventura, CA	☑	☑
	VCISO Air Unit	555 Airport Way Camarillo, CA	☑	☑
	Maintenance Yard	Camarillo/Oxnard Airport	☑	☑
	Aircraft Maintenance and Wash Rack Yard	Camarillo/Oxnard Airport	☑	☑
	East Dirt Field	Camarillo Airport	☑	☑
	Moorpark Maintenance Yard	6767 Spring Road Moorpark, CA	☑	☑
Fillmore	Public Works Yard	752 Sespe Place, Fillmore, CA	☑	☑
Moorpark	Moorpark Public Services Facility	627 Fitch Avenue, Moorpark, CA 93021	☑	N/A
	Moorpark Police Services Center	610 Spring Road, Moorpark, CA 93021	☑	☑
Ojai	Public Works Maintenance Yard	408 S. Signal St. Ojai, CA 93023	☑	☑
Oxnard	Oxnard POTW	6001 S. Perkins Rd., Oxnard, CA	☑	☑
	Corporation Yard	1060 Pacific Ave, Oxnard, CA	☑	☑
	Water Campus	251 S. Hayes Ave, Oxnard, CA	☑	☑
	Del Norte	111 S. Del Norte Blvd, Oxnard, Ca	☑	☑
Port Hueneme	Public Works Surfside Yard	700 'B' E. East Hueneme Rd.	☑	☑
	Public Works Industrial Yard	746 Industrial Avenue	☑	☑
Ventura	City of Ventura Public Works Maintenance Yard	336 Sanjon Road, Ventura, CA 93001	☑	☑
Santa Paula	City Corporation Yard	203 Corporation St, Santa Paula	☑	☑
	City Water Yard	132 S. Palm St, Santa Paula, CA	☑	☑
Simi Valley	Simi Valley Police Department	3901 Alamo St, Simi Valley CA	☑	☑
	City of Simi Valley Public Service Center	490 W Los Angeles Ave, Simi Valley CA	☑	☑
Thousand Oaks	Municipal Service Center	1993 Rancho Conejo Blvd., Newbury Park, CA 91320	☑	☑
VCWPD	Moorpark Maintenance Yard	6767 Spring Rd, Moorpark, CA 93021	☑	☑
	Saticoy Maintenance Yard	11251-B River Bank, Ventura, CA 93004	☑	☑

* The County of Ventura has implemented BMPs at over 40 facilities to eliminate runoff pollution from wash water. See table 7-3 for list of facilities and BMPs.

7.4.1 Implement Required BMPs for each Facility

The Permittees have written SWPCPs for corporation yards to ensure implementation of appropriate BMPs, including those identified in Table 10 of the Permit. The SWPCPs were required under the previous permit and serve to help implement the current Permit requirements. The SWPCPs call for annual inspections to be performed and documented by trained staff. Any insufficiencies identified during inspections are quickly corrected by facility staff.

7.5 VEHICLE AND EQUIPMENT WASH AREAS (CONTROL MEASURE PA3)

The Vehicle and Equipment Wash Areas Control Measure addresses pollutants entering the storm drain system from Permittee-owned/leased vehicle and equipment wash areas. The Permit provides several options to eliminate wash water discharges from vehicles and equipment washing facilities by implementing one of the following:

- Self-contain, and haul-off for disposal;
- Equip with a clarifier;
- Equip with an alternative pre-treatment device; or
- Plumb to the sanitary sewer.



The Permittees have been successful in implementing applicable BMPs to eliminate wash water discharges from vehicles and equipment washing. As municipal facilities are constructed, redeveloped, or replaced all vehicle wash areas will be plumbed to the sanitary sewer or be self-contained with all wastewater disposed of legally.

Table 7-3 County Facilities with Wash Water Elimination BMPs

County Facilities with Wash Water Elimination BMPs		
Project Name	BMP	Address
Boat Launch Ramp Replacement	Vegetated Swales and Cartridge Media Filters (2 of each)	Pelican Way, Oxnard
County Gov Center Parking Lot	Pervious gutters with infiltration trench and dry wells	800 S. Victoria Ave, Ventura
FS 20	Bioretention	12727 Santa Paula Ojai Road, Ojai, CA
FS 21	Bioretention with underdrain	1201 E. Ojai Rd, Ojai, CA
FS 22	Bioretention	466 S La Luna Ave, Meiners Oaks, CA
FS 23	Bioretention	15 Kunkle Street, Oak View, CA
FS 25	Clarifier and diversion to sanitary sewer	5674 W Pacific Coast Hwy, Ventura, CA
FS 27	Bioretention	613 Old Telegraph Road, Fillmore, CA
FS 33	Clarifier and diversion to sanitary sewer	25 Lake Sherwood Dr, Westlake Village, CA
FS 40	Clarifier and diversion to sanitary sewer	4185 Cedar Springs St, Moorpark, CA
FS 42	Clarifier and diversion to sanitary sewer	295 E High St, Moorpark, CA
FS 51	Clarifier and diversion to sanitary sewer	3302 Turnout Park Circle, Oxnard, CA
FS 53	Clarifier and diversion to sanitary sewer	304 N Second St, Port Hueneme, CA
FS 54	Clarifier and diversion to sanitary sewer	2160 Pickwick Dr, Camarillo, CA
FS-26	Fossil Filter - FloGard Plus inserts (2)	12391 W. Telegraph Rd, Santa Paula
FS-28	Bioretention	513 N. Church St, Piru
FS-30	Biofiltration (underdrain)	325 W. Hillcrest Dr, Thousand Oaks
FS-31	Biofiltration (underdrain)	151 Duesenberg Dr, Thousand Oaks
FS-32	Drywell	830 S. Reino Rd, Newbury Park
FS-34	Biofiltration (underdrain)	555 Avenida De Los Arboles, Thousand Oaks
FS-36	Drywell	855 N. Deerhill Rd, Oak Park
FS-37	Biofiltration (underdrain)	2010 Upper Ranch Rd, Thousand Oaks
FS-41	Drywell	1910 Church St. Simi Valley
FS-43	Bioswale, detention basin, and FloGard Plus Filter	5874 East Los Angeles Avenue, Simi Valley
FS-44	Fossil Filter - FloGard Plus inserts (2)	1050 Country Club Dr, Simi Valley
FS-45	Fossil Filter - FloGard Plus inserts (3)	790 Pacific Ave, Simi Valley
FS-46	Bioretention	3265 Tapo St, Simi Valley
FS-47	Bioswale	2901 Erringer Rd. Simi Valley
FS-50	Drywell	189 S. Las Posas Rd, Camarillo
FS-52	Drywell	5353 Santa Rosa Rd, Camarillo
FS-55	Drywell	403 Valley Vista Dr, Camarillo
FS-56	Biofiltration (underdrain)	11855 Pacific Coast Hwy, Malibu
FS-57	Drywell	3356 Somis Rd, Somis
Moorpark Police Station	Bioswale	610 Spring Rd, Moorpark
VC Juvenile Court	Retention basin	4333 Vineyard Ave
County facility in Ventura	Planter swale	855 Partridge, Ventura
Saticoy Yard	Detention basin	11251 Riverbank Drive, Saticoy
Piru Skate Park	Infiltration Trench	500 North Main Street, Piru, CA
Camarillo Sheriff's VCSA Unit	Biofilter	373 Durley Ave. Suite A, Camarillo, CA
Work Furlough Visiting Park	Swale, catch basin filters	345 Skyway Dr, Camarillo, CA

7.6 LANDSCAPE, PARK, AND RECREATIONAL FACILITIES MANAGEMENT (CONTROL MEASURE PA4)

The Landscape, Park, and Recreational Facilities Management Control Measure ensure that the discharges of pollutants from the Permittees' use, and storage of, fertilizers and pesticides are minimized. The control measure includes the use of BMPs that promote the use of integrated pest management (IPM) and retention and planting of native plant species requiring less water and chemical support to remain healthy.

7.6.1 Implement IPM Program

A model integrated pest management (IPM) program was drafted through the Public Agencies Activities Subcommittee and used as a template by the Permittees to develop their own plans. This standardized protocol was posted on the Program's website November 2009. The due date in the Permit for implementation of IPM plans was October 8, 2010.

The standardized protocol provides a comprehensive policy to comply with the Ventura County Permit for the routine and non-routine application of pesticides, fertilizers, and herbicides (including pre-emergents). The intent is to focus on preventing pesticides, fertilizers, and herbicides from entering the storm drain system and discharging to receiving waters.

This protocol is applicable to 1) the outdoor use of pesticides, herbicides, and fertilizers; 2) the use of pesticides and fertilizers where the materials may come into contact with precipitation; 3) the use of pesticides, herbicides, and fertilizers where these materials may come into contact with runoff (natural or irrigation); and 4) the use of pesticides, herbicides, or fertilizers anywhere where they may be directly or indirectly discharged to a storm drainage system.

The protocol is applicable to both Permittee staff and contracted services that apply pesticides, fertilizers, or herbicides. Such staff commonly include, park, public works, building/grounds maintenance, and pesticide application staff. It is not applicable to the indoor use of pesticides, but is applicable to the consequential outdoor handling, mixing, or disposal of materials related to indoor use. It is also not applicable to separate parks districts that operate within the County but are not covered under the Permit. Additionally, this protocol also does not apply when another NPDES permit and/or abatement orders are in effect at the selected site. Furthermore, this protocol is not intended to replace federal or state requirements or provide complete directions for applying, handling, transporting, mixing, or storing pesticides, fertilizers, or herbicides.

An effective IPM program should include the following elements:

- Pesticides are used only if monitoring indicates they are needed according to established guidelines.
- Treatment is made with the goal of removing only the target organism.
- Pest controls are selected and applied in a manner that minimizes risks to human health, beneficial non-target organisms, and the environment.
- Use of pesticides, including Organophosphates and Pyrethroids do not threaten water quality.
- Partner with other agencies and organizations to encourage the use of IPM.
- Adopt and verifiably implement policies, procedures, and/or ordinances requiring the minimization of pesticide use and encouraging the use of IPM techniques (including beneficial insects) in the Permittees' overall operations and on municipal property.
- Policies, procedures, and ordinances shall include commitments and timelines to reduce the use of pesticides that cause impairment of surface waters by implementing the following procedures:
 - Quantify pesticide use by its staff and hired contractors.

- Prepare and annually update an inventory of pesticides used by all internal departments, divisions, and other operational units.
- Demonstrate reductions in pesticide use.

The prevention of pesticides from harming non-target organisms is the primary goal of the Permittees IPM program. The Permit also asks for the demonstration of a reduction in pesticide use; that is not as simple as comparing one year’s use to another. Many factors should, and do, go into the decision to use pesticides. Year-to-year variables can have a significant impact on the use. For example, an above average wet year will require more weed abatement than a dry year. The need to address an insect infestation before it spreads will require an intensified use of pesticides in that area. Since year-to-year reductions cannot be accurately compared due to the variability of needs, the reduction of pesticides used by the Permittees is considered to be the difference between current usage and the amount of pesticides that would have been used under a non-IPM program.

Performance Standard 7-4

Implement an integrated pest management (IPM) program consistent with Permit			
	Yes	No	Draft
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

Beyond IPM some Permittees have completely stopped the use of pesticides. Ventura County’s General Services Agency Grounds Maintenance Division and the Watershed Protection District have not applied pesticides for over 4 years, using only mechanical means of removing surplus vegetation.

Since 2007, the City of Ventura has had an IPM Program as a method of managing plant pests by combining the proper identification of problems and assessment of potential injury before taking management actions. Management typically involves several approaches (biological, cultural, mechanical, soft chemical) which are used in a complementary, integrated manner. Consideration is given to environmental and social impacts of pest management activities. The basic goals of the IPM program include the following: a reduced pesticide use, reduced insecticide resistance, conservation of beneficial insects, maintain water quality, reduce costs and better overall management of the environment.

7.6.2 Maintain and Expand Internal Inventory on Pesticide Use

Permittees require all staff applying pesticides to be either certified by the California Department of Food and Agriculture, or under the direct on-site supervision of a certified pesticide applicator, as defined in the standardized protocol. Permittees have also restricted the purchase and use of pesticides and herbicides to certified staff. Permittees that contract out for pesticide applications have included contract provisions requiring the contract applicator meet all requirements of this program. Contract language includes compliance with the standardized protocol, the prohibitions and requirements of the protocol, and supervision of pesticide applicators.

Performance Standard 7-5

Establish standard protocols for routine and non-routine application of pesticide consistent with the permit requirements			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

Performance Standard 7-6

Prepare an annual update an inventory of pesticides used by all internal departments and hired contractors			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

7.7 STORM DRAIN OPERATION AND MANAGEMENT (CONTROL MEASURE PA5)

The Storm Drain Operation and Management Control Measure provides for the year-to-year performance and long-term integrity of the Permittees’ storm drain system while reducing the discharge of pollutants. The Permittees must prioritize catch basins for cleaning based on the required level of maintenance, and all catch basins are marked with a storm drain message, whether stenciled or permanently imprinted. This Control Measure also includes a requirement for special events to prevent debris accumulation in catch basins and storm drains.

7.7.1 Implement Storm Drain System Mapping

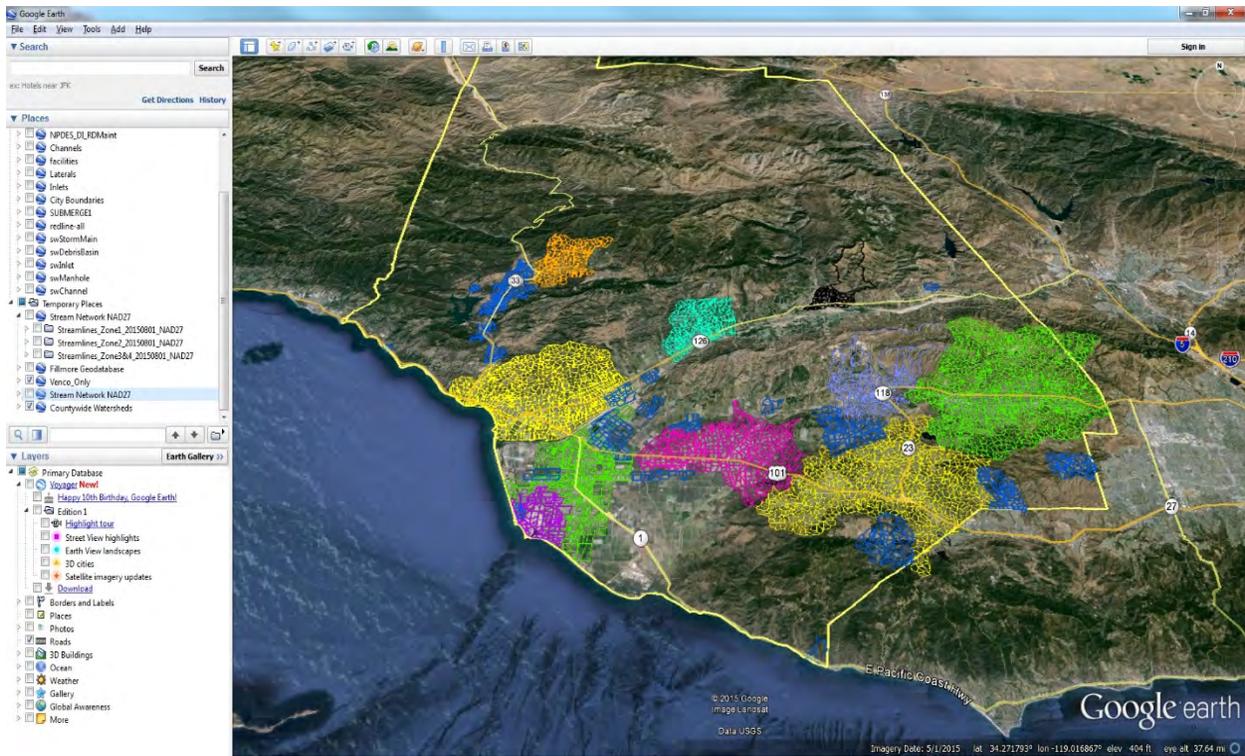
The Permit requires Permittees to create a map at a scale and in a format specified by the Principal Permittee showing the location and length of underground pipes 18 inches and greater in diameter, and channels within their permitted area. A schedule was provided to allow time to develop the needed information. The first due date was October 6, 2010. Since Ventura County’s cities are all separated by open space and the MS4 from one city does not discharge to another, the need to integrate the maps into a countywide storm drain map was not as imperative as the need for a Permittee to be able to know what is upstream from any point in their MS4, and where that water will discharge. Given that the priority for the mapping is internal to the agency operating the system, the Permittees were given the autonomy to decide what form of mapping will work best for their needs. All maps have been incorporated into the Ventura Countywide Unified Storm Drain Mapping Project.

Performance Standard 7-7

Prepare a map or list of catch basins, with GPS coordinates, designations, and rationale for designations			
	Yes	No	In Progress
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		

7.7.2 Unified Storm Drain Atlas

The Program has completed its Ventura Countywide Unified Storm Drain Mapping project. This project involved the creation of five new Storm Drain System Geodatabases and sub watershed boundaries for the five small cities of Fillmore, Moorpark, Ojai, Port Hueneme, and Santa Paula who did not have this mapped in Geodatabase format. The new storm drain geodatabases are consistent with existing Storm Drain System Geodatabases for Permittees Thousand Oaks, Camarillo, Simi Valley, Oxnard, Ventura, and the County. A single Geodatabase now contains all available storm drain information from all of the Permittees. This information is also available in Google Earth KMZ files downloadable from vcstormwater.org. This project also included a Countywide GIS analysis to identify infiltration constrains per 2011 Technical Guidance Manual and mapping of the natural stream network. In addition, a user-friendly computer program was created which allows for easy updating to the unified Geodatabase and KMZ files. This allows the Permittees to share updates to their storm drain system with all of the other Permittees ensuring all have the latest and greatest version of the unified storm drain information.



Screen shot of Countywide Unified Storm Drain Atlas with all storm drain information in a single database.

The storm drain mapping for the small cities ensures future opportunities for the Program to work collaboratively on stormwater/TMDL required treatment and associated costs, future stormwater treatment projects and regional understanding and visualization of challenges to be faced when planning on stormwater/TMDL required treatments on the watershed scale or countywide. The effort is expected to be helpful during upcoming Permit Renewal to help the regulators, Non-Governmental Organizations, and general public understand the local conditions and complexity of planning, designing, and implementation of stormwater and urban runoff treatment to meet Ventura MS4 Permit requirements and Countywide TMDLs.

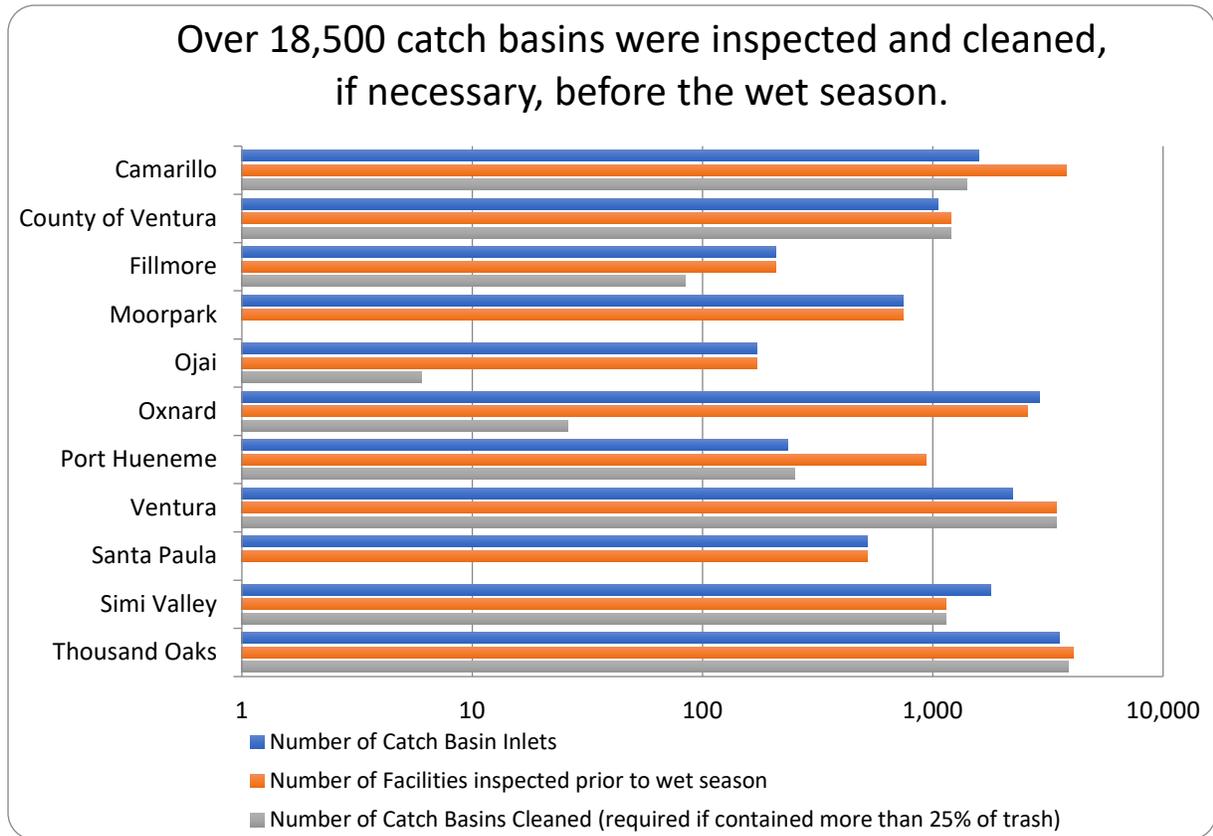
7.7.3 Implement Catch Basin Maintenance Program

The Permittees are implementing catch basin cleaning schedules based upon the prioritization designations as required by the Permit. The requirement of a list or map of catch basins with their GPS coordinates and their prioritization designation was due July 8 2011. Figure 7-4 through Figure 7-7 shows the Permittees' efforts on prioritization, inspection, and maintenance.

Permittees routinely inspect catch basins and other drainage facilities that are a part of their system. These inspections are scheduled and completed in accordance with the requirements of the catch basin prioritization (due July 2011). The prioritization requires:

- Priority A inspected 3 times a wet season and once during the dry season;
- Priority B inspected once during the wet season and once during the dry season;
- Priority C inspected a minimum of once per year

Figure 7-4 Catch Basin Inspections and Cleaning



Inspections include the visual observation of each catch basin and open channel to determine if the device or conveyance has accumulated trash, sediment, or debris requiring removal. All debris removed (including natural debris such as leaves from street trees) is disposed of properly and therefore represents a removal of pollutants that would have been washed downstream to a receiving water. For catch basins, “as-needed cleaning” occurs whenever trash, sediment, or debris accumulation is found to be at least 25% of capacity. Watershed Protection District cleans and maintains their flood control facilities, but does not operate any catch basins that receive runoff directly from streets or roads.



Catch Basin Cleaning Using a Vacuum Truck

Performance Standard 7-8

Inspect the legibility of the catch basin label by all inlets before the beginning of the wet season			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
Ventura County	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard		<input checked="" type="checkbox"/>	
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		

Over 550 tons of debris were removed from catch basins countywide through the storm drain maintenance program.

Figure 7-5 Priority A Catch Basins Inspected and Cleaned

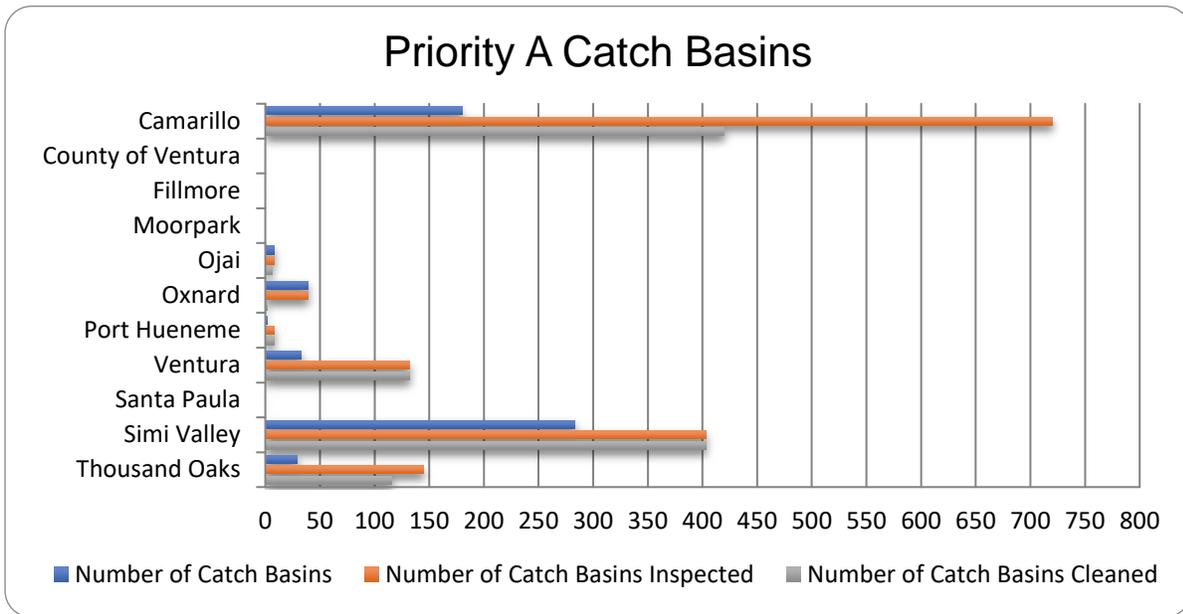


Figure 7-6 Priority B Catch Basins Inspected and Cleaned

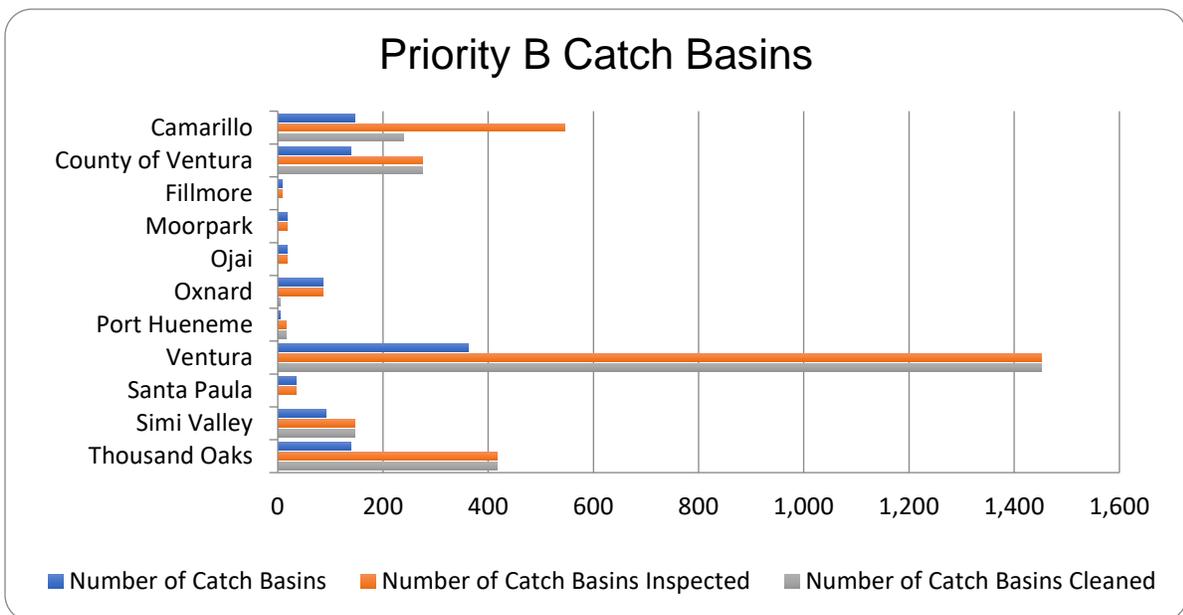
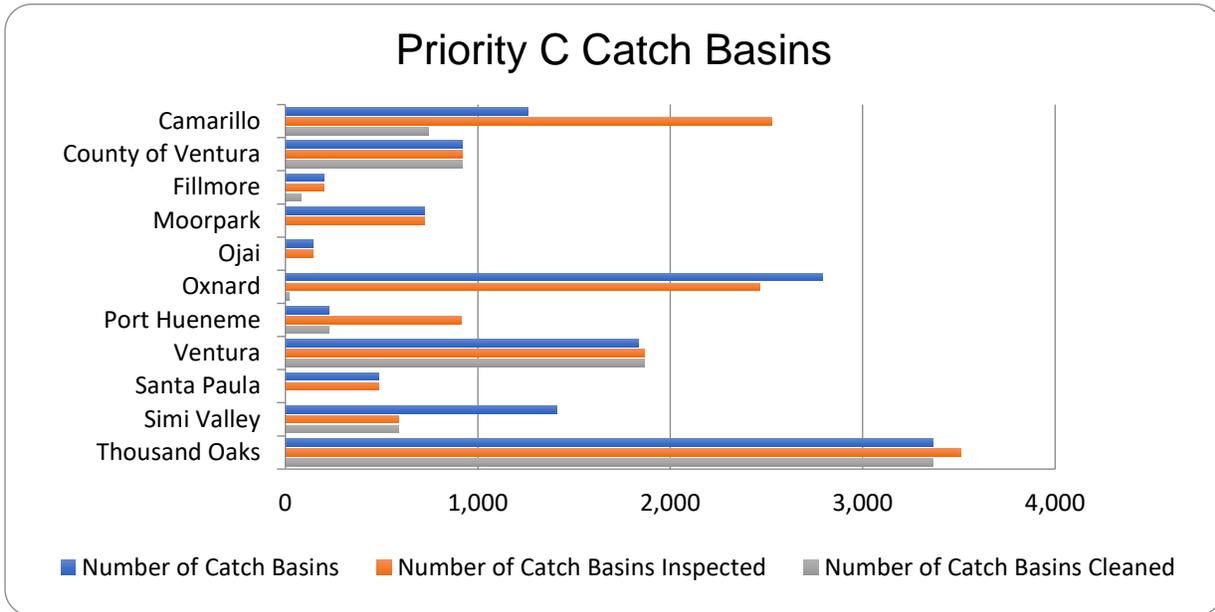


Figure 7-7 Priority C Catch Basins Inspected and Cleaned



7.7.4 Install Trash Receptacles

All Permittees have installed trash receptacles at areas subject to high trash accumulation. They have also identified bus stop areas which are typically located in commercial areas and near schools as areas to install trash receptacles. Commercial areas are typically required to install trash receptacles at store fronts to aid in proper disposal. Trash programs usually involve agency solid waste divisions who bring their expertise in performing trash audits to determine the need for additional trash or recycling receptacles in commercial areas.

Performance Standard 7-9

Trash receptacles, or equivalent trash capturing devices in areas subject to high trash generation within jurisdiction			
	Yes	No	In Progress
Camarillo	<input checked="" type="checkbox"/>		
Ventura County	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		



Trash excluders ready for installation

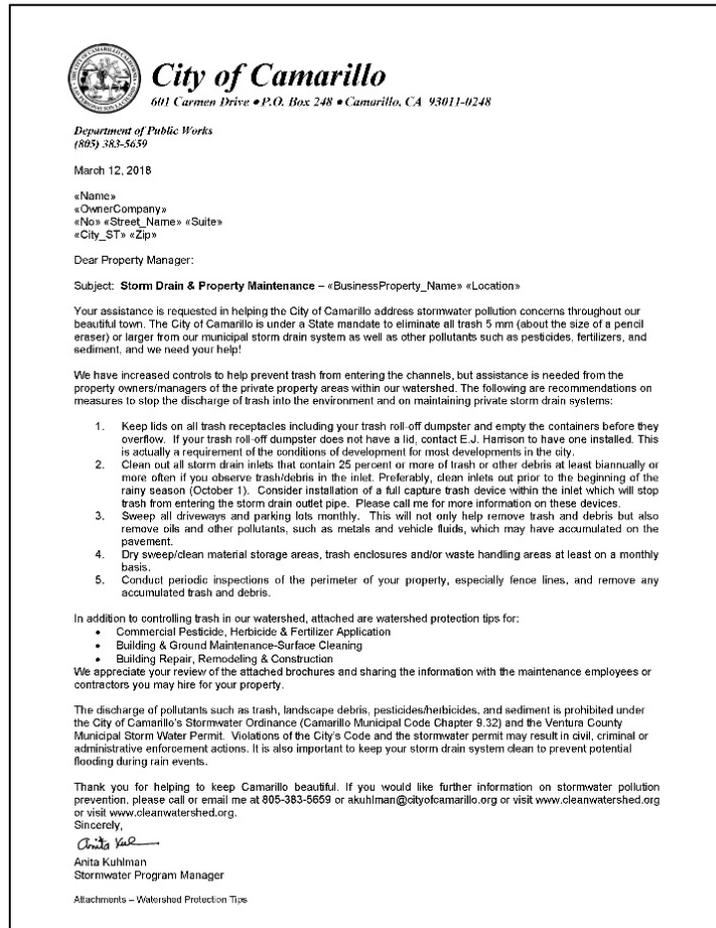
Performance Standard 7-10

Trash receptacles cleaned out and maintained as necessary to prevent trash overflow			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
Ventura County	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

7.7.5 Install Additional Trash Management Devices and Programs

The Permittees have finished the implementation of this performance standard which was due July 8, 2012. Some agencies already had trash capturing devices installed in known problem areas before the permit was adopted. See below for the Permittee's specific actions including Statewide Trash Amendments requirements to control trash and litter:

Camarillo - High trash areas are reviewed annually when city catch basins are inspected. The catch basins located within the Revolon Slough/Beardsley Wash Subwatershed are inspected quarterly, and those found to contain trash are cleaned out. In the other subwatersheds, the Priority A catch basins are inspected quarterly, Priority B catch basins inspected biannually and Priority C catch basins inspected annually. Those catch basins that are found to be 25% or more full of trash two years in a row are then reclassified as a higher priority. Most A priority catch basins are retrofitted with a full capture trash device; currently, the city has installed 206 full capture connector pipe screens and 15 trash excluders (Flogard filters and curb face trash screens). Trash cans have been installed and are maintained weekly at all city bus stops. Residential City streets are swept biweekly and commercial and major arterial streets are swept weekly. In addition to the installation of full capture trash devices and trash excluders, the city also conducts "fence line" trash cleanups at least once a year in high priority areas of the RSBW Subwatershed.



Example of Letter to Private Properties

County of Ventura – Department of Airports O&M staff patrols and identifies trash areas including prior to rain events and during high winds.

Health Care Agency's hospitals managers' report full trash receptacles to the Housekeeping Department. Housekeeping provides additional trash cans and pick up as necessary. HCA Hospitals has department specific recycling program in place.

A total of 105 full trash capture devices are installed to meet requirements of the Trash TMDLs.



Fillmore - Street sweeping and additional trash receptacles were added to high trash generating areas. Per the Trash Policy, the City has elected to pursue Track 1 to install full capture devices in high priority land use areas. The City submitted a map to the Regional Board in February 2019 that identified the proposed full capture device locations, high priority land uses, and the City's storm drain network. Additionally, the City of Fillmore hosts a California Coastal Cleanup Day site at Sespe Creek in which volunteers remove litter and debris from the local waterway. The city has no Priority A areas as defined by the MS4 Permit. The City has provided trash bins as necessary to control trash throughout the City and street sweeping is conducted regularly.

Moorpark – All field staff is instructed to be observant and report any areas that need attention. Cleanup crews are promptly dispatched to clear any accumulation. The City has trash receptacles installed at major transit bus stops (approximately 18) and services them at least weekly. Receptacles that become full sooner are emptied promptly. Priority A areas will be handled in accordance with Statewide Trash Policy.

Ojai – City activities: field inspections, placement of no-dumping signs, clean up after public events, users are required to provide BMPs and cleanup activities as part of City permit process. The City has an extensive litter control program which includes, but not limited to, daily inspection and trash/recycling removal in downtown areas.

Oxnard – The City of Oxnard utilizes the services of Oxnard City Corps to inspect and maintain the high priority catch basins. In September 2010, City Corps started using a small street sweeper/vacuum modified with a hose attachment to remove debris from the catch basins. The City utilizes the services of Oxnard City Corps to inspect and maintain the Priority A catch basins. The City of Oxnard installed 147 full capture trash devices in priority land use areas per the Statewide Trash Amendments.

Port Hueneme - Regular inspections of catch basins beyond permit requirements. Solid waste performs regular trash audits of their day to day services. Identified Priority 'A' areas have full capture devices and/or inlet screens installed.

Santa Paula – City identified the following high trash areas: high pedestrian traffic areas, restaurant concentration areas; special events. City increased the number of trash receptacles in public areas prone to

high amounts of trash. City increased trash pickup to weekly or biweekly in public areas prone to high amounts of trash. City staff empty trash receptacles before and after local events/parades and conduct street sweeping after the events.

Simi Valley - The City of Simi Valley has been installing an average of 30 Connector Pipe Screen (CPS) units annually in designated priority areas, as well as other areas of concern. During FY 2018/19 18 additional trash and recycling containers have been placed in the public right of way in areas of high foot traffic and trash generation. The City is changing its categorization of catch basins from Priority A, B, and C to the Land Use areas designated as high priority through the Trash Policy adopted in April 2015.

Thousand Oaks - The City has pursued an accelerated schedule for installing full-capture catch basin screening at areas with land uses identified as generating high trash loading, and currently has 244 catch basins fitted with connector pipe screens that prohibit trash and organic debris from flowing freely into flood channels and creeks. Those catch basins require more frequent maintenance including inspections and cleaning. Additionally, during the 2018/2019 rainy season, the City experienced a significant increase in catch basin maintenance in and around the Hill and Woolsey Fire burn scars. Approximately 26 storm drains along residential and arterial streets experienced repeated mud and debris flows that required cleaning of the catch basin and downstream pipes. Debris generally included mud, rocks, and organic debris. Additionally, the City has installed full-capture at all feasible catch basin locations where there are priority land uses in Malibu Creek Watershed in compliance with a Trash TMDL. Priority A areas, being commercial land use, have an increased street sweeping frequency at 2 times per month.

Ventura - Areas with high volumes of trash had excluders installed in nearby catch basins and additional trash cans were also deployed. Trash excluders installed in catch basins draining to Ventura River per TMDL requirements. The City also increased frequency of trash can servicing with Priority A areas. Street sweeping in commercial and high trash generating areas is performed at least 2 times per month. The Downtown core is swept between 3-5 times per week. In addition, the City owned parking structures located at the Downtown and beach areas, are swept 2 times per week and trash receptacles are emptied. Citizen concerns are investigated and may result in extra sweeps. Paving projects require pre-construction meetings to discuss the implementation and maintenance of BMP's during the paving process. Residential neighborhoods impacted by the Thomas Fire and have redevelopment occurring have additional street sweeping schedule on an as needed basis.

VCWPD - To capture and remove trash from VCWPD facilities, the following BMPs were installed:

- One trash rack at Mirror Lake drain in Oak View, CA
- One travelling screen system at the Port Hueneme Pump Station, and
- Three trash booms upstream of the Oxnard West/Victoria Ave;

VCWPD staff also assisted with a retrofit of both Las Posas and Ramona detention basins to meet RS/BW Trash TMDL requirements.

7.7.6 Trash Management at Public Events

Events in the public right of way whenever it is foreseeable that substantial quantities of trash and litter may be generated, require the following measures:

- Proper management of trash and litter generated
- Arrangement for temporary screens to be placed on catch basins
- Arrangement that trash is removed after the event

The Permittees appreciate having the ability to select the option that will work best in their jurisdiction and have employed several methods to ensure trash does not get into a storm drain after a public event. Most cities use the power of the Special Use Permit or Temporary Use Permit. With this they can, and do, require a trash and recycling management plan and/or a substantial deposit before issuing an event permit. Funds can be withheld if trash has not been properly managed and costs recovered if the Permittee has to provide clean up services. Fines may even be levied to discourage any attempt to avoid the responsibility to prevent trash and litter. A few agencies take on this responsibility and have street sweepers employed to clean streets of any trash immediately after a large event, or services the affected drains with a vacuum truck after the event has concluded.

Camarillo – A special use permit is issued for all events held on city property and conditions are applied that address proper disposal and containment of trash. A city inspector inspects the event usually within 24 hours of completion of the event to ensure all trash had been removed.

County of Ventura – County Transportation Department's Encroachment Permits issued for activities within the County Road right-of-way require that trash be removed. Trash receptacles with specialized lids along with recycle bins are installed. Removal of trash occurs daily or during special events extra receptacles are provided and cleaned up immediately after.

Department of Airports O&M staff provided extra trash receptacles and dumpsters, monitored trash levels, increased frequency of trash pick-ups during events.

Additional trash receptacles are provided. Housekeeping staff is available on site to clean daily and empty trash receptacles.

All GSA Parks' public park facilities are equipped with trash receptacles and covered 3-yard bins for public use. Trash containers are checked and emptied as needed on a daily basis or more often as required in accordance with use patterns.

Harbor Department's Permittees provided additional containers and inspected clean-ups as required. Special lidded cans are provided; cans are raised from the ground, emptied at least daily or twice a day for busy times; during public events, additional containers are provided and clean-up immediately after the event.

Fire Prevention Department provides trash containers and clean-ups.

Fillmore - The City has required additional trash cans and catch basin inlet protection during special events. The city has regular Public Works crew and Harrison trash truck to empty receptacles and to clean areas of high trash. Temporary Use Permits are administered for public events. As part of the permit, additional trash receptacles and catch basin inlet protection are required during special events to prevent litter and trash from entering the storm drain system.

Moorpark – Placement and frequent servicing of temporary litter containers are a condition of approval for all public events. Waddles/sandbags must be placed at all catch basins in the event area.

Ojai - Users are required to provide BMPs and cleanup activities as part of City permit process.

Oxnard – Technical Services Program-Source Control staff worked in conjunction with the Planning Division to revise the Temporary Use Permit (TUP) Application. A "Drainage and Trash Management" requirement has been added as a condition for obtaining a TUP. Any applicant seeking a TUP for a public event where substantial quantities of trash may be generated must meet the above referenced conditions.

Port Hueneme – Solid Waste division works in conjunction with events staff to provide adequate receptacles and service during the events. Language is also included in Special Use Permits regarding trash collection.

Santa Paula – City increased the number of trash receptacles in public areas prone to high amount of trash. City increased trash pickup to weekly or biweekly in public areas prone to high amounts of trash.

Simi Valley – The City has created a Special Event permit that requires the group holding a special event (Simi Valley Days parade, 5-K runs, etc.) to provide sufficient trash containers and storm drain catch basin protection.

Thousand Oaks – City event planning includes Sustainability Division Staff to provide input about placement of trash and recycling receptacles.

Ventura – Temporary trash and recycling cans are distributed during public events. Events requiring City permits require permittee to remove all trash generated at said event. The city works with event organizers to reduce and recycle generated waste at events.

7.7.7 Implement Storm Drain Maintenance Program

Permittees also routinely inspect and clean their drainage facilities during the year on an as-needed basis. “Routine cleaning” for these facilities, means the removal of accumulations of trash, sediment, and debris likely be washed downstream with the next runoff event or cause a loss of hydraulic capacity and result in potential flooding.

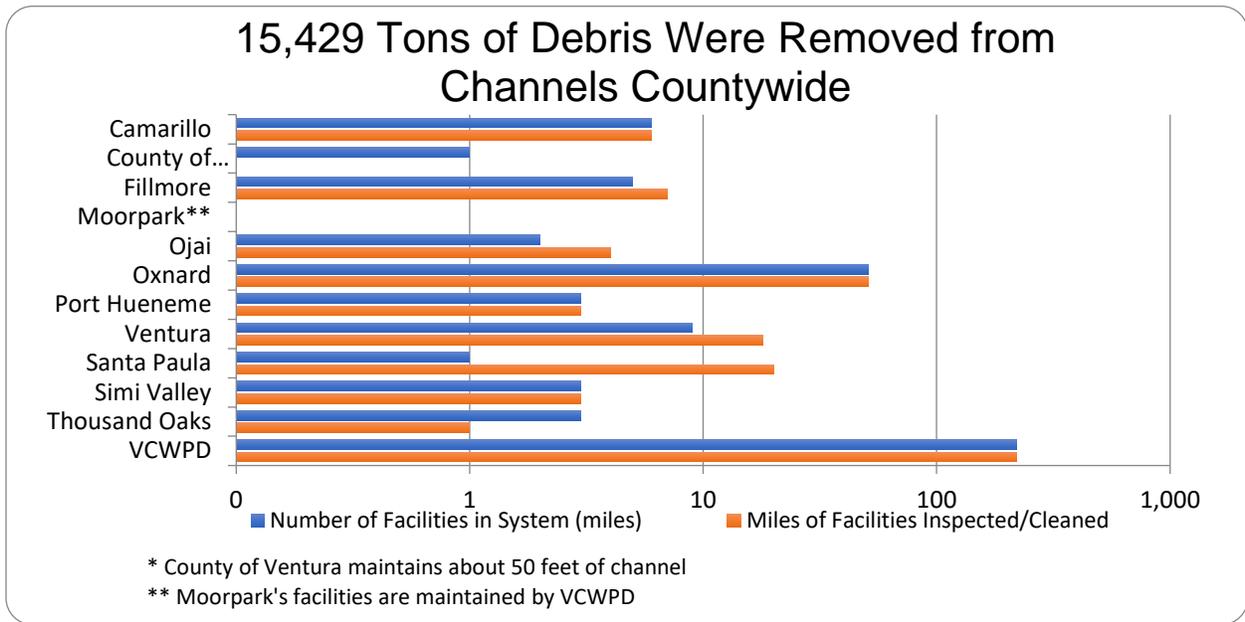
The Public Information and Participation section requires Permittees to have completed labeling or marking the curb inlets in their entire storm drain system, but the inspection and relabeling is required under Public Agencies. During the reporting period, some Permittees maintained their inlet signs by reapplying stencils/markers as they wear out and applying stencils/markers to new inlets as they were installed.

Signs at curb inlets have varying useful lives due to the materials from which they are constructed (e.g., paint or thermoplastic), their position (e.g., on top of curb or on curb face), and wear factors (e.g., traffic, street sweeping, sunlight). As a result, the Permittees have different programs to maintain curb inlet signage within their respective jurisdictions. Some Permittees replace a portion of their signs each year whereas others re-sign all inlets every few years. In the cases where a Permittee has a separate program for catch basin label maintenance from their catch basin debris maintenance program the catch basin debris maintenance inspection does not inspect for the label. Catch basin label data is reported in public outreach program.

Performance Standard 7-11

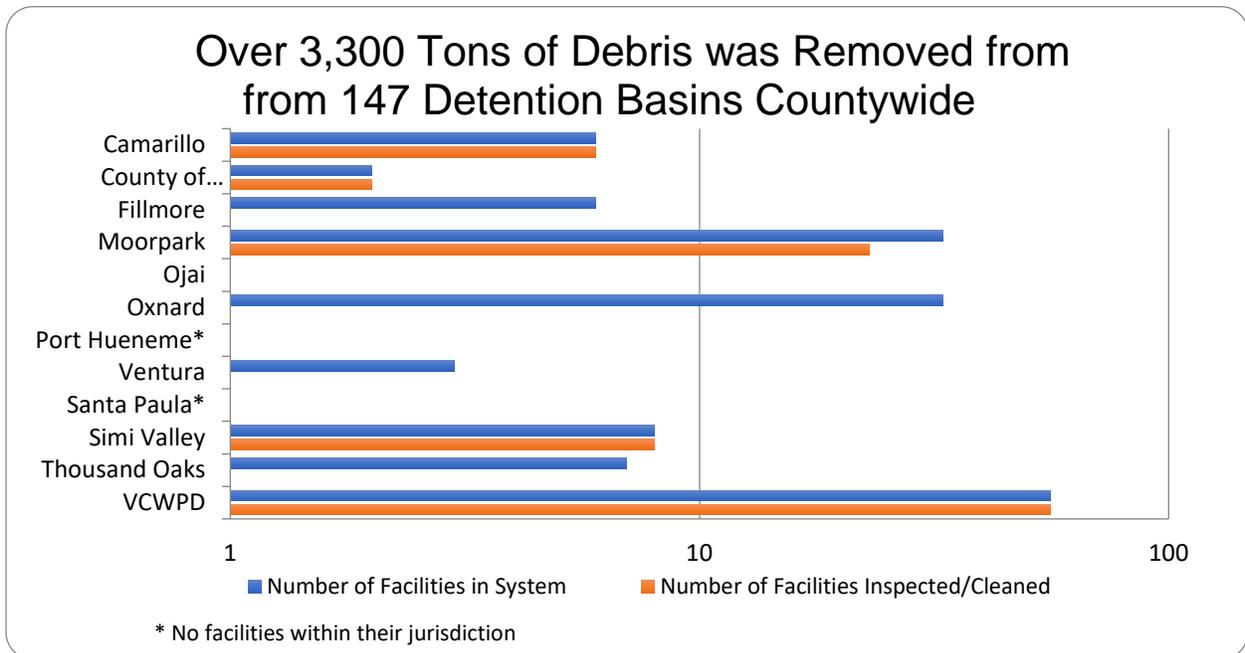
Catch basins with illegible stencils recorded and restenciled or relabeled within 15 days of inspection			
	Yes	No	In Progress
Camarillo	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
County of Ventura	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fillmore	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Moorpark	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ojai	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oxnard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Port Hueneme	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ventura	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Santa Paula	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Simi Valley	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thousand Oaks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure 7-8 Tons Removed from Channels and Ditches



When performing cleaning activities, Permittees implement appropriate BMPs to prevent sediments and debris from being washed downstream. By removing this amount of material from the catch basin inlets, open channels, and detention basins the Permittees prevent the passage of these materials to downstream receiving waters. During the reporting period, the Permittees tallied the collection of over 18,700 of solid debris from drainage facility maintenance activities.

Figure 7-9 Tons Removed from Detention Basins



7.7.8 Implement Spill Response Plan

Within their respective jurisdictions the Permittees implement a response plan for spills generated from their operations that have the potential to enter the MS4 system. Response plans include:

- Investigation of all complaints received within 24 hours of the incident report;
- Containment response within 2 hours to spills upon notification, except where such overflows occur on private property, in which case the response should be within 2 hours of gaining legal access to the property; and
- Notification to appropriate public health agencies and the Office of Emergency Services (OES).

Unfortunately, even with good training and well-maintained equipment there are occasions where a spill will happen and needs to be cleaned up. Cleanup can be as simple as dispatching a crew to pick up fallen debris, or a street sweeper or vacuum truck to clean an area or catch basin and storm drain after a known spill. It could also become a major multi-agency operation if hazardous materials are involved.

7.7.9 Inspect and Maintain Permittee-Owned Treatment Control BMPs

Permittees that own or are authorized to maintain treatment control BMPs have programs to implement an inspection and maintenance program for those treatment control BMPs, including post-construction treatment control BMPs. Private BMPs required for private developments are managed in different ways. Some Permittees do not want to be responsible for the cleaning and maintenance of these BMPs and limit their role to inspection and enforcement to ensure effectiveness. Others will take on that responsibility on a case by case basis. And there are occasions where a Permittee has installed their own treatment BMPs to improve water quality.

When Permittees are performing maintenance of structural BMPs they implement their own BMPs to ensure that residual water produced by a treatment control BMP (not internal to the BMP performance) is:

- Hauled away and legally disposed of;
- Applied to the land without runoff;
- Discharged to the sanitary sewer system (with permits or authorization); or
- Treated or filtered to remove bacteria, sediments, nutrients, and meet all limitations.

7.8 STREET AND ROADS MAINTENANCE (CONTROL MEASURE PA6)

The Street and Roads Maintenance Control Measure ensures that the streets and roads are both cleaned to reduce pollutants and maintained in ways that prevent the release of pollutants.

7.8.1 Implement Street Sweeping Program

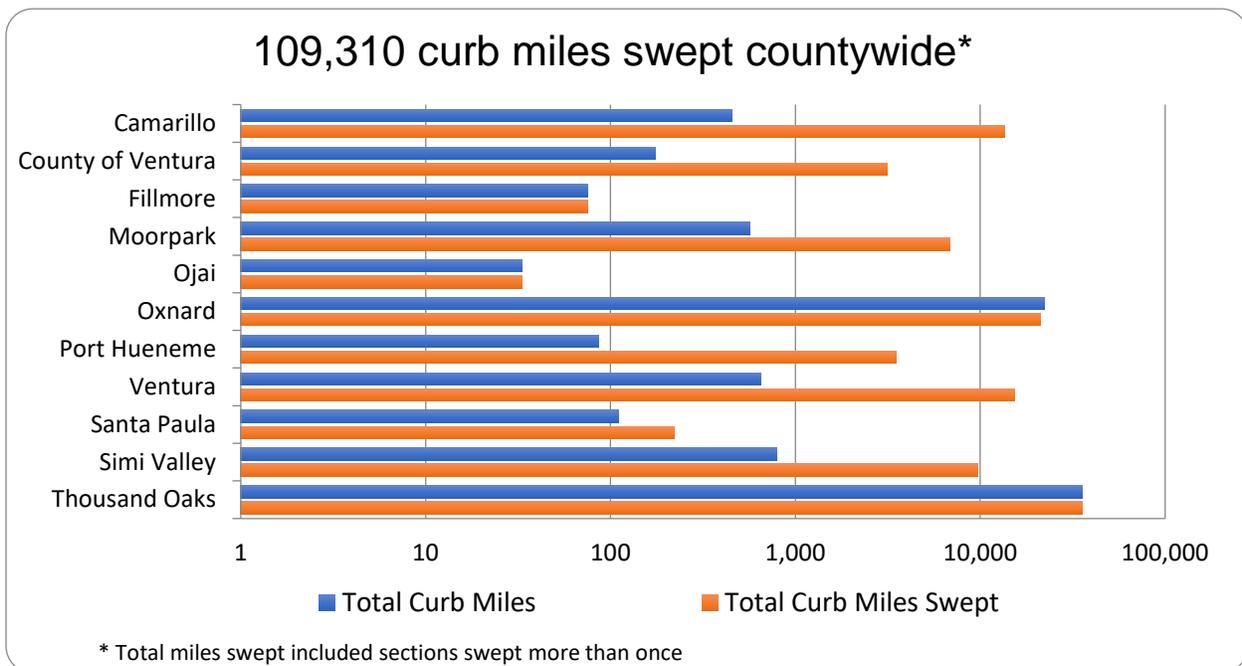
Permittees have identified curbed streets within their jurisdiction and have implemented a sweeping program for these streets. In many cases the frequency of street sweeping is beyond the Permit requirement of at least twice a month for commercial areas and areas subject to high trash generation.

To increase the efficiency of the street sweeping, Permittees have made an effort to encourage voluntary relocation of street-parked vehicles on scheduled sweeping days. This has been achieved by placing temporary “no stopping” and “no parking” signs, posting permanent street sweeping signs, and/or distributing street sweeping schedules to residents and businesses. Many of the Permittees have coordinated street sweeping to follow the routine trash collection days in order to remove any litter left in the streets by the trash removal service. Additionally, Permittees also sweep public parking lots to remove litter and debris, this is not always included in the total mileage swept.

Performance Standard 7-12

Perform street sweeping of curbed streets in commercial areas and areas subject to high trash generation at least two times a month			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
Ventura County	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection			<input checked="" type="checkbox"/>

Figure 7-10 Curb Miles Swept



7.8.2 BMP Implementation for Road Reconstruction Projects

For any road reconstruction project that includes roadbed or street paving, repaving, patching, digouts, or resurfacing road surfaces, the Permittees require that appropriate BMPs are implemented. The vast majority of this work falls under the definition of routine maintenance as the road will maintain the line and grade and original purpose of the facility. The implementation of these BMPs ensures the project will not impact stormwater without the need for a formal SWPPP or other documentation.

Performance Standard 7-13

Require that appropriate BMPs be implemented for any project that includes roadbed or street paving, repaving, patching, digouts, or resurfacing road surfaces			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
Ventura County	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection			<input checked="" type="checkbox"/>

7.9 EMERGENCY PROCEDURES (CONTROL MEASURE PA7)

The Emergency Procedures Control Measure ensures that each Permittee can conduct repairs of essential public service systems and infrastructure in emergency situations with a self-waiver. A self-waiver is required when there is a discharge to the storm drain system and the repairs needed to halt that discharge cannot be made within one day.

7.9.1 Invoke Emergency Procedures Self-Waiver

During the reporting period no emergencies required a Permittee to invoke Emergency Procedures Self-Waiver.

Table 7-4 Summary of Emergency Procedures

Summary of Emergency Procedures		
Permittee	Date Emergency Procedures Invoked	Description
N/A	N/A	No emergencies required self-waivers

7.10 TRAINING (CONTROL MEASURE PA8)

Training is important for the implementation of the Public Agency Activities Program Element. An effective training program is one of the best pollution prevention BMPs that can be implemented because it prompts behavioral changes that are fundamentally necessary to protect water quality.

Each Permittee targets staff based on the type of stormwater quality and pollution issues they typically encounter during the performance of their regular maintenance activities. Targeted staff included those who perform activities in the following areas: stormwater maintenance, drainage and flood control systems, streets and roads, parks and public landscaping, and corporation yards.

Performance Standard 7-14

Provide training for key staff whose interactions, jobs, and activities affect stormwater quality			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
Ventura County	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark			<input checked="" type="checkbox"/>
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

Performance Standard 7-15

Provide training, or ensure that contractors were trained, whose interactions, and activities affect stormwater quality			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
Ventura County	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai		<input checked="" type="checkbox"/>	
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

Training methods vary among Permittees and range from informal meetings to formal classroom training to self-guided training materials. The Permittees also train staff on the prevention, detection, and

investigation of illicit discharges and illegal connections (IC/ID). (See Section 8 for more information regarding IC/ID training).

The Permittees provide training for contractors whose interactions, jobs, and activities affect stormwater quality, or in some cases where contractors are hired for their expertise, Permittees ensure that contractors hired had the required training, Not all employees receive the same training as certain positions require special focus, such as key staff that use or have the potential to use pesticides or fertilizers.

Within the City of Thousand Oaks, all DPW-Operations staff and authorized agents that handle pesticides must be trained on an annual basis. The training program must be in writing and cover specific topics that are listed in Title 3, California Code of Regulations, Section 6724. The program must include Series-N Pesticide Safety Information and describe the materials (study guides, Safety Data Sheets, slides, videos, product labels) and information that was used to train the employees. Training records including attendance forms and the written training program must be maintained for two years.

Performance Standard 7-16

Provide training for contractors who use or have the potential to use pesticides or fertilizers, or ensure that contractors were trained.			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
Ventura County	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai		<input checked="" type="checkbox"/>	
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

Figure 7-11 Public Agency Training

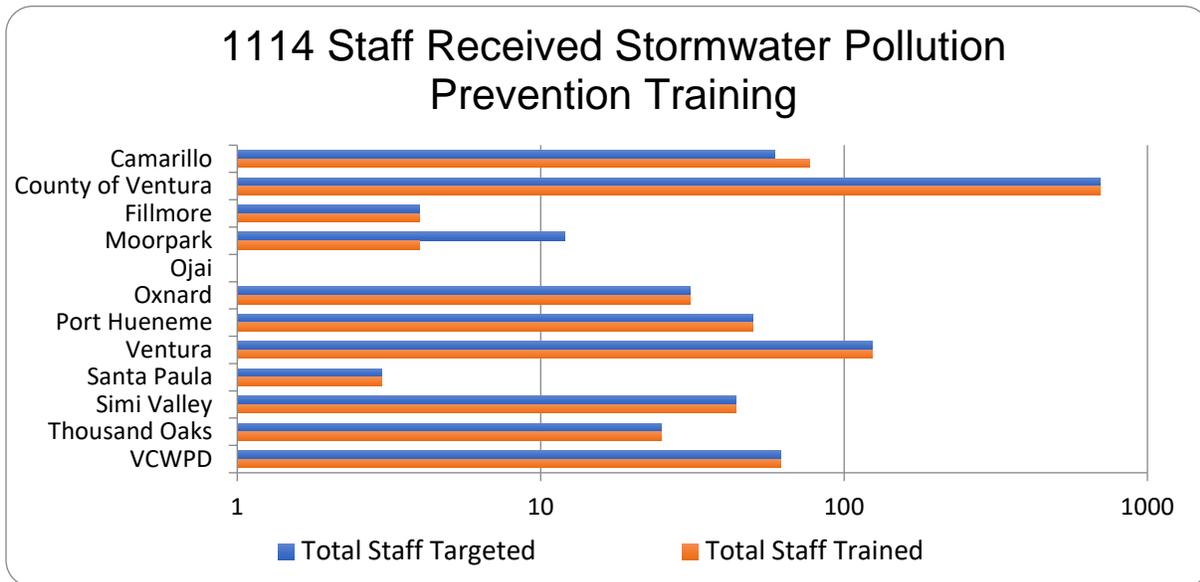


Table 7-5 Areas of Focus for the Public Agency Activities Program Element Training

Target Audience	Subject Material
<ul style="list-style-type: none"> Employees whose interaction, jobs and activities affect stormwater quality. 	<ul style="list-style-type: none"> Understanding of the potential for activities to pollute stormwater. Implementation of BMPs.
<ul style="list-style-type: none"> Employees and contractors who use or have the potential to use pesticides and/or fertilizers 	<ul style="list-style-type: none"> Potential for pesticide-related surface water toxicity Proper use, handling, and disposal of pesticides Least toxic methods of pest prevention and control, including IPM Reduction of pesticide use
<ul style="list-style-type: none"> Employees and contractors responsible for the IC/ID program 	<ul style="list-style-type: none"> Cover the full IC/ID program from identification to enforcement.

7.11 EFFECTIVENESS ASSESSMENT (CONTROL MEASURE PA9)

Effectiveness assessment is a fundamental component for developing and implementing successful stormwater programs. In order to determine the effectiveness of the Public Agency Activities Program, a comprehensive assessment of the program data is conducted as a part of the Annual Report. The results of this assessment are used to identify modifications that need to be made to the program. Each year the effectiveness assessment is reviewed and revised as needed.

By conducting these assessments and modifying the program as needed, the Permittees ensure that the iterative process is used as an effective management tool. Due to the types of data collected for the Public Agency Activities Program, current and future assessments will primarily focus on Outcome Levels 1-3.

- Outcome Level 1 (L1) answers the question: Did the Permittees implement the components of the Permit?
- Outcome Level 2 (L2) answers the question: Can the Permittees demonstrate that the control measure/performance standard significantly increased the awareness of a target audience?
- Outcome Level 4 (L4) answers the question: Can the Permittees demonstrate that the control measure/performance standard reduced the pollutant load?

The following is an assessment regarding the effectiveness of the Public Agency Program.

7.11.1 Public Construction Activities Management

Require Public Projects to Comply with Planning and Land Development and Construction Program Requirements

Where applicable, all Permittees require publicly owned or operated construction projects to comply with the Planning and Land Development and Construction Program requirements, or adopted standard practices for very small projects. (L1)

Require Development of SWPCP for Projects that Disturb less than 1 Acre

Grading or building permits are not an effective mechanism for identifying or defining small public construction projects since they are not granted for public construction projects. Instead, all Permittees have effectively required small public projects to follow a SWPCP that identifies BMPs. (L1)

7.11.2 Vehicle Maintenance/ Material Storage Facilities/ Corporation Yard Management/ Municipal Operations

Implement Required BMPs for Each Facility

As indicated in table 7-2 Permittees have developed and implemented SWPCPs at all corporate yards. Inspections are performed annually, and deficiencies are quickly corrected by facility staff. (L1)

7.11.3 Vehicle and Equipment Wash Areas

Eliminate Wash Water Discharges

The Permittees have successfully eliminated wash water discharges from their operations through a variety of options including offsite disposal, disposal to sanitary sewer, and treatment through clarifier. (L1) Discharges will continue to be prohibited as facilities are constructed, redeveloped, or replaced.

7.11.4 Landscape, Park and Recreational Facilities Management

Implement IPM Program

All of the Permittees have implemented an IPM program that is consistent with the Permit. Further tracking of pesticides and assessment are being conducted. (L1) (L2)

Maintain and Expand Internal Inventory on Pesticide Use

Permittees have effectively restricted the purchase and use of pesticides and herbicides to staff certified by the California Department of Food and Agriculture. Permittees that contract out for pesticide applications include standard protocols and requirements as a condition of the contract. (L1)

7.11.5 Storm Drain Operation and Management

Implement Storm Drain System Mapping

New storm drain geodatabases have been developed that are consistent countywide. A single Geodatabase now contains all available storm drain information from all the Permittees. This information is also available in Google Earth KMZ files. This project also included a Countywide GIS analysis to Identify infiltration constrains per 2011 Technical Guidance Manual and mapping of the natural stream network. (L2)

Implement Catch Basin Maintenance Program

Each Permittee has identified criteria and a methodology for catch basin mapping and prioritization. 7,551 catch basins were cleaned during the Annual Reporting period. (L1) The Permittees have completed the process of designating and reporting debris removal by prioritization. During 2018/19, Permittees collectively removed over 550 tons of debris from catch basins. (L4)

Install Trash Receptacles

The majority of Permittees have installed trash receptacles in high trash generation areas. Trash receptacles are cleaned out as necessary. (L1)

Install Additional Trash Management Devices

Permittees have begun the implementation of this performance standard. Their actions range from installing no littering signs (L2), ensuring sufficient trash collection containers in public spaces (L4), and prioritizing catch basins and installing trash capturing devices, trash booms, and using landscape contractors to remove trash from public areas. (L4)

Trash Management at Public Events

All Permittees have required trash management for any event in the public right-of-way. (L1) (L4)

Implement Storm Drain Maintenance Program

Each Permittee has a program to maintain curb inlet labeling. (L1) Additionally, all Permittees regularly maintain channels, ditches and detention basins. (L1) Implementation of this performance standard removed more than 15,400 tons of debris from channels and ditches and 3,370 tons of debris from detention basins countywide. (L4)

Implement Spill Response Plan

All Permittees maintain a spill response plan. (L1)

Inspect and Maintain Permittee-Owned Treatment Control BMPs

Permittees that own or are authorized to maintain treatment control BMPs have programs to implement an inspection and maintenance program for all Permittee-owned treatment control BMPs, including post-construction treatment control BMPs. (L1)

7.11.6 Street and Roads Maintenance

Implement Street Sweeping Program

Permittees have implemented a street sweeping program that at a minimum, targets commercial areas and high trash generation areas twice a month. More than 109,310 curb miles were swept countywide. (L1) (L4)

BMP Implementation Road Reconstruction Projects

All Permittees required BMPs for any road reconstruction project that includes roadbed or street paving, repaving, patching, digouts, or resurfacing. (L1)

7.11.7 Emergency Procedures

Invoke Emergency Procedures

No Permittees had an emergency that required Permittees to invoke Emergency Procedures. (L1)

7.11.8 Training

Conduct Training

Permittees provided training for over 100% of targeted staff. 1,124 staff members were trained on the implementation of BMPs, reduction of pesticide use, and reduction of illicit connections/illicit discharges. (L1)

7.12 PUBLIC AGENCY ACTIVITIES PROGRAM MODIFICATIONS

On an annual basis, the Permittees plan to evaluate the results of the Annual Report, as well as the experience that staff has had in implementing the program, to determine if any additional program modifications are necessary to comply with the Clean Water Act requirement to reduce the discharge of pollutants to the MEP. Any key modifications made to the Public Agency Program Element during the next fiscal year will be reported in the following Annual Report.

8 Illicit Connections and Illicit Discharges Elimination

8.1 OVERVIEW

Illicit connections and illicit discharges (IC/ID) can be concentrated sources of pollutants to municipal storm drain systems. To reduce this source of pollutants the Permittees have developed and implemented programs for the identification and elimination of IC/ID to the MS4. Key components of these programs are public reporting, field screening, incidence response, and enforcement actions.

The term “illicit discharges” used in this program is any discharge to the storm drain system that is prohibited under local, state, or federal ordinances. The term includes all discharges not composed entirely of stormwater except discharges allowed under an NPDES permit. Examples of illicit discharges include:

- Incidental spills, or disposal of wastes, and non-stormwater. These may be intentional, unintentional, or accidental and would typically enter the storm drain system directly through drain inlets, and catch basins;
- Discharges of sanitary sewage due to overflows or leaks;
- Discharges of prohibited non-stormwater other than through an illicit connection. These typically occur as surface runoff from outside the public right-of-way (e.g., area washdown from an industrial site).

Categories of non-stormwater discharges not prohibited (exempted or conditionally exempted) under the Permit are listed below.

- Stream diversions permitted by the State Board
- Natural springs and rising groundwater
- Uncontaminated groundwater infiltration [as defined by 40 CFR 35.2005(20)]
- Flows from riparian habitats of wetlands
- Discharges from potable water sources
- Drains for foundation, footing and crawl drains
- Air conditioning condensate
- Water from crawl space pumps
- Reclaimed and potable landscape irrigation runoff
- Dechlorinated/debrominated swimming pool discharges
- Non-commercial car washing by residents or non-profit organizations
- Sidewalk rinsing
- Pooled stormwater from treatment BMPs

Accidents are inevitable and just as police cannot eliminate all crime in a community, there will always be an element of society that will contribute to the stormwater pollution problem. It will be impossible to eliminate all illicit discharges without massive capital improvements. However, through the efforts of public education, business inspection, construction inspection, and illicit discharge response the preventable acts of willfully using the storm drain system to dispose of waste will continue to be reduced and cleaned up when possible.

Illicit connections, even if done in error, cannot be considered accidents. An illicit connection to the storm drain system is an undocumented and/or un-permitted physical connection from a facility or fixture to the

storm drain system. Finding and eliminating illicit connections requires ongoing investigation and screening efforts.

8.2 CONTROL MEASURES

The Permittees have developed several Control Measures and accompanying performance standards to ensure that the Illicit Discharges/Connections Program requirements found in the Permit are met.

The Illicit Discharges/Connections Program Control Measures are organized the same as in the Permit and consist of the following:

Table 8-1 Control Measures for the Illicit Discharges/Connections Program Element

ID	Control Measure
ID1	Detection and Reporting of Illicit Discharges and Illicit Connections
ID2	Illicit Discharge and Illicit Connection Response and Elimination
ID3	Training
ID4	Effectiveness Assessment

At the end of this chapter these control measures are evaluated to determine the effectiveness of this program element.

8.3 DETECTION OF ILLICIT CONNECTIONS AND ILLICIT DISCHARGES (CONTROL MEASURE – ID1)

Detection of IC/ID through public awareness, the availability of a public hotline, and conducting illicit connection screening ensures that the IC/ID Program is proactive in identifying and eliminating problematic discharges. This control measure reflects the Permittee’s efforts to detect and eliminate IC/ID.

The Permittees have a number of programs supporting the detection of IC/ID. These programs include:

- Public education materials (see Section 3: Public Outreach)
- Industrial and commercial facility site visits (see Section 4: Industrial/Commercial Facilities Program)
- Drainage facility inspection (see Section 5: Public Agency Activities)
- Construction inspections and BMP implementation (see Section 6: Development Construction)
- Water quality monitoring (see Section 9: Monitoring and Reporting Program)

The performance standards for this IC/ID control measure and the activities that have been initiated, completed, and/or maintained during this reporting period are summarized below.

8.3.1 Public Reporting

The Public Outreach Program control measure both helps prevent illicit discharges from occurring and educates the public when discharges should be reported. Very early in the Stormwater Program the public became aware of what was not allowed down storm drains, and reports of IC/ID increased rapidly; this trend reversed as behavior changed, and for last several years reports of IC/ID have hit a plateau where further reductions have been difficult to achieve. Since the public is more aware of IC/ID and how to report

them the decrease likely represents a change in behavior resulting in fewer illicit discharges overall and fewer pollutants reaching the storm drains.

The public are the eyes of the IC/ID program, and so most illicit discharges are identified through public reporting of the situation. The goal of this component, in tandem with the Public Outreach component, is to educate the public and facilitate public reporting of illicit discharges and illicit connections. The baseline objectives are:

- Implement a program to receive calls from the public regarding potential illicit discharges and illicit connections, communicate and coordinate a timely response, perform all necessary follow up to the complaint, and maintain documentation;
- Provide educational material on non-stormwater discharges, and why they are harmful to streams and oceans, and how to report them;
- Target the land development/construction community with educational material and provide workshops on stormwater quality regulations and illicit discharge prevention response; and
- Target the industrial/commercial community with educational material and provide workshops on stormwater quality regulations and illicit discharge prevention and response.

Table 8-2 Permittee Hotlines

Permittee	Hotline
Camarillo	(805) 388-5338
County of Ventura Unincorporated Area	(805) 650-4064
Fillmore	(805) 524-3701
Moorpark	(805) 517-6200
Ojai	(805) 646-5581
Oxnard	(805) 488-3517
Port Hueneme	(805) 986-6530
Santa Paula	(805) 312-1423
Simi Valley	(805) 583-6400
Thousand Oaks	(805) 449-2499
Ventura	(805) 667-6510
VC EHD Sewage/wastewater discharges	(805) 654-2813
VC EHD Hazardous waste and material discharges	(805) 654-2813
VC PWA Transportation	(805) 672-2131
VC WPD O&M	(805) 650-4064
VC WPD Permit Section	(805) 662-6882

8.3.2 Publication of IC/ID Program Procedures

As part of the IC/ID outreach effort, the Permittees have documented their IC/ID Program through past Annual Reports which are available for public review at the Program’s web site (www.vcstormwater.org). More directly, however, the program promotes the reporting of illicit discharges through the Public Information and Public Participation Program.

8.3.3 Public Reporting

Public reporting is one of the most effective ways that the public can be a part of the solution. Each Permittee has identified staff serving as the contact person(s) for public reporting of IC/ID. As required by the Permit Permittees maintain a phone hotline to receive reports of IC/ID. Due to the need for timely response to illicit discharges by inspectors the web sites direct people to report by telephone to a “live person” instead of through email which, while quickly delivered, may not be read within the short time frame that a discharge is occurring.

The Program maintains a website that contains the phone numbers for all the Permittees. A list of hotlines is presented in Table 8-2. This information is updated as necessary and, as required in the Permit, published in the

government pages of the local phone book and other appropriate locations. However, the availability of information on the internet is making the use of the phonebook more obsolete every year.

Timely responses to reports of illicit discharges are necessary to have the opportunity to determine the source, identify and educate the responsible party, and require the responsible party to initiate any cleanup to reduce pollutants from the discharge to the MEP. The baseline objectives include:

- Initiate response within 24 hours of receiving a report of discharge from the public, other agencies, or observed by a Permittee field staff during the course of their normal daily activities;
- Investigate to determine the nature and source of discharge and eliminate through voluntary termination (when possible) or enforcement action; and
- Educate identified responsible parties and initiate clean up and enforcement actions as necessary.

Performance Standard 8-1

Document the procedures of the ID/IC Program and make them available for public review			
	Yes	No	In Progress
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme			<input checked="" type="checkbox"/>
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

Performance Standard 8-2

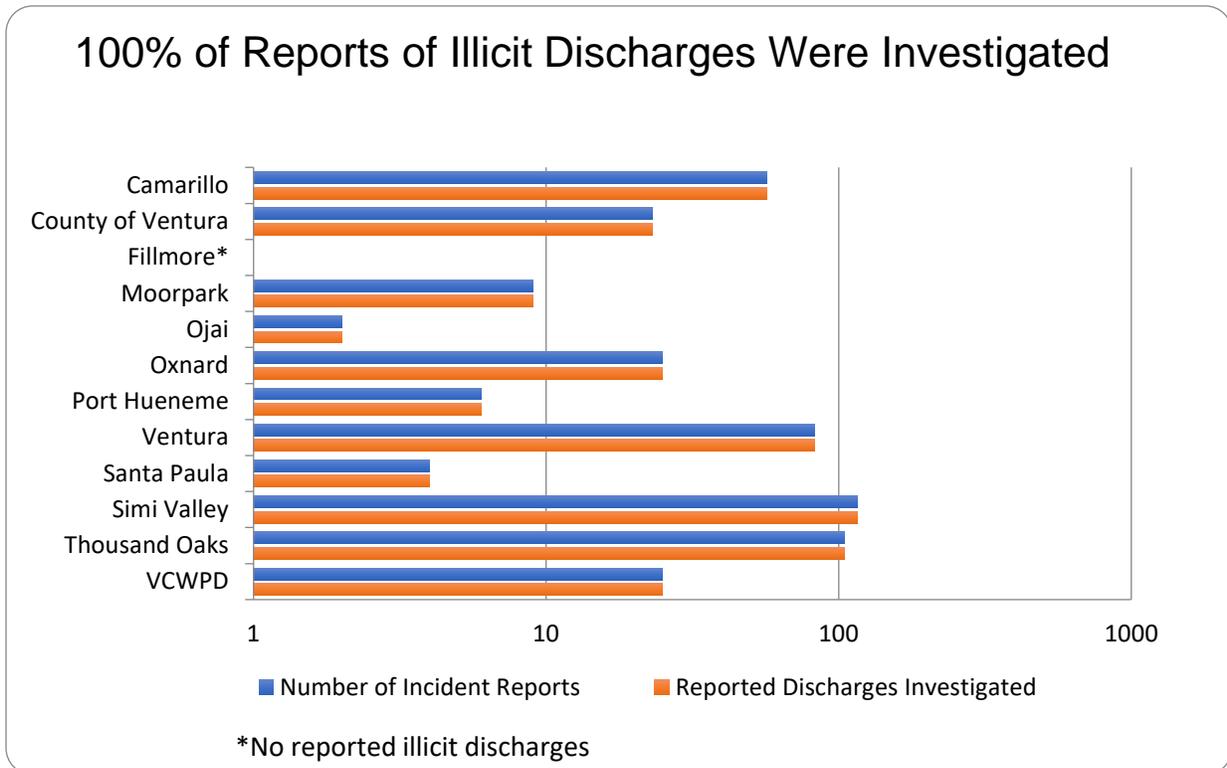
Maintain a phone hotline to receive reports of ID/IC			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

Performance Standard 8-3

Maintain a web site to receive/direct reports of ID/IC (contacts for all Permittees are on the Program website)			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai		<input checked="" type="checkbox"/>	
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

While the goal is to respond within 24 hours, most reports of illicit discharges are responded to within a few hours. Some Permittees have prioritized problem areas (geographical and/or activity-related) for increased efforts using the methods defined in the program. All illicit discharges reported by the public and found through the results of inspections are presented in Figure 8-1.

Figure 8-1 Illicit Discharge Investigations



8.3.4 IC/ID Tracking

Tracking the location of illicit connections and illicit discharges, aside from being a Permit requirement is performed to assist the Program’s efforts understanding which land uses, age of neighborhood, or other potential identifier is common to the problem of illicit discharges and connections. That knowledge could be useful in the future as the Public Outreach and Business Inspections programs continue to evolve.

Performance Standard 8-4

Keep records of all illicit discharge discoveries, reports, responses, and formal enforcement			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore			<input checked="" type="checkbox"/>
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

Mapping of Known Connections to Storm Drain System

The benefit of mapping all storm drain connections is to allow the Permittees the ability to know the upstream location of an unknown, and conversely what might be possibly affected downstream. This is required in the Permit by May 7, 2012. Since the storm drain system includes all streets and gutters, literally mapping all known connections would include every driveway and property that drains to a street. Since an endeavor of that scale would be resource intensive and result in a product lacking practical usability, the Permittees have looked to the Regional Board

for clarification of the requirement. In the response to comments on this topic the Regional Board provided the following statement: *“Known connections in the Order refer to permitted below grade connections whose locations are likely already known to Permittees. Staff agrees that mapping may reveal additional connections, but those are likely to be un-permitted.”* This guidance creates a manageable effort and ultimately a useful product that will increase the Permittees ability to respond to IC/IDs.

Mapping Illicit Connection and Discharge Incidents

The Permit required the mapping of all incidents of illicit connections and illicit discharges to their storm drain system since January 2009 by May 7, 2012 at a scale and in a format specified by the Principal Permittee.

The Permittees mapped all known connections to their storm drain system and all IC/ID incidents by July 8, 2012. While no obvious hotspots jumped out while reviewing the maps, the discharges were plotted on GIS and compared to other data layers to identify any consistent correlations that could be used to focus resources to prevent illicit discharges. Figures 8-2 and 8-3 show the illicit discharges by land use. Residential areas by far have the highest number of illicit discharges, but they are also the largest areas of the cities. When normalized for area commercial land uses become the major source of illicit discharges. This was not a surprise to the Permittees. By their nature commercial areas are high in activity and have high visibility, meaning a high chance of a discharge being reported by residents or neighboring businesses. Overall the mapping exercise confirmed the Permittees understanding. The Permittees have learned through experience which areas have problems with illicit discharges, and have also developed strong inspection programs to prevent them.

Figure 8-2 Illicit Discharge by Land Use, 2012

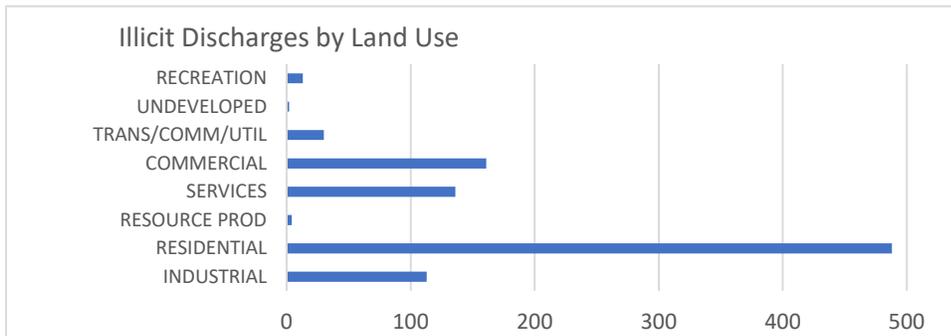
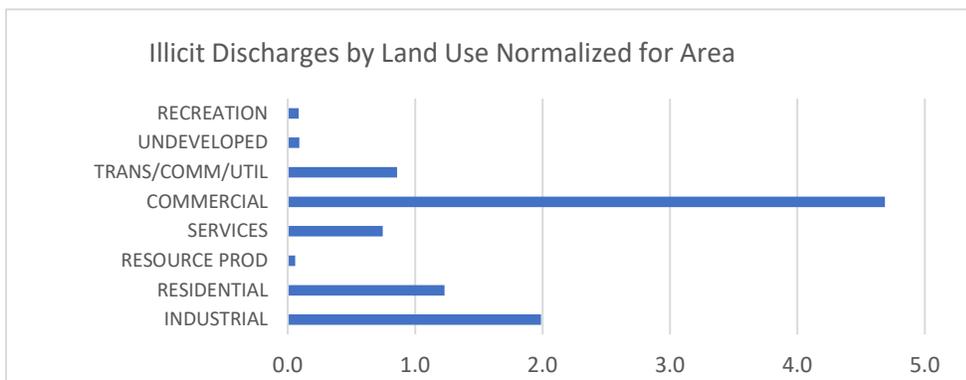


Figure 8-3 Illicit Discharges by Land Use Normalized for Area, 2012



8.3.5 Screening for Illicit Connections

Inspections of infrastructure can detect and eliminate illicit connections to the MS4 and reduce pollutants discharged through such connections to the MEP. The objectives of illicit connections screening are to:

- Identify dry weather flows.
- Investigate and determine the origin and nature of the discharge when connections to the storm drain system are suspected or observed to be from an illicit connection or discharge.

Mapping of Storm Drain System

Similar to mapping requirements of known connections to the storm drain system the Permit requires mapping of the entire system in a phased approach outlined below.

- Map all channeled portions of the storm drain system by October 6, 2010
- Map all portions of the storm drain system consisting of pipes 36 inches in diameter or greater by May 7, 2012
- Map of all portions of the storm drain system consisting of pipes 18 inches in diameter or greater by May 7, 2014

Performance Standard 8-5

Submit a map of all channeled portions of the storm drain system in a uniform format			
	Yes	No	In Progress
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

Performance Standard 8-6

Submit to the Principal permitted a map of all portions of the storm drain system consisting of pipes 36 inches in diameter or greater in a uniform format			
	Yes	No	In Progress
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

At the time, to assist in screening for illicit connections, the Permittees mapped channels within their permitted area and storm drain system. These maps were transmitted to the Principal Permittee and were incorporated into the Watershed Protection District’s GIS system. Currently, all of this information is included in the Ventura Countywide Unified Storm Drain GIS. Maps depicting the storm drain system were completed by May 7, 2012, and those 18 inches or greater completed by May 7, 2014.

Performance Standard 8-7

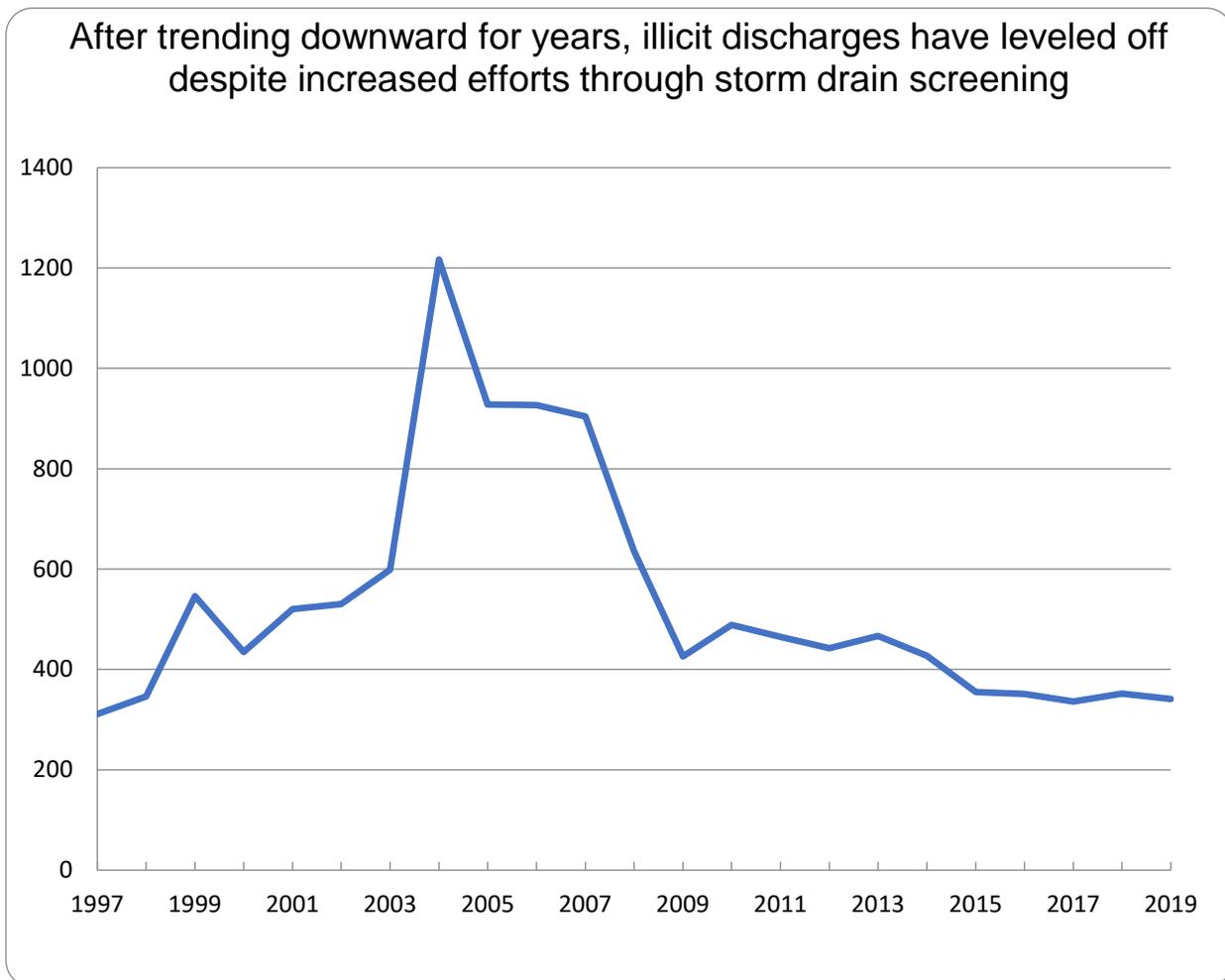
Submit map of all portions of the storm drain system consisting of pipes 18 inches in diameter or greater in a uniform format? (Due by May 7, 2014)			
	Yes	No	In Progress
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

Unified Storm Drain Atlas

The Program has completed its Ventura Countywide Unified Storm Drain Mapping project. This project involved the creation of five new Storm Drain System Geodatabases and sub watershed boundaries for the five small cities of Fillmore, Moorpark, Ojai, Port Hueneme, and Santa Paula who did not have this mapped in Geodatabase format. The new storm drain geodatabases are consistent with existing Storm Drain System Geodatabases for Permittees Thousand Oaks, Camarillo, Simi Valley, Oxnard, Ventura, and the County. A single Geodatabase now contains all available storm drain information from all of the Permittees. This information is also available in Google Earth KMZ files. This project also included a Countywide GIS analysis to identify infiltration constrains per 2011 Technical Guidance Manual and mapping of the natural stream network. In addition, a user-friendly computer program was created which allows for easy updating to the unified Geodatabase and KMZ files. This allows the Permittees to share updates to their storm drain system with all of the other Permittees ensuring all have the latest and greatest version of the unified storm drain information.

The storm drain mapping for the small cities ensures future opportunities for the Program to work collaboratively on stormwater/TMDL required treatment and associated costs, future stormwater treatment projects, and regional understanding and visualization of challenges to be faced when planning on stormwater/TMDL required treatments on the watershed scale or countywide. The effort is expected to be helpful during upcoming Permit Renewal to help the regulators, Non-Governmental Organizations, and general public understand the local conditions and complexity of planning, designing, and implementation of stormwater and urban runoff treatment to meet Ventura MS4 Permit requirements and Countywide TMDLs.

Figure 8-4 Illicit Discharge Trends



Field Screening

As discussed previously in this section, the Permittees have mapped the storm drain system in order to identify high priority areas for inspection. The Permittees inspected the storm drain system based on these maps. The screening effort did not identify a high number of illicit discharges, this can be seen in Figure 8-4 that displays the trend of actual illicit discharges countywide. The reduction seen in illicit discharges can be seen as a change of behavior as the public gains knowledge of stormwater pollution. The field screening may have identified a few discharges, but public reporting remains the most efficient way to identify them. The requirements for screening were during the reporting period and are outlined below.

- Screen all portions of the storm drain system consisting of pipes 36 inches in diameter or greater by May 7, 2012
- Screen all high priority areas identified during the mapping of illicit connections and discharges by May 7, 2012

- Screen all portions of the storm drain system 50 years of age or older by May 7, 2012

Performance Standard 8-8

Screening of all portions of the storm drain system consisting of pipes 36 inches in diameter or greater			
	Yes	No	In Progress
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

Performance Standard 8-9

Screening of all high priority areas identified during the mapping of illicit connections and discharges			
	Yes	No	In Progress
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

Individually, the Permittees efforts may be beyond Permit requirements and offer some valuable lessons learned:

- The City of Camarillo's field employees are instrumental in spotting illicit discharges and reporting them to the stormwater inspector immediately.
- For the City of Fillmore, screening is routinely completed as part of regular storm drain maintenance and any flow discovered would have been addressed, though none was discovered in the fiscal year.
- For the City of Oxnard, Technical Service Program-Storm Water (TSP-SW) staff respond to all reported illicit discharges. An investigation is conducted in accordance with an Illicit Discharge Response Manual within one business day of discovery. TSP-SW staff will verify

that clean-up and abatement take place for all spills and illicit discharges. When applicable, TSP-SC staff work in conjunction with other agencies such as the City Collections Division, CUPA, and County Environmental Health when responding to reports of illicit discharges. Reports can either be reported through the City's 311 application or by calling the City of Oxnard Wastewater Department, at which time reports are forwarded to TSP-SC staff or to the City's Collection crew after hours.

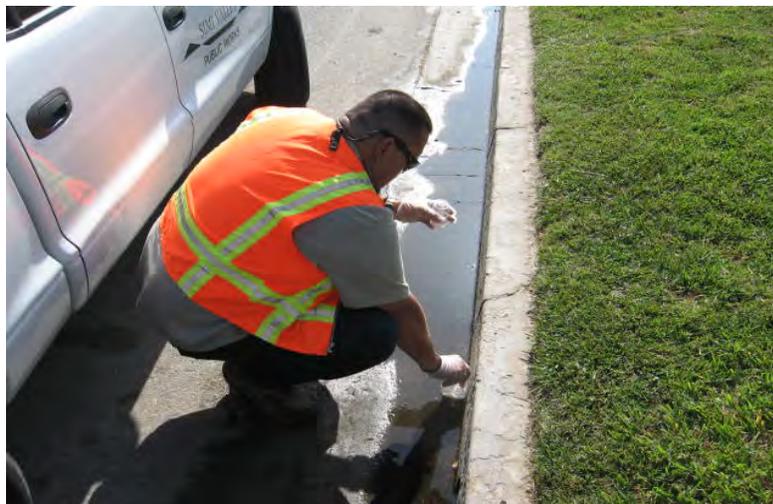
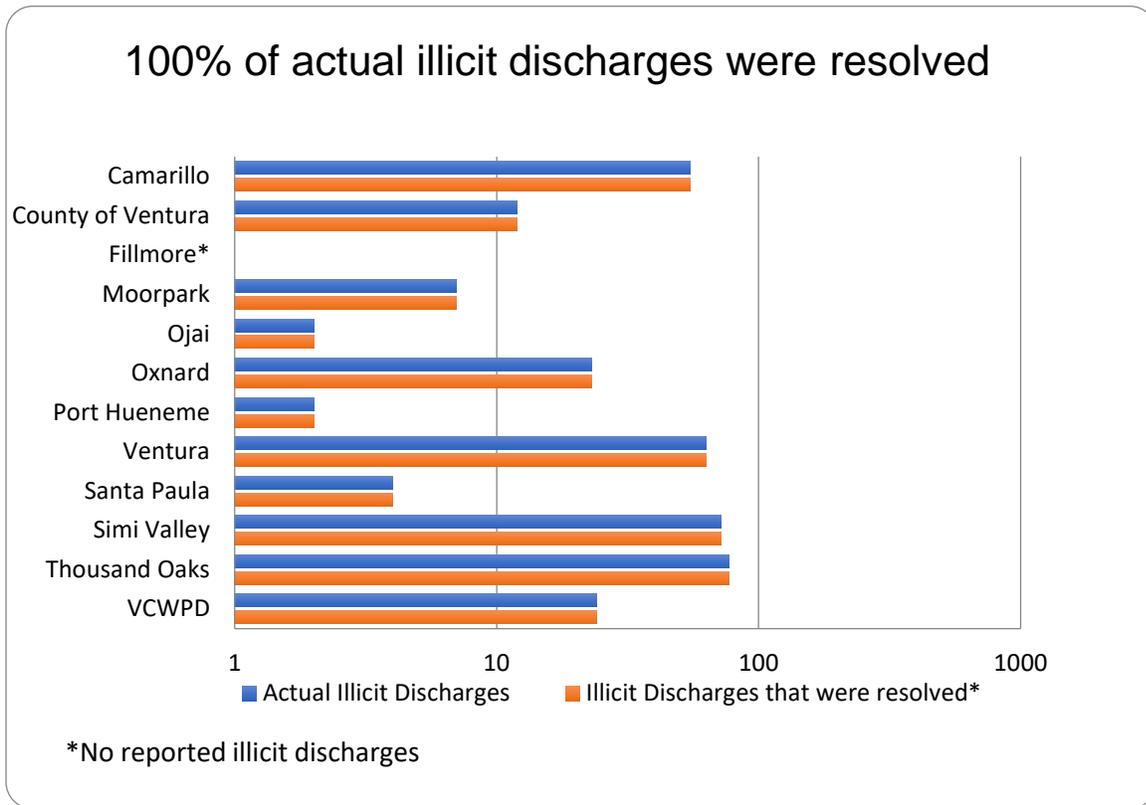
- The City of Ventura operates an illicit discharge hotline for reporting and responding to within 24 hours. Most illicit discharges are responded to within 1 hour during business operations. Illicit discharges reported during non-business hours are responded to the next business day. The City also receives reports of illicit discharges from other City departments. The City uses progressive enforcement to gain compliance. For non-serious violations verbal orders are issued. If the discharge occurs a second time or compliance is not received a Notice of Violation is issued. When compliance is not achieved after progressive enforcement administrative penalties are assessed. The City estimates it annually receives 20 calls on the illicit discharge hotline for erroneous illicit discharge reports. The City of Ventura has provided the Principal Permittee with a map of all portions of the stormdrain system 18" in diameter and greater. Field screening of all pipes 36" in diameter or greater and 50 years or older has been completed. The field screening protocols are used to identify, track, and eliminate all sources of illicit discharges or illicit connections.

8.4 ILLICIT DISCHARGE/CONNECTION INVESTIGATION AND ELIMINATION (CONTROL MEASURE ID2)

Timely investigations of reports of IC/ID are necessary to have the opportunity to determine the source, identify the responsible party, and initiate any cleanup to reduce pollutants from such discharge to the MEP. This reporting year, the Permittees continued to:

- Provide educational materials and contact numbers for reporting illicit discharge/dumping when conducting stormwater inspections;
- Investigate the cause, determine the nature, and estimate the amount of discharge for each reported illicit discharge/dumping incident;
- Determine when possible the type of materials and source type for each reported illicit discharge/dumping incidents;
- Determine when possible the probable cause for the illicit discharge/dumping;
- Conduct enforcement or educational activities to prevent similar discharges from reoccurring;
- Verify that reported illicit discharge/dumping incidents were terminated and/or cleaned up;
- Refer illicit discharge/dumping or illicit connections to other agencies when appropriate;
- Identify and eliminate illicit connections.

Figure 8-5 Resolved Illicit Discharges



Performance Standard 8-10

Respond within one business day or discovery or report of a suspected illicit discharge and abate, contain, and/or cleanup the discharge			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

Performance Standard 8-11

Investigate illicit discharges during or immediately following containment and cleanup activities			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

8.4.1 Legal authority

Although adequate legal authority existed for most potential pollutant discharges at the inception of the stormwater program in 1994, the Permittees determined for the first stormwater ordinance a Model Stormwater Quality Ordinance should be developed to provide a more uniform countywide approach and to provide a legal underpinning to the entire Ventura Countywide NPDES Stormwater Program.

Subsequently, all the Permittees adopted largely similar versions of the model Stormwater Quality Ordinance. In addition, each Permittee has designated Authorized Inspector(s) responsible for enforcing the Ordinance. The Authorized Inspector(s) is the person designated to investigate compliance with, detect violations of, and/or take actions pursuant to the Ordinance. These ordinances prohibit un-permitted discharges and provide the Permittees with legal standing and legal authority to prevent and remove illicit

connections and illicit discharges. A Stormwater Quality Ordinance has been adopted in each Permittees' jurisdictions as indicated in Table 8-3.

The Permit requires each Permittee, no later than July of 2012, that its Storm Water Quality Ordinance authorizes the Permittee to enforce all requirements of the Permit. Preliminary review by Counsel for the Permittees have determined the existing ordinances are capable of enforcing the Permit, however, will be made stronger through the adopting of an improved ordinance. The Permittees, led by the City of Moorpark, have drafted a model ordinance which served as the basis for each Permittee to authorize them to enforce all requirements of the Permit. Several of the Permittees have updated their existing ordinances or written entirely new ones.

Performance Standard 8-12

Take appropriate enforcement action to eliminate the illicit discharge			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

Table 8-3 Ordinance Adoption Dates

Ordinance Adoption Dates		
Permittee	Adopted Date	Amendment Date
Camarillo	10/1/1998	12/12/2012
County of Ventura	7/17/2012	
Fillmore	3/25/2014	8/25/2015
Moorpark	1997	2008
Ojai	6/21/1999	
Oxnard	3/24/1998	3/24/2009
Port Hueneme	4/1/1998	
San Buenaventura	1/11/1999	9/1/2011
Santa Paula	1/1/1998	2010
Simi Valley	7/2/2012	
Thousand Oaks	9/14/1999	

Performance Standard 8-13

Legal authority to prevent and remove illicit connections and illicit discharges			
	Yes	No	In Progress
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

8.4.2 Response to Illicit Connections

Investigation

Each Permittee detects and eliminates illicit connections within its municipal storm drain system. Any illicit connection identified by the Permittees during routine inspections or reported by a third party is investigated. Appropriate actions are then taken to approve undocumented connections by permit procedures, or if determined to be an illicit connection use enforcement actions to pursue removal of those connections.

Performance Standard 8-14

Maintain a list of all connections under investigation for possible illicit connection and their status			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

If the discharge from an identified connection is determined to consist only of stormwater or exempted non-stormwater, is no longer considered an illicit connection and the connection will be allowed to remain. Permittees may elect to issue a permit for the connection or allow the connection to remain if information on the connection is documented, or the discharge will be permitted through a separate NPDES permit. If not, the connection will be terminated by voluntary action or through enforcement proceedings.

Screening implemented by the Permittees has proven to be a very labor-intensive effort resulting in very few suspect connections, and fewer actual illicit connections that need to be terminated. Countywide, of the six possible illicit connections five were identified as actual unpermitted illicit connections and were terminated. Termination or formal enforcement of illicit connections must occur within 180 days.

Performance Standard 8-15

Complete investigation of illicit connection reports to determine the source, nature, and volume of discharge as well as the responsible party within 21 days			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

Performance Standard 8-16

Terminate the connection using formal enforcement within 180 days of completion of the investigation				
	Yes	No	In Progress	N/A
Camarillo*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
County of Ventura*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fillmore*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Moorpark*	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ojai	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Oxnard*	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>
Port Hueneme*	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ventura*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Santa Paula*	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Simi Valley	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thousand Oaks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Watershed Protection	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

*No illicit connections

Each of the Permittees also maintain a record of all connections currently under investigation for possible illicit discharge and tracks their status. The response time to an illicit connection is included in the Permittees' IC/ID database and does not exceed 21 days. The source, nature, and type of discharges from these connections, as well as the responsible party are also documented in the Permittees' IC/ID database. Summary statistics of the source of the illicit discharge from these connections is grouped with all other illicit discharges. The Watershed Protection District was utilizing progressive enforcement at the end of the reporting period to eliminate the three unresolved illicit connections.

Performance Standard 8-17

Keep records of all illicit connection investigations and formal actions taken to eliminate all illicit connections			
	Yes	No	N/A
Camarillo	<input checked="" type="checkbox"/>		
County of Ventura	<input checked="" type="checkbox"/>		
Fillmore	<input checked="" type="checkbox"/>		
Moorpark	<input checked="" type="checkbox"/>		
Ojai	<input checked="" type="checkbox"/>		
Oxnard	<input checked="" type="checkbox"/>		
Port Hueneme	<input checked="" type="checkbox"/>		
Ventura	<input checked="" type="checkbox"/>		
Santa Paula	<input checked="" type="checkbox"/>		
Simi Valley	<input checked="" type="checkbox"/>		
Thousand Oaks	<input checked="" type="checkbox"/>		
Watershed Protection	<input checked="" type="checkbox"/>		

Termination

The Permit requires the connection be terminated within 180 days of completion of the investigation. Upon confirmation of an illicit connection, the Permittees terminate the connection using formal enforcement within 180 days of completion of the investigation.

Documentation

The Permittees’ IC/ID database documents the time by which the illicit connection is terminated. Owners of existing drains without appropriate permits (including encroachment permits) are notified to comply. For those drains where the owner is unresponsive or cannot be identified, each Permittee is responsible for deciding whether to formally accept the connection as part of their public drainage system or cap it off.

8.4.3 Response to Illicit Discharges

Upon receipt of a complaint, the Permittees investigate the source and nature of the IC/ID with the goals of:

- Eliminating the IC/ID through voluntary termination or enforcement action (when possible),
- Educating identified responsible parties,
- Direct any cleanup necessary to eliminate the discharge of pollutants, and
- Initiating enforcement actions as necessary

Investigation and Cleanup

Timely responses to reports of illicit discharges are necessary to have the opportunity to determine the source, identify the responsible party, and initiate any necessary cleanup to reduce pollutants from such discharge to the MEP.

While the goal is to respond within 24 hours, most reports of illicit discharge are responded to within a few hours. Some Permittees have prioritized problem areas (geographical and/or activity-related) for inspection, cleanup, and enforcement using the methods defined in the program. In the normal course of an investigation the responsible party will be directed to perform any possible clean-up. 100% of illicit discharges were investigated and 100% of confirmed illicit discharges were resolved or were pending resolution as of June 30, 2019.

The discovery of potential or likely illicit discharges through business inspections has worked to reduce the number of overall illicit discharges.

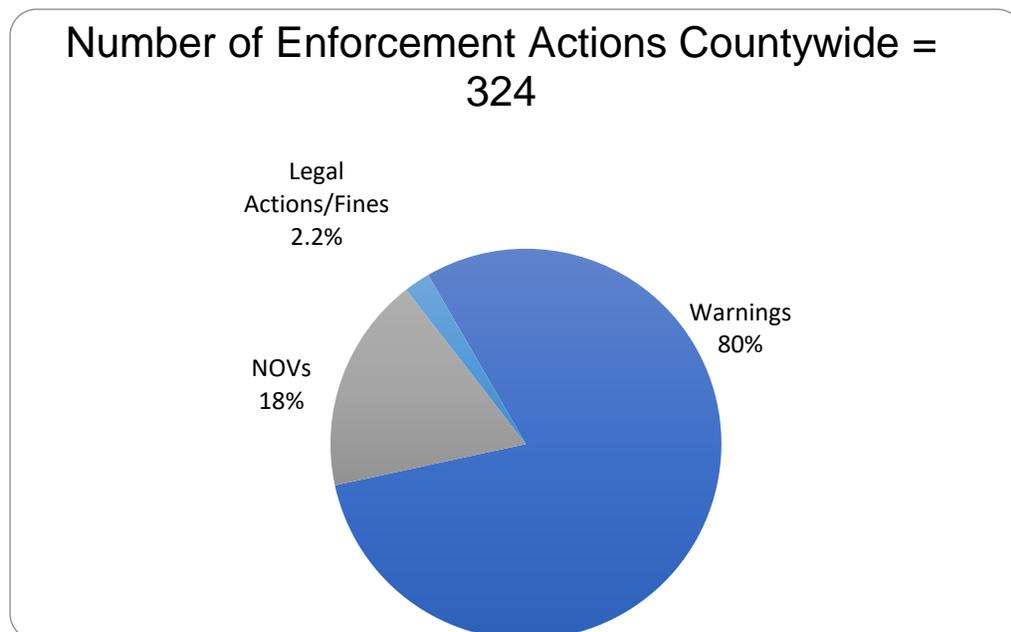
Enforcement

Permittees continue to implement enforcement procedures to eliminate illicit discharges and illicit connections available through their legal authority of their respective ordinances. Most enforcement processes follow a common sequence. These typically include:

- Verbal or written warnings for minor violation
- Formal notice of violation or non-compliance with compliance actions and time frames
- Cease and desist or similar order to comply
- Specific remedies such as civil penalties (e.g., infraction), non-voluntary termination with cost recovery, referral for criminal penalties, or further legal action
- Authority to issue on site civil citations of \$100

**Use of Notices
of Violations
has decreased
16% over 2018**

Figure 8-6 Enforcement Actions Countywide



Every time a responsible party is identified for an illicit discharge there is an opportunity for education and enforcement. Enforcement activity begins at the appropriate level as determined by the Permittees' authorized representative. For incidents more severe or threatening at the onset, enforcement starts at an increased level. Often a verbal warning and requiring cleanup of the discharge is effective, if necessary, the Permittee will charge the responsible party for cleanup services provided. Enforcement steps are accelerated if there is evidence of a clear failure to act, or an increase in the severity of the discharge. Enforcement actions for violating any of the provisions of the Permittees' ordinances may include any of the following or a combination thereof:

- Criminal Penalties
- Monetary punishment
- Imprisonment
- Civil Penalties

Education of targeted audiences occurs through inspections of illicit discharges, businesses, and construction activities. The importance of eliminating or mitigating non-stormwater discharges to local streams and channels is emphasized.

The capacity to issue civil citations has been added to the City of Oxnard's enforcement plan to ensure that repeat violators of local, state, and federal stormwater quality regulations are assessed a fine for their illicit (illegal) activities. The integration of this enforcement action allows the municipality to assess a \$100.00 fee for those individuals or entities that receive a notice of violation (NOV) and thereafter again engage in the same illicit discharge activity. An additional \$100.00 fine is assessed, per day and per violation, if a repeat violation is committed within a thirty (30) day period. If, after thirty (30) days, the same party is once again engaging in similar illicit activities then a \$200.00 citation is given. A \$500.00 fine is issued to fourth time perpetrators of an illicit discharge committed within sixty (60) days after the initial citation. Since current City policy allows the Mayor to delegate the authority to issue civil citations to designated employees, no changes to the City's stormwater ordinance were necessary. The only prerequisite imposed on these employees was that they receive training on civil citation writing from the City of Oxnard Code Enforcement Unit. Simply having the ability, and threat, to issue a civil citation has proven to be enough of a deterrent to discourage/eliminate future occurrences of the same type of illicit activities from the local residents and the construction/building communities.

**Oxnard's inspectors
have the capacity to
issue civil citations
up to \$500 for illicit
discharge activity.**

Figure 8-7 Illicit Discharges Incidents

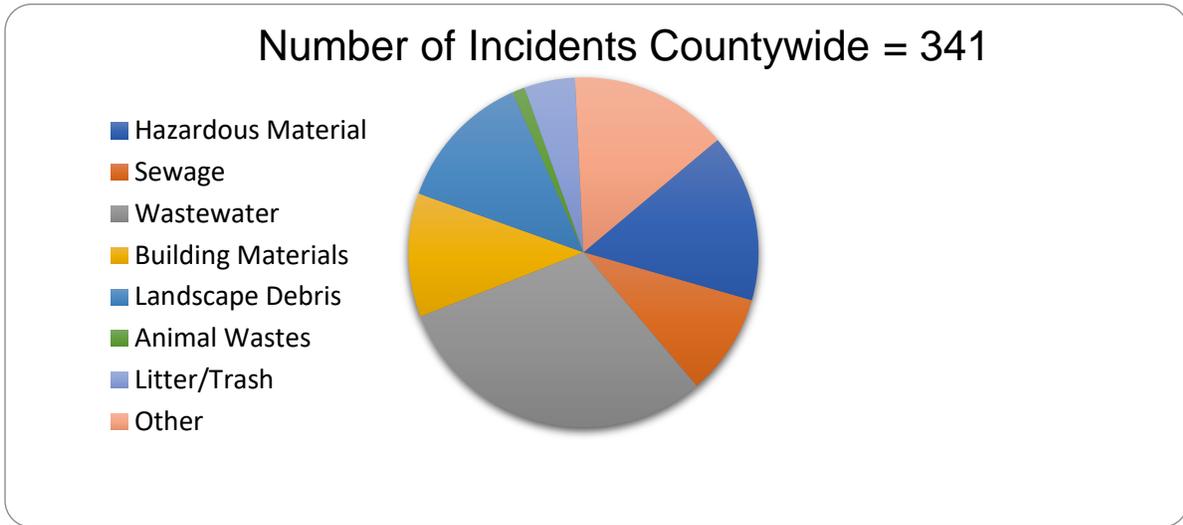


Figure 8-8 Sources of Illicit Discharges

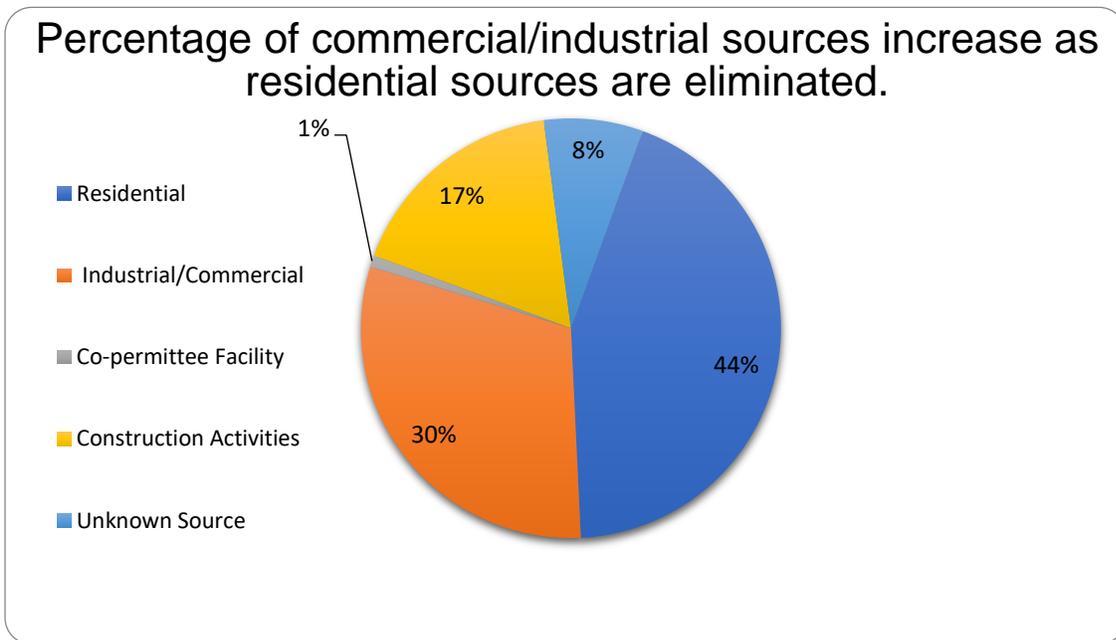
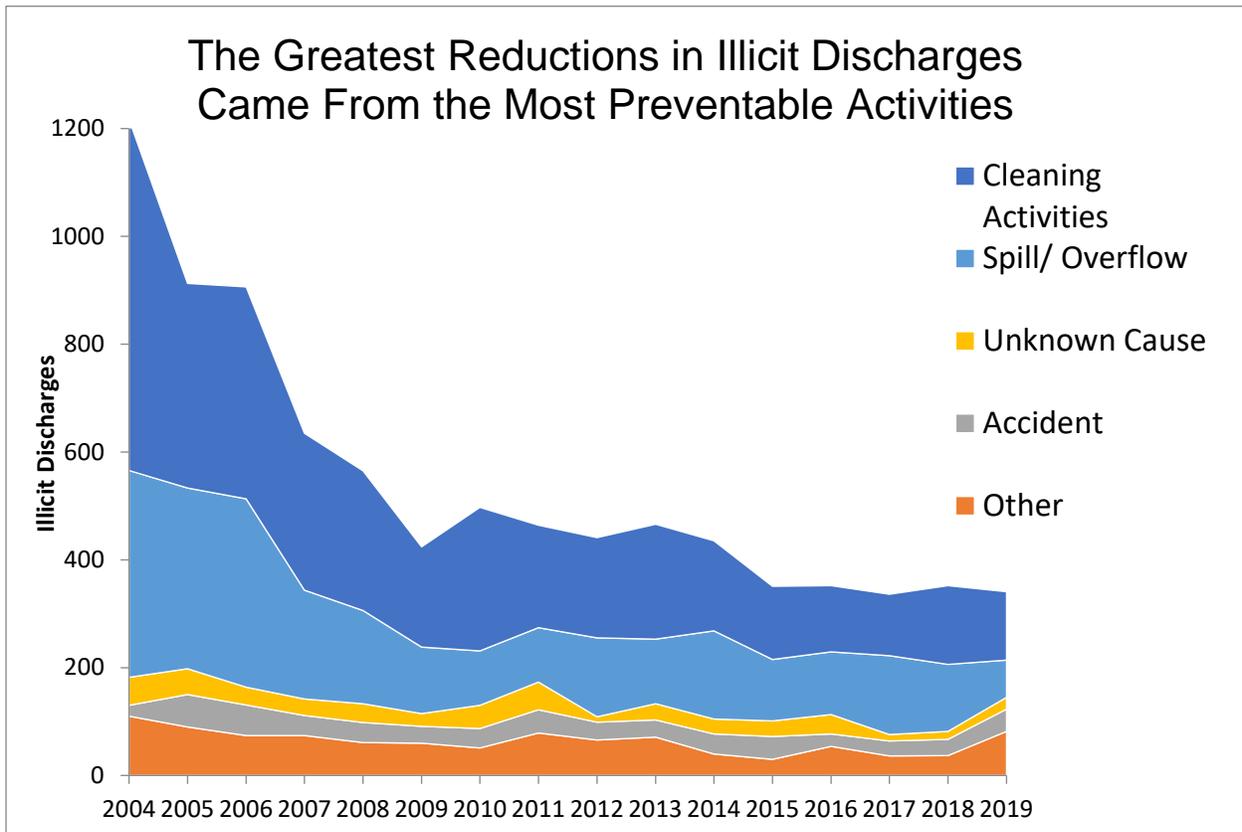


Figure 8-9 Trends in Illicit Discharges



Documentation

Permittees keep records of all illicit discharge discoveries, reports, responses, and enforcement and track the efforts during the Permit term in the Permittees’ IC/ID database and summarized in the figures below.

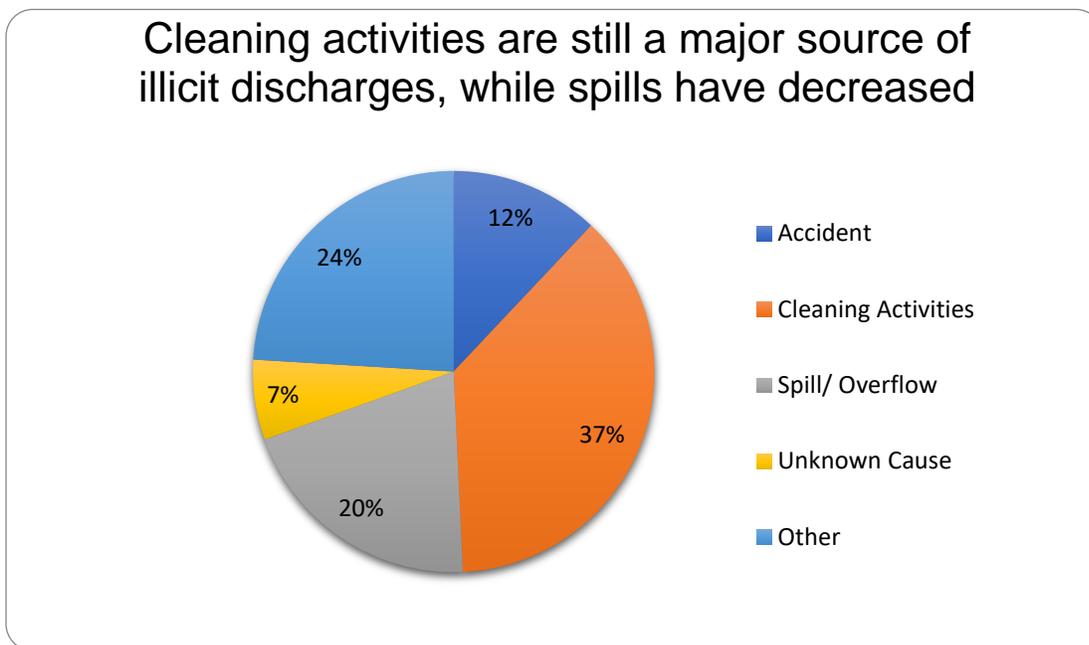
As part of their field investigation of reported illicit discharges/dumping incidents, the Permittees attempt to determine the material’s source. This investigation begins at the surface drainage system in the vicinity of suspected illicit discharges. This may include accessible areas in the public right-of-way adjacent to residences and businesses, catch basins, open channels near known points of discharge, and upstream manholes. If the source and responsible party can be determined, Permittees take one, or all, of the following actions when appropriate:

- Direct voluntary cleanup/termination;
- Initiate enforcement procedures;
- Take steps to prevent similar discharges from reoccurring.

When the source cannot be determined, the appropriate municipal department, or a contractor, will be notified to contain and clean up the material if possible. Because these situations and materials can vary, procedures vary as well. In general, the following steps are taken by Permittees to determine sources:

- Verify location of the spill/discharge;
- Containment and cleanup;
- Investigate the cause (look for origin);
- Determine the nature and estimate the amount of illicit discharge/dumped material;
- When appropriate, refer documented non-stormwater discharges/dumping or illegal connections to the proper agency for investigation; and
- If appropriate, notify the RWQCB and/other proper agencies.

Figure 8-10 Activities Leading to Illicit Discharges



8.5 TRAINING (CONTROL MEASURE ID3)

The Training Control Measure is important for the implementation of the IC/ID Program Element. An effective training program is one of the best pollution prevention BMPs that can be implemented because it prompts behavioral changes that are fundamentally necessary to protect water quality. The Permittees often evaluate the effectiveness of the training modules they offer by conducting pre- and post-training surveys used to assess a trainee’s command of a topic before and after receiving training on the subject.

8.5.1 Conduct Training

Each Permittee targets staff based on the type of stormwater quality and pollution issues they may encounter. Targeted staff included illicit discharge inspectors, as well as field staff such as drainage, roadway, landscape, and facilities staff, industrial pretreatment inspectors, and code enforcement officers

to help identify and report illicit discharges. Training is incorporated with existing business inspection, construction site, and public agency activity programs.

Staff is trained in a manner that provides adequate knowledge for effective illicit discharge identification, investigation, reporting and/or clean up. Training was achieved in a variety of ways, including informal “tailgate” meetings, formal classroom training; and/or self-guided training methods. During this reporting period, Permittees trained 427 municipal staff on illicit discharge response and non-stormwater discharges. The staff trained by the Permittees is shown in figure 8-11 and training program is outlined in Table 8-4

Figure 8-11 Illicit Discharge and Illicit Connection Training

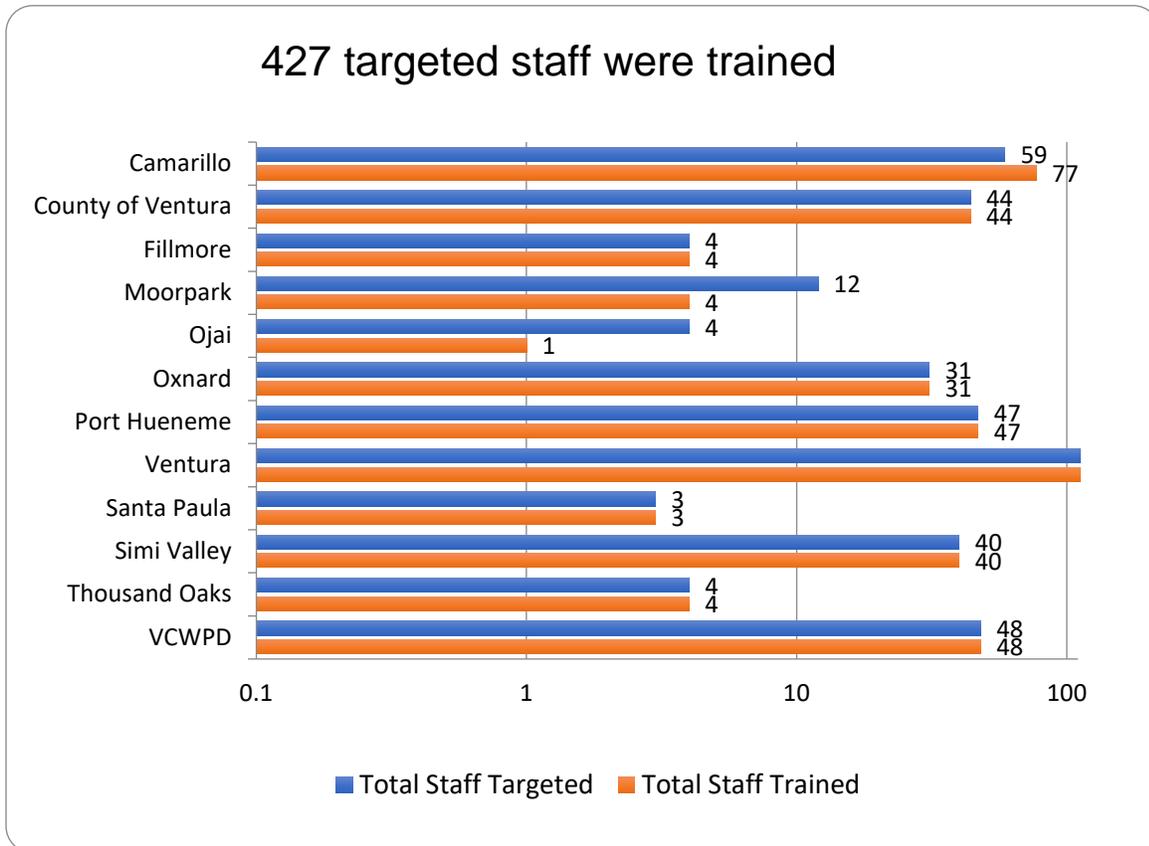


Table 8-4 Training Areas of Focus for the ID/IC Program Element

Target Audience	Format	Subject Material	Comments
<ul style="list-style-type: none"> • Illicit discharge inspectors • Drainage, roadway, landscape, and facilities staff • Industrial pretreatment inspectors • Code enforcement officers • Fire Departments • Supervisors 	<ul style="list-style-type: none"> • Classroom • On-site • Video 	<ul style="list-style-type: none"> • Identification • Investigation • Termination • Cleanup • Reporting of incidents • Documentation of incidents 	<ul style="list-style-type: none"> • Subject varies by staff responsibility • Training seminars or workshops related to the program may be made available by other organizations

8.6 EFFECTIVENESS ASSESSMENT (CONTROL MEASURE ID4)

Effectiveness assessment is a fundamental component required for the development and implementation of a successful stormwater program. In order to determine the effectiveness of the IC/ID Program Element, a comprehensive assessment of the program data is conducted as part of the Annual Report. The results of this assessment are used to identify modifications that need to be made to the Program Element. Each year the effectiveness assessment is reviewed and revised as necessary.

By conducting these assessments and modifying the Program Element as needed, the Permittees ensure adaptive management is used as an effective management tool. Due to the types of data collected for the IC/ID Program, current and future assessments will primarily focus on Outcome Levels 1 through 4.

- Outcome Level 1 (L1) answers the question: Did the Permittees implement the components of the Permit?
- Outcome Level 2 (L2) answers the question: Can the Permittees demonstrate that the control measure/performance standard significantly increased the awareness of its target audience?
- Outcome Level 3 (L3) answers the question: Can the Permittees demonstrate that the control measure/performance standard significantly modified the behavior of a target audience?
- Outcome Level 4 (L4) answers the question: Can the Permittees demonstrate that the control measure/performance standard reduced the pollutant load?

The Permittees have effectively implemented an IC/ID program as described in the following sections. Past Annual Reports have documented the program and are available for public review at the Program's website. (L1) Detection of Illicit Connections and Illicit Discharges Public Outreach Implementation

Public Reporting

Each Permittee has identified staff serving as the contact person(s) for public reporting of IC/ID. All of the Permittees maintain a phone hotline to receive IC/ID complaints. (L1) Due to the need for timely response to illicit discharges Permittee web sites direct people to report by telephone to a "live person" instead of through email which, while quickly delivered, may not be read within the short time frame that a discharge is occurring. The Program maintains two websites that contains the phone numbers for all the Permittees. (L1)

For the first few years as the Stormwater Program evolved and the public became more aware of what was not allowed down storm drains and so reports of IC/ID increased; however, since 2009 reports of IC/ID have demonstrated a leveling trend as shown in Figure 8-9. Since the public is more aware of IC/ID this likely represents a change in behavior for all but the willful violators and so fewer pollutants are reaching the storm drains. (L3)

IC/ID Tracking

The Permit requires the mapping of all incidents of illicit connections to their storm drain system since January 2009 by May 7, 2012 at a scale and in a format specified by the Principal Permittee. The Permittees have mapped channels within their permitted area and the storm drain system. These maps were transmitted to the Principal Permittee and were incorporated into the Watershed Protection District's GIS system and ultimately the Ventura Countywide Unified Stormdrain Mapping GIS system. (L1)

Screening for Illicit Connections

Screening has been implemented by the Permittees and has proven to be a very labor-intensive effort resulting in very few suspect connections turning out to be illicit connections that need to be terminated. Of the four possible illicit connections, all four were identified as actual illicit connections, and three were terminated within the reporting period. The remaining illicit connection was being addressed through progressive enforcement as of June 30, 2019. As illicit connections are terminated it immediately reduces the discharge of pollutants. (L4)

8.6.1 Illicit Connection and Illicit Discharge Response and Elimination

Legal Authority

Legal authority for most potential pollutant discharges has existed since 1994. More recently Permittees adopted stormwater quality ordinances which more effectively and consistently ensure adequate legal authority across Permittees. (L1)

Response to Illicit Discharges and Illicit Connections

Each IC/ID complaint and the actions undertaken in response were documented. (L1) The Permittees responded to all reports of illicit discharge within 24 hours and often within a few hours. (L1) Where possible, the Permittees identified the source, nature, and volume of the discharge. Data shows that the source was identified 92.4% of the time. (L1) The Permittees took enforcement action as shown in figure 8-5. (L1)

The Permittees have developed an IC/ID Field Screening Protocol using the guidance from “Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments”³ In order to identify high priority areas for inspection, the Permittees have completed a comprehensive countywide storm drain system GIS system. (L1) The Permittees investigated all illicit connections identified during inspections or reported by a third party within 21 days. (L1) Where possible, the Permittees determined the source, nature, and volume of the discharge.

8.6.2 Enforcement

Appropriate actions were then taken to approve undocumented connections or pursue removal of illicit connections. Upon confirmation of an illicit connection, the Permittees terminated the connection using formal enforcement within 180 days. (L1) (L4) Some of the Permittees maintained a list containing all connections under investigation for possible illicit connection and their status. (L1) The Permittees eliminated three of four known illicit connections during this reporting year, with the remaining illicit connection being addressed through progressive enforcement as of June 30, 2019. (L1)

³*Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments*. The Center for Watershed Protection, Pitt R., October 2004. Chapter 13, 13.1,13.2, 13.3, 13.4

8.6.3 Training

Conduct Training

The Permittees trained a total of 427 municipal staff members. Each Permittee targets staff based on the type of stormwater quality and pollution issues they may encounter. Targeted staff included illicit discharge inspectors, drainage, roadway, landscape and facilities staff, industrial pretreatment inspectors, fire department employees and code enforcement officers. This permitting year 101.7% of targeted staff members were trained. (L1)

8.6.4 Illicit Discharges and Illicit Connections Program Element Modifications

On an annual basis, the Permittees evaluate the results of the Annual Report, as well as the experience that staff implementing the program, to determine if any additional program modifications are necessary to comply with the Clean Water Act requirement to reduce the discharge of pollutants to the MEP.

9 Water Quality Monitoring

9.1 OVERVIEW

As required by Order R4-2010-0108 (Permit) issued July 8, 2010, the Ventura Countywide Stormwater Quality Management Program (Program) monitored water chemistry, toxicity, and biological communities of creeks, rivers, and channels within Ventura County during the 2018/19 monitoring season. Rainfall across the county was above average for the wet season, particularly in January and February, and reinstated flow in many creeks that lasted well into the dry season, unlike most of the previous five years, however Ventura County remains in drought conditions.

The Woolsey and Hill Fires both started in east Ventura County on November 8, 2018 and burned 96,949 and 4,531 acres before being 100% contained on November 21 and 16, 2018, respectively, and declared out on January 4, 2019. The Woolsey Fire began in the Santa Susana Mountains south of Simi Valley, but spread quickly into Los Angeles County burning tens of thousands of acres within the Santa Monica Mountains Recreation Area and damaging or destroying 1,841 structures in Ventura and Los Angeles County communities, including Agoura Hills, Calabasas, and Malibu. The burn area included Bus Canyon, which drains to MO-SIM and heavy ash was observed at ME-CC. The Hill Fire burned mostly open space from Hill Canyon to the west and south within Ventura County and met up with the Springs Fire (2013) footprint, where the reduced vegetation/fuel load at the Hill-Springs boundary helped firefighters prevent further spread. The hillsides around the MO-THO monitoring station burned, and the fire denuded the canyon/hillsides along the access road to MO-THO so grab samples were not collected after dark or during periods of heavy rain due to safety concerns over the unknown risk of landslide/rockfall/debris flow. The fire damaged four structures and destroyed two. As with the Thomas Fire in 2017-18, the burned areas became highly susceptible to erosion and landslides due to the bare ground resulting from the burning of vegetation. Monitoring stations in the Calleguas Creek watershed were the most directly impacted, however smoke and ash from both fires may have impacted all sites.

Vegetation regrowth after the 2017-2018 Thomas Fire (which became the largest recorded fire in California history at that time at 281,893 acres burned, including forests, grasslands, orchards, and housing tracts from Fillmore to Santa Barbara, and from Ventura north through Matilija Canyon, Ojai, and beyond) helped stabilize the soil, however risk of landslide and debris flow activity remained a risk for sampling in some areas and wet weather monitoring was adjusted accordingly. The heavy rain combined with the immature vegetation combined to produce high sediment loads during the storms in many burn areas.

Monitoring locations for water chemistry and toxicity included mass emission stations and major outfall stations. Mass emission stations are in the lower reaches of the three major watersheds in Ventura County (Ventura River, Santa Clara River, and Calleguas Creek). Major outfall stations, a component of the Stormwater Monitoring Program since 2009, are in subwatersheds representative of each Permittee's contribution to downstream waters.

Water chemistry samples were targeted for collection at the three mass emission and eleven major outfall stations during at least three rain events per site, with each site sampled once per event when applicable, per the Permit requirements. The official wet season begins on October 1st and the first sampled storm of the wet season occurred November 21-22, 2018 at all sites except ME-SCR, which was not flowing. Grab samples could not be collected at two sites during the storm (MO-SPA and MO-THO) due to safety concerns so were collected later. This was the first flush event for most sites, however a storm in October that was predicted to be too small to sample produced qualifying rainfall (for what should have been the first flush event) at MO-SPA (0.27"), MO-MPK (0.25"), MO-SIM (0.29"), MO-THO (0.26"), and MO-HUE (0.31) but the other monitoring stations across the county received less than 0.25" rainfall during the October event.

The other sampled rain events occurred on November 29-30, 2018 (all sites sampled including toxicity samples for the three sites unable to be sampled during the previous event); January 5-6, 2019 (all sites sampled); and January 31 – February 1, 2019 (ME-SCR only). Aquatic toxicity samples were collected from all fourteen sites during the

first flush event with the exceptions listed above. Several sites exhibited significant growth or reproduction impairments in comparison to the control but no sites had below 50% mortality except for the *Ceriodaphnia* at MO-HUE which was likely due to the high salinity of the sample being above the tolerance level for the organisms, so no toxicity identification evaluations (TIEs) were required or performed. In general, sites that were in the areas directly impacted by the Thomas Fire (e.g. Ventura River Watershed) showed higher toxicity than those sites that were further away (e.g. Calleguas Creek Watershed).

Three wet events were able to be sampled for all fourteen sites, but not all sites had flow for sampling in dry weather.

Samples were collected/attempted at mass emission and major outfall stations during one dry event which was split into three parts: Santa Clara River Watershed (ME-SCR, MO-FIL, MO-SPA, MO-OXN, and MO-VEN) on May 1-2, 2019; Ventura River Watershed (ME-VR2, MO-MEI, and MO-OJA) and the coastal watershed (MO-HUE) on May 7-8, 2019; and Calleguas Creek Watershed (ME-CC, MO-CAM, MO-SIM, MO-MPK, and MO-THO) on May 13-14, 2019. Three sites (MO-OXN, MO-SPA, and MO-MEI) were dry so samples could not be collected. A smaller subset of water chemistry samples was collected at each of the major outfall stations (or similar alternate location if it was dry) on August 20-21, 2019, as part of the dry-season, dry-weather monitoring prescribed in the NPDES Permit.

During wet weather events, *E. coli* concentrations were commonly found above WQO at most sites while during dry-weather events, less than half of the sites with flow had concentrations of *E. coli* above WQO. Other constituents that were found at elevated levels in relation to applicable water quality objectives (WQO) during the 2018/19 monitoring year include chloride and total dissolved solids (four sites, primarily dry-weather), pH (four sites, dry weather), dissolved oxygen (3 sites, wet weather), MBAS (two sites, wet weather), total chlorine residual (two sites, wet weather), total cyanide (two sites, wet weather), total aluminum (two sites, recurring wet weather), total arsenic (one site, wet weather), dissolved copper (3 sites in wet weather, 1 site in dry weather), dissolved zinc (one site, wet weather), total selenium (two sites, dry weather), bis(2-ethylhexyl)phthalate (one site in wet weather and one site in dry weather), pentachlorophenol (three sites, recurring wet weather), and polycyclic aromatic hydrocarbons (one site, dry weather). The Program is using this information to identify pollutants of concern and direct efforts to reduce their discharge from the storm drain system.

Bioassessment sampling was conducted as part of the Southern California Regional Bioassessment Study. Sampling for the original five-year study was completed in 2013 and interim study sampling was conducted in 2014. The second five-year study began in 2015. The 2015-2019 Study includes perennial and nonperennial streams and is designed to look at both current stream condition as well as site trends. The Program surveyed ten randomly generated sites to assess condition (three in the Ventura River Watershed, three in the Calleguas Creek Watershed, three in the Santa Clara River Watershed, and one in the Santa Monica Bay Watershed) and five sites (two open land use and three developed land use) that were previously surveyed in 2008/2009, and annually since 2015 (with one exception), to track trends. The Principal Permittee's fixed (Integrator) sites at the three mass emission stations (ME-CC, ME-VR2, and ME-SCR) were also sampled once each for 2019. Sampling occurred between May 9 and July 31, 2019.

9.2 INTRODUCTION

This Annual Report summarizes the effort undertaken by the Ventura Countywide Stormwater Quality Management Program (Program) and the Stormwater Monitoring Program during the 2018/19 monitoring year. Pursuant to NPDES Permit No. CAS0040002, the Program must submit a Stormwater Monitoring Report annually by December 15th, and include the following:

- Results of the Stormwater Monitoring Program
- General interpretation of the results

- Tabular and graphical summaries of the monitoring data obtained during the previous year

Analysis of samples collected at various stations throughout the watershed gives an overall representation of the quality of stormwater discharges. The monitoring also aids in the identification of pollutant sources, as well as the assessment of Program effectiveness. Feedback provided by the monitoring program allows for changes to be made in the implementation of other Program aspects to resolve any problems and reduce pollutants that may exist. This adaptive management strategy should eventually show improved water quality through the stormwater monitoring program. The stormwater monitoring program includes the following components.

9.2.1 Mass Emission Monitoring

Mass emission stations are in the lower reaches of the three major watersheds in Ventura County (Ventura River, Santa Clara River, and Calleguas Creek). As such, the mass emission drainage areas are much larger than the drainage areas associated with major outfall stations (described in Section 9.3.2), and include large contributions from other sources of discharge, such as wastewater treatment plants, agricultural runoff, non-point sources, and groundwater discharges.

The purpose of mass emission monitoring is to identify pollutant loads to the ocean and identify long-term trends in pollutant concentrations. This type of monitoring, in conjunction with the major outfall monitoring, is also useful in helping to determine if the Municipal Separate Storm Sewer System (MS4) is contributing to exceedances of WQS by comparing results to applicable WQO in the Los Angeles Region Water Quality Control Plan (Basin Plan) and the California Toxics Rule (CTR), as described in Section 9.7

During the 2018/19 monitoring year, water quality samples from three wet-weather events and one dry-weather event were targeted for water chemistry analysis at each mass emission station, as required by the NPDES Permit. All mass emission sites were successfully sampled for these events. Aquatic toxicity samples were collected at each mass emission station during the first sampled event of the 2018/19 monitoring year (November 21-22, 2018 for ME-CC and ME-VR2 and November 29-30, 2018 for ME-SCR) and tested with the species that was determined to be the most sensitive to contaminants for each station, based on the results from the 2009/10 monitoring year.

9.2.2 Major Outfall Monitoring

The Permit requires sampling at one representative station (major outfall) for each Permittee's municipal separate storm sewer system (MS4). Many of the monitoring requirements for major outfall stations are similar to those for the mass emission stations, as are the reasons for undertaking this monitoring. Four of the stations were monitored beginning with the 2009/10 monitoring season and seven of the stations were new to the 2010/11 monitoring season. Station selection for these new sampling locations is described in Section 9.3.2.

During the 2018/19 monitoring year, water quality samples from three wet-weather events and one dry-weather event were targeted for water chemistry analysis at each of the eleven major outfall stations, as required by the NPDES Permit. Three wet events were sampled for all eleven stations. Eight sites were successfully sampled during the dry event, however MO-OXN, MO-SPA and MO-MEI were dry and could not be sampled. Aquatic toxicity samples were collected at each of the major outfall stations during the first sampled event (November 21-22, 2018) with the exception of MO-SPA and MO-THO which were sampled during the second event (November 29-30, 2018) due to safety concerns during Event 1. Samples were tested with the species that was determined to be the most sensitive to contaminants for that station, based on the results from the 2009/10 or 2010/11 monitoring year, as applicable.

Using the data from the major outfall monitoring in conjunction with the mass emission monitoring, the Stormwater Monitoring Program will help the Program determine if an MS4 is potentially contributing to exceedances of WQS by comparing results to applicable WQO in the Basin Plan and the CTR. Over the course of many years, the data will be able to describe trends in waters from the major outfall stations over time. This information will be useful

in evaluating the effectiveness of the Program implementation and provide Permittees with real data on which to base future management decisions.

9.2.3 Dry-Season, Dry-Weather Analytical Monitoring

The Permit requires the analysis of pollutant discharges from a representative MS4 outfall in each municipality and in the unincorporated County area during dry weather between May 1 and Sept 30. The Stormwater Monitoring Program met this requirement by sampling once during the summer at or near major outfall stations, or at another pre-selected representative site if flow was insufficient at the major outfall station.

9.2.4 Bioassessment Monitoring

Prior to the adoption of the New Permit (Orders No. 09-0057 in 2009 and its replacement, R4-2010-0108 in 2010), the Stormwater Monitoring Program performed bioassessment monitoring in the Ventura River watershed at fixed locations. That sampling effort was terminated in favor of a new program working to standardize bioassessment monitoring throughout Southern California undertaken by the Stormwater Monitoring Coalition of Southern California (SMC) and led by the Southern California Coastal Water Research Project (SCCWRP). The Stormwater Monitoring Program (Program) has participated in the regional program since 2009.

The first five-year study was conducted from 2009 through 2013 during which time the Program performed bioassessment surveys at 15 random sites (six in the Ventura River Watershed, six in the Calleguas Creek Watershed, and three in the Santa Clara River Watershed) and three targeted perennial sites (ME-CC, ME-SCR⁴, and ME-VR2) throughout the County each year. An interim study was conducted in 2014 to allow the SMC time to review the generated data and to provide information for developing the next five-year study (2015-2019). The 2014 study included revisits to previously sampled sites for trend detection and repeated visits to new nonperennial reference sites to provide information for developing the next five-year study.

The 2015-2019 Study includes perennial and nonperennial streams and is designed to look at both current stream condition as well as site trends. Each year, including 2019, the Program surveys ten randomly generated sites to assess condition (three in the Ventura River Watershed, three in the Calleguas Creek Watershed, three in the Santa Clara River Watershed, and one in the Santa Monica Bay Watershed) and five sites (two open land use and three developed land use) that were previously surveyed in 2008/2009 to track trends. The Principal Permittee's fixed (Integrator) sites at the three mass emission stations (ME-CC, ME-VR2, and ME-SCR) were also sampled once each for 2019. Sampling occurred between May 9 and July 31, 2019. The regional bioassessment effort is ongoing and will be modified and revised as new information becomes available.

9.3 MONITORING STATION LOCATIONS AND DESCRIPTIONS

9.3.1 Mass Emission Stations

Mass emission stations are located in the three major Ventura County watersheds: Ventura River (ME-VR2), Santa Clara River (ME-SCR), and Calleguas Creek (ME-CC). In locating these stations, every effort was made to position the station as low as possible in the watershed to capture as much of the runoff as possible, while remaining above tidal influence. See Figure 9-1 for the location of mass emission stations.

⁴ ME-SCR was not perennial in 2015/16 and 2016/17 due to drought conditions.

The ME-VR2 station is located at the Ojai Valley Sanitary District's wastewater treatment plant (WWTP) near Cañada Larga Road and captures runoff from the city of Ojai, several unincorporated communities (e.g., Meiners Oaks, Casitas Springs), a very small portion of the City of Ventura, and a large portion of undeveloped landscape, the latter of which comprises the bulk of the watershed. Monitoring at the ME-VR2 station was initiated during the 2004/05 monitoring season after landslide activity at the original Ventura River mass emission station, ME-VR, precluded further sampling at that location.

The ME-CC station is located along Camarillo Street (formerly University Drive) near California State University at Channel Islands and captures runoff from the cities of Camarillo, Thousand Oaks, Moorpark, and Simi Valley. This watershed has the largest urban influence (roughly 30% urbanized), but also includes significant contributions from agricultural runoff found predominantly in the lower two-thirds of the watershed. Monitoring at the ME-CC station was initiated during the 2000/01 monitoring season.

The ME-SCR station is located at the United Water Conservation District's (UWCD) Freeman Diversion Dam east of Saticoy and captures runoff from the cities of Santa Paula and Fillmore, communities upstream in Los Angeles County, agricultural fields, and a large amount of undeveloped landscape. Monitoring at the ME-SCR station was initiated during the 2001/02 monitoring season. Unlike at the other two mass emission stations, accurate measurement of flow at this location is not possible due to the configuration and operation of the diversion structure. In dry conditions, the river is usually diverted to groundwater infiltration ponds. In wet-weather conditions, the Santa Clara River can also flow past the diversion dam through two other routes. One route is through the river diversion gate structure where the majority of wet-weather flow passes. The other route is over the diversion dam, a situation which occurs only during high flows generated by large storm events. Flood flows are monitored at the diversion dam by the Hydrology Section, but there is no flow meter installed at the river diversion gate due to complex hydraulics. A sonic water level sensor was installed in 2014 over the pond behind the diversion so that a gate opening would be noticed. A text message is automatically sent to sampling team members when the gate is opened, which lets them know the intake strainer could lose contact with the river. A special swing arm intake strainer has been installed to alleviate this potential problem, but the installation is still being refined.

9.3.2 Major Outfall Stations

Of the eleven major outfall stations, four were added to the Stormwater Monitoring Program in 2009 and seven were added in 2010. As directed by the NPDES Permit, these stations represent the runoff from each city/unincorporated county (Permittee) in which they are located. The four municipalities selected for inclusion in the 2009/10 Stormwater Monitoring Program were Camarillo (MO-CAM), Ojai (MO-OJA), unincorporated Meiners Oaks (MO-MEI) and Ventura (MO-VEN).⁵ The stations in the seven remaining municipalities brought online for the 2010/11 monitoring year were Fillmore (MO-FIL), Moorpark (MO-MPK), Oxnard (MO-OXN), Port Hueneme (MO-HUE), Santa Paula (MO-SPA), Simi Valley (MO-SIM), and Thousand Oaks (MO-THO). Figure 9-1 shows the location of the eleven major outfall and three mass emission stations.

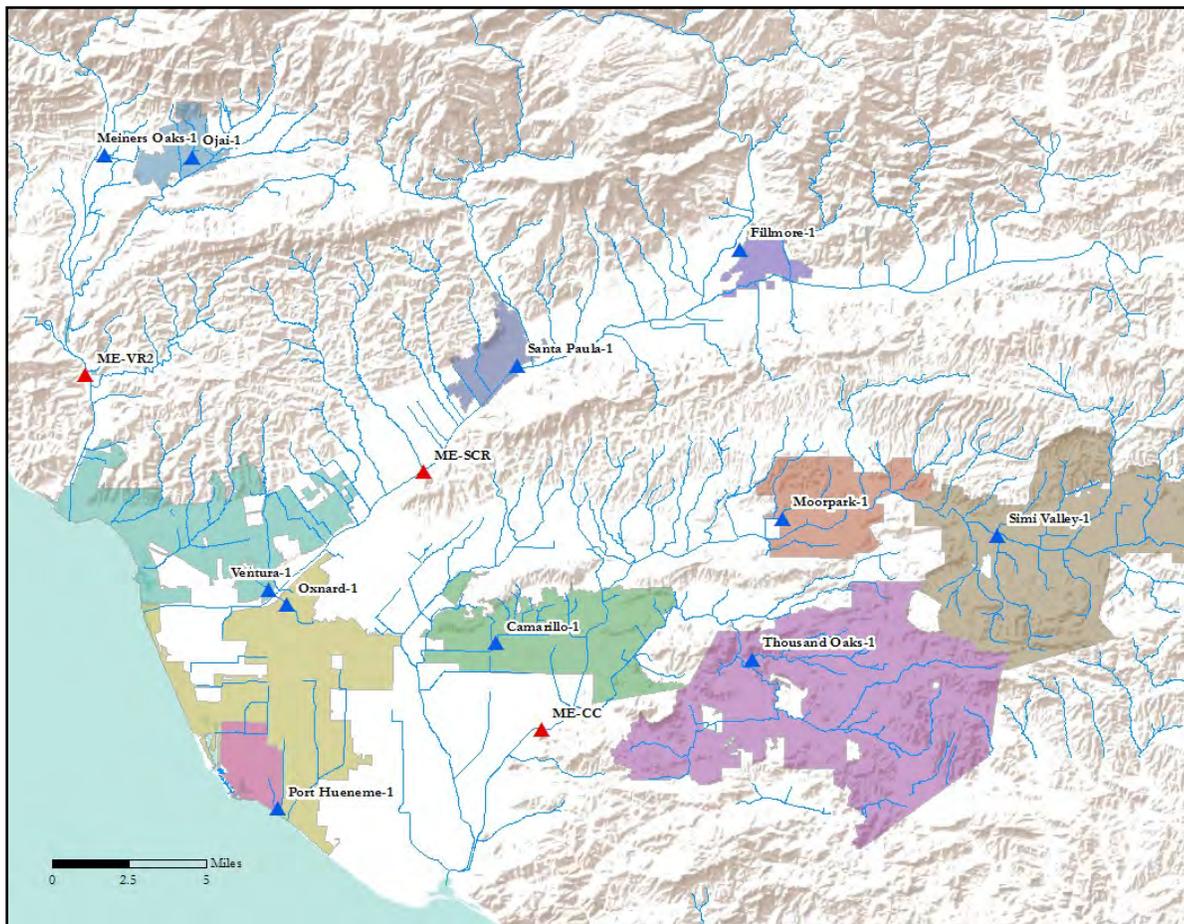
In 2018/19 the Program revised the drainage areas to each major outfall using the latest LiDAR topography and updated storm drain system information from the Ventura Countywide Unified Storm Drain Mapping project. In addition to updated drainage boundaries, the land use classification percentages within each drainage area were recalculated using the 2012 Southern California Area Government's (SCAG) Land Use GIS file. Upon inspecting the 2012 SCAG GIS data layer, it was noted that many agricultural parcels were miscategorized as "Rural

⁵ Site names shown on the map in Figure 9-1 reflect the names given to each site in the NPDES permit; site names throughout this report are shortened to those shown on chains-of-custody (COCs) for brevity. Under this naming convention, MO-CAM is synonymous with Camarillo-1, MO-FIL with Fillmore-1, MO-HUE with Port Hueneme-1, MO-OJA with Ojai-1, MO-OXN with Oxnard-1, MO-MEI with Meiners Oaks-1 (VCUnincorporated-1), MO-MPK with Moorpark-1, MO-SPA with Santa Paula-1, MO-SIM with Simi Valley-1, MO-THO with Thousand Oaks-1, and MO-VEN with Ventura-1.

Residential” when in fact the parcels were primarily used for agriculture. The Ventura County Agricultural Commissioner’s (Ag. Commissioner) office provided its most recent GIS file identifying current agricultural parcels as of November 2018. This layer was then merged with the existing 2012 SCAG land use layer, with the Ag. Commissioner identified parcels replacing the existing 2012 SCAG data as land use category ‘Agriculture’ for those locations. The updated land use layer was also used to generate the citywide land use percentage statistics.

Details of the land use of each city and the representative watershed can be found in Appendix A in Attachment D.

Figure 9-1 Mass Emission and Major Outfall Sampling Locations



The MO-CAM station is located on Camarillo Hills Drain (a tributary of Revolon Slough) just north of Daily Drive in Camarillo. The predominant land use in the watershed is residential. Less than 5% of the watershed is commercial and less than 4% is agricultural.

The MO-OJA station is located on Fox Canyon Barranca (a tributary of San Antonio Creek) near the Ojai Valley Athletic Club in Ojai. Approximately 37% of the watershed is classified as vacant or open space, with residential land use comprising about 32%. About 5% of the watershed is commercial and about 9% is agricultural.

The MO-MEI station is located on Happy Valley Drain (a tributary of the Ventura River) near Rice Road in Meiners Oaks. Over half of the watershed is classified as residential or rural residential. About 10% is classified as vacant. 4% of the watershed is commercial and about 15% is agricultural.

The MO-VEN station is located on Moon Ditch (a tributary to the Santa Clara River) near the US101-Johnson Drive interchange in Ventura. Over half of the watershed is residential. Industrial land uses account for almost 13% of the watershed, while agriculture comprises less than 1% of the watershed.

The MO-FIL station is located on the North Fillmore Drain (a tributary of Sespe Creek) near Shiells Park in Fillmore. Almost half the watershed is residential and over 15% is classified as open space/recreation. Agriculture land uses account for almost 10% of the watershed, while commercial comprises less than 1% of the watershed.

The MO-MPK station is located on the Walnut⁶ Canyon Drain (a tributary to Arroyo Las Posas) near the intersection of Los Angeles Avenue and Mira Sol Drive in Moorpark. Over a third of the watershed is classified as open space/recreation, almost a third is residential, and almost 12% of the watershed is used for agriculture.

The MO-OXN station is located on El Rio Drain (a tributary to the Santa Clara River) near the corner of Buckaroo Avenue and Winchester Drive in Oxnard. Most of the watershed is classified as residential, however almost 20% is transportation and less than 1% is agricultural.

The MO-HUE station is located on Hueneme Drain (a tributary of Tšumas Creek (formerly J Street Drain) at the Pacific Ocean) southeast of Bubbling Springs Park in Port Hueneme. The land use is predominantly residential and transportation, with open space/recreation land use accounting for almost 8%.

The MO-SPA station is located on the 11th Street Drain where it enters the Santa Clara River, east of the Santa Paula airport. Over half of the watershed is classified as residential, less than 20% as transportation, and schools account for approximately 2%.

The MO-SIM station is located on Bus Canyon Drain (a tributary of the Arroyo Simi) near the intersection of 5th Street and Los Angeles Avenue in Simi Valley. Over half (55%) of the watershed is classified as open space/recreation and about one third is residential.

The MO-THO station is located on the North Fork Arroyo Conejo (a tributary to Conejo Creek) in the Hill Canyon WWTP. The main land uses in the watershed are residential (47%), open space/recreation (26%) and transportation (16%).

9.4 METHODS

The NPDES Permit requires flow-paced sampling at monitoring stations where technically feasible. The reason for this type of sampling is two-fold. First, by collecting sub-samples (aliquots) based on flow, a more accurate representation of the Event Mean Concentration (EMC) of each constituent in the runoff can be achieved. Second, by multiplying the EMC by the total flow during sample collection, a mass of each constituent discharged during each sampling event can be estimated. Ideally, sampling events represent the entire hydrograph, however difficulties inherent in predicting precipitation quantity, intensity, and resulting runoff may result in partial representation of the complete storm event. Therefore, EMC are only representative of the sampling event duration and not the entire storm and mass emission quantities are calculated accordingly. These benefits are discussed further below.

Flow-paced sampling is not technically feasible at three sites, ME-SCR, MO-FIL, and MO-HUE. Since its installation in 2001, the monitoring station at ME-SCR has been monitored on a time-paced basis, as allowed by the RWQCB. This site is located at the UWCD's Freeman Diversion Dam, where irregular operation of the gates associated with the diversion dam makes it impossible to calculate flow. During most of the year, water is sent through a canal in which it would be easy to calculate flow. However, during rainfall events and periodically throughout the year, the UWCD will close the gates to the diversion canal, allowing water to go through a high-

⁶ Incorrectly referred to as Gabbert Canyon in reports and documents prior to the 2012/13 Annual Report.

velocity bypass or spill over the dam itself. Computing flow over the latter is difficult, given the breadth of the dam, which spans the entire river bottom. Computing flow through the bypass is impossible due to the wide ranges in water surface elevation and velocity. The MO-FIL station is located at an outfall into Sespe Creek and is subject to backwater due to plant growth and sediment deposition, which makes accurate flow determination impossible. The MO-HUE station is in a canal that is drained via pumps that are triggered based on water surface elevation. The pumps are operated intermittently which makes flow-paced sampling inappropriate.

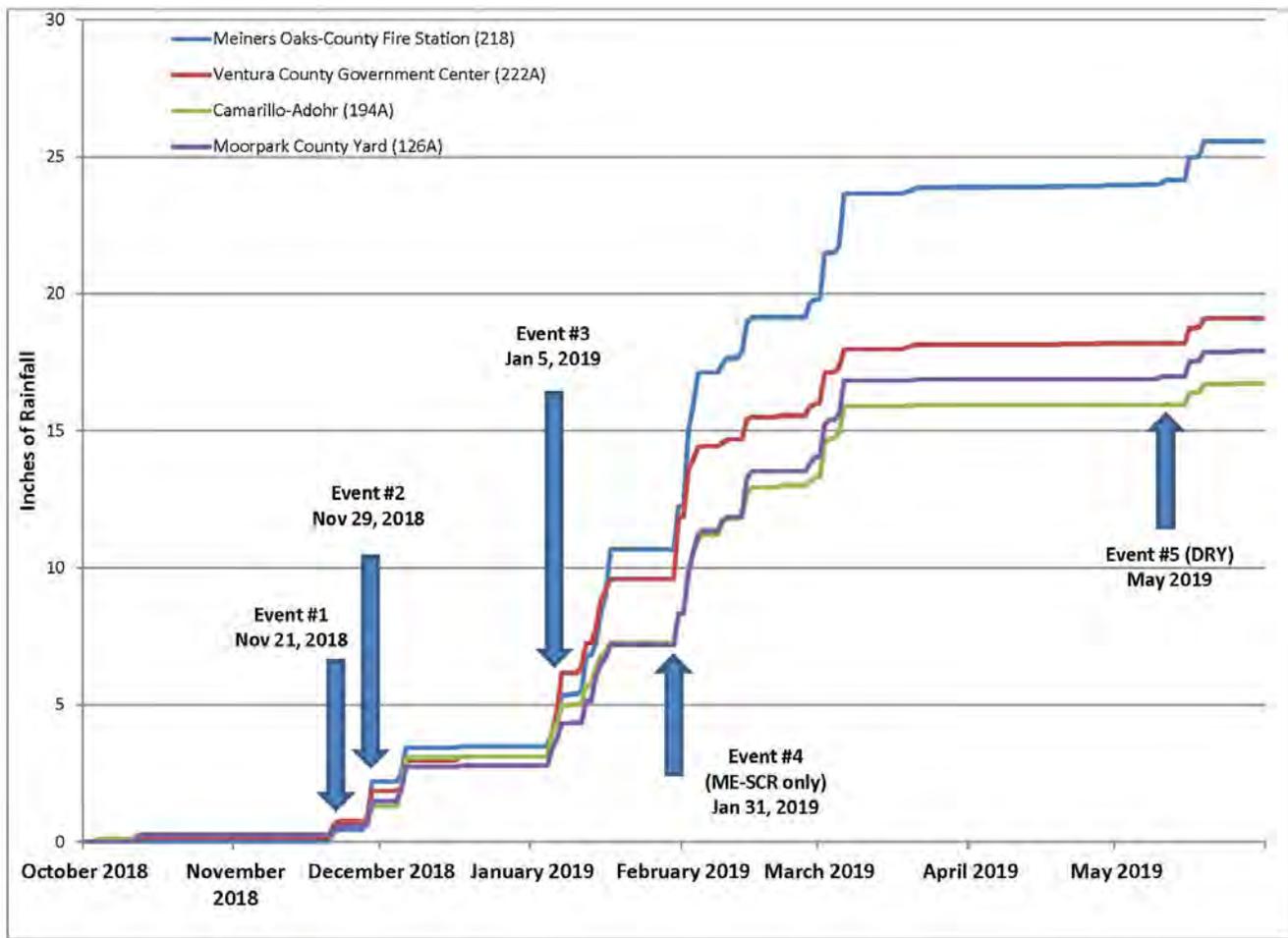
9.4.1 Precipitation

Precipitation amounts, both historical and predicted, are integral to performing flow-weighted sampling. Historical precipitation data is necessary to determine the relationship between rainfall and runoff. In the major watersheds with long-term mass emission stations, the rainfall-to-runoff (RTR) ratio is based on over 65 years of data and takes into account antecedent soil moisture conditions. These RTR tables have been used and refined by the Stormwater Monitoring Program since the stations were installed in 2001.

At the time the major outfall stations were installed, the Stormwater Monitoring Program had access to real time precipitation data from the VCWPD's Hydrology section [part of the Automated Local Evaluation in Real Time (ALERT) network]; however, it was not in a form that was usable by the Program. Changes to the processing of the ALERT data allowed the Program to capitalize on the already installed and maintained ALERT rainfall gauges. Most of the monitoring stations were able to use data from nearby ALERT gauges. Those monitoring stations that do not have nearby ALERT gauges (ME-SCR, ME-VR2, MO-CAM, MO-MEI, MO-VEN, and MO-HUE) have tipping bucket rainfall gauges (0.01" per tip) installed instead. Rainfall data from sites that use non-Program rain gauges is considered "best available" at the time of the report. The data is subject to quality control review by the Hydrology section, during which time the telemetered data (if available) is compared to the data logger and to other rainfall gauges in the area at the time to determine best accuracy prior to storing the data as official "archived" data. This typically occurs after the end of the water year and too late for inclusion in this Annual Report. This may result in some slight differences in rainfall amounts if queried later, but typically will not have a large effect for most storms.

While the rainfall gauges purchased and maintained by the Stormwater Monitoring Program are of high quality, the data generated by these gauges are subjected to less stringent quality control measures than the "official" gauges maintained by the Hydrology section. Therefore, the Stormwater Monitoring Program has opted to show cumulative totals from representative ALERT gauges when indicating dates that actual sampling events occurred, as shown in Figure 9-2. Please note that this is preliminary data as this Annual Report is due before the records from the water year can receive full quality control review, however it does provide a good overview of wet season rainfall. Gauge 218 is in the Ojai Valley near the MO-MEI station. Gauge 222 is located at the County Government Center near the MO-VEN station. Gauge 194 is located at the base of the Conejo Grade, somewhat equidistant from the ME-CC and MO-CAM stations. Gauge 126A is located at the Moorpark County Yard near the MO-MPK station. Rainfall data gathered at specific monitoring stations can be found in Appendix B in Attachment D.

Figure 9-2 Precipitation at Selected Sites

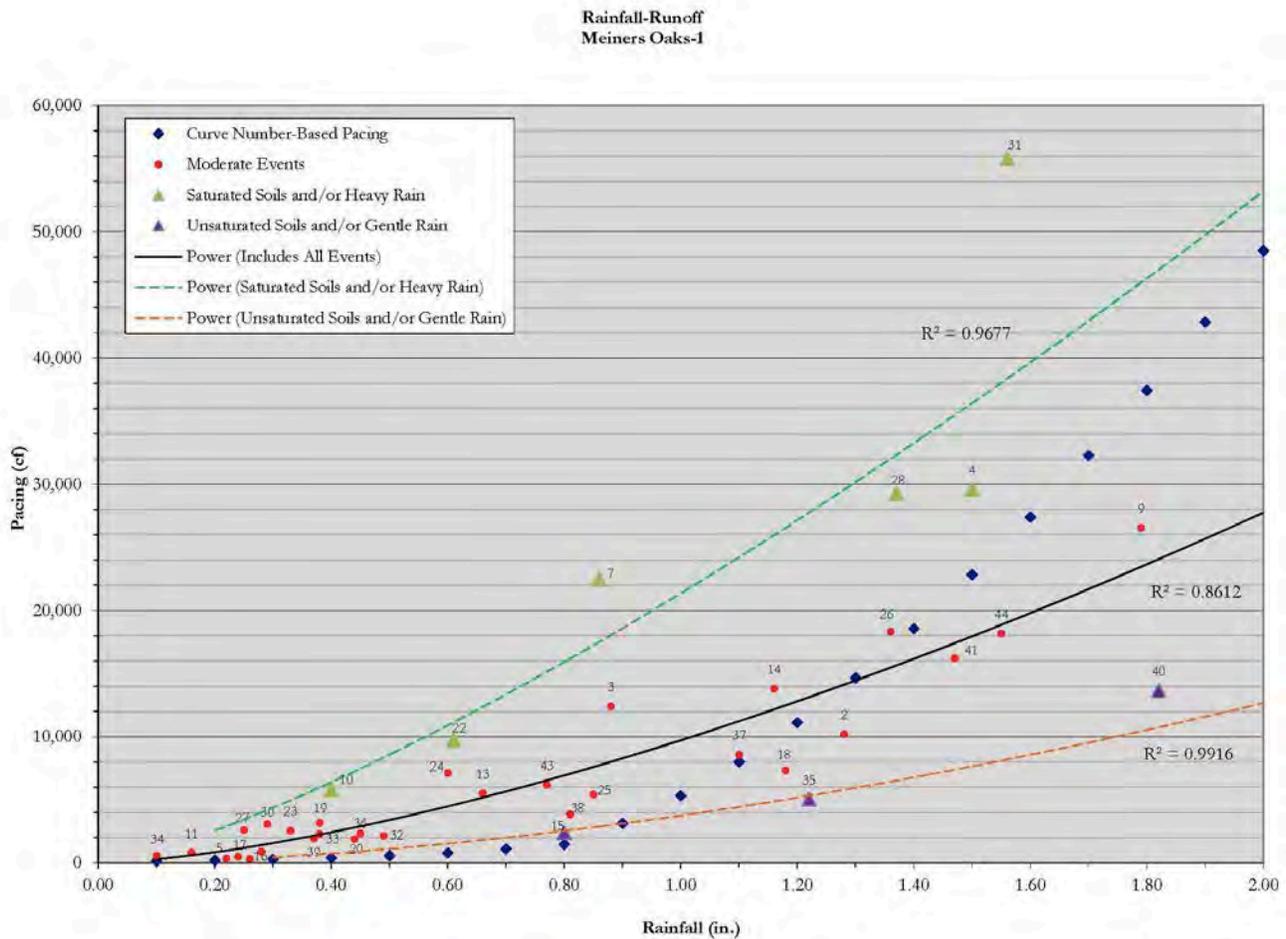


9.4.2 Rainfall-to-Runoff Ratios

Prior to starting monitoring under the new Permit (before monitoring season 2009/10), the Stormwater Monitoring Program enlisted the VCWPD’s Hydrology section to assist in modeling the expected rainfall-to-runoff (RTR) ratio for each new major outfall station. The Hydrology section used the NRCS Curve Number approach that is commonly used in hydrologic modeling. This model considers land use and soil types within each watershed but relies on using a wetter soil moisture condition than actually exists for all but the largest of rainfall events. Despite these known limitations, these RTR ratios represented a good beginning point for flow-weighted sampler pacing. A further description of the methods and limitations of this approach, as described by the Hydrology section, can be found in Appendix C in Attachment D.

Since the stations have been in place, the Stormwater Monitoring Program has refined these model results by comparing the runoff generated at each site with the corresponding rainfall, where runoff was sufficient to be detected by the equipment and rainfall was greater than 0.1 inch. The Program also tracks the antecedent soil moisture for each event, flagging it as “Dry”, “Moderate”, or “Wet”. This allows the Stormwater Monitoring Program to more accurately pace automated samplers based on the predicted size of each storm. Figure 9-3 shows an example of these pieces of information, as a function of the proper pacing of the automated sampler (see Section 9.4.3 for a further description of sampler pacing).

Figure 9-3. Example of Rainfall-to-Runoff Modeling Versus Actual Rainfall Events



9.4.3 Flow-Paced Sampling

To compute flow (or to measure water level at time-paced sites), ISCO flow meters are installed at all stations except MO-HUE (where the pump station prevents water level and flow from being able to be measured accurately).

ISCO 4230 bubblers are used to measure water height (stage) at MO-FIL and all flow-paced stations except MO-SPA, which uses an ISCO 2150 area-velocity meter instead. By measuring pressure head and relating it to a rating table, the 4230s can calculate instantaneous discharge. Measurement accuracy of the 4230 is not affected by wind, steam, foam, turbulence, suspended solids, or rapidly changing head heights. For concrete channels (i.e. MO-CAM, MO-FIL, MO-MEI, MO-MPK, MO-OJA, MO-OXN, MO-SIM, and MO-VEN), the water level must reach the toe of the channel to come into communication with the 4230 tubing for stage measurements and corresponding flow calculations. This means that water levels from the channel invert to the toe are unable to be measured and so sampling begins after water levels rise above this height. Bubbler flow meters are extremely low maintenance and highly reliable and were, therefore, chosen over other contact (ISCO 2150 area-velocity) and non-contact (ISCO 4210 ultrasonic) types of flow measuring devices when possible. 2150 area-velocity meters use Doppler technology to directly measure average velocity in the flow stream, while the integral pressure transducer measures liquid depth to determine flow area. The 2150 then calculates flow rate by multiplying the area of the flow stream by its average velocity. The 2150 is best for applications where weirs or flumes are not practical, or where submerged, full pipe, surcharged, and reverse flow conditions may occur, such as at the MO-SPA monitoring site. Flow meters are

installed at two time-paced sites (4230 at MO-FIL and ISCO 4210 ultrasonic at ME-SCR) to provide information about water level only, as flow cannot be calculated at these sites.

Flow-paced sampling involves collecting sub-samples (aliquots) on a volumetric flow interval basis, with a set aliquot volume collected at passage of each equal, pre-set flow volume, and then compositing these aliquots into one sample for analysis. In its simplest terms, flow-paced sampling can be achieved by estimating the total flow that will pass a sampling location (which, itself, is dependent on predicted rainfall amounts and intensities) and dividing that by the number of aliquots to be taken. Using Figure 9-3 above as an example, an approximate 0.6” rainfall event would generate about 0.25 million cubic feet of runoff, which when divided by 35 (the number of aliquots the Stormwater Monitoring Program attempts to take per event at each site) provides the proper pacing of around 7,000 cubic feet per aliquot (see data point #24). As mentioned above, this pacing volume is highly dependent on other variables such as rainfall intensity and antecedent soil moisture conditions.

Although composite samplers are automated, Stormwater Monitoring Program staff actively monitored storm and flow conditions during each event in order to adaptively adjust the sampler to capture the best representation of storm flow. This was made possible by the telemetry capabilities of the Stormwater Monitoring Program. Prior to the 2009/10 monitoring season, Stormwater Monitoring Program staff members were required to visit each site as the timing and amounts of predicted rainfall changed. Each site is now equipped with a cellular modem that allows remote changes to sampler pacing, enabling conditions and alarms. Furthermore, the data from each of these sites is pushed via a static IP address to a centrally located SQL server and is accessible in near real-time format. Due to this set-up, site visits were only necessary to set up the site initially, take grab samples, collect composite sample bottles, and correct physical problems with the site. A schematic of this set-up is shown in Figure 9-4. An example of the data available to Stormwater Monitoring Program staff in the Storm Control Center is shown in Figure 9-5.

Figure 9-4. Schematic of Remote Data Delivery and Access

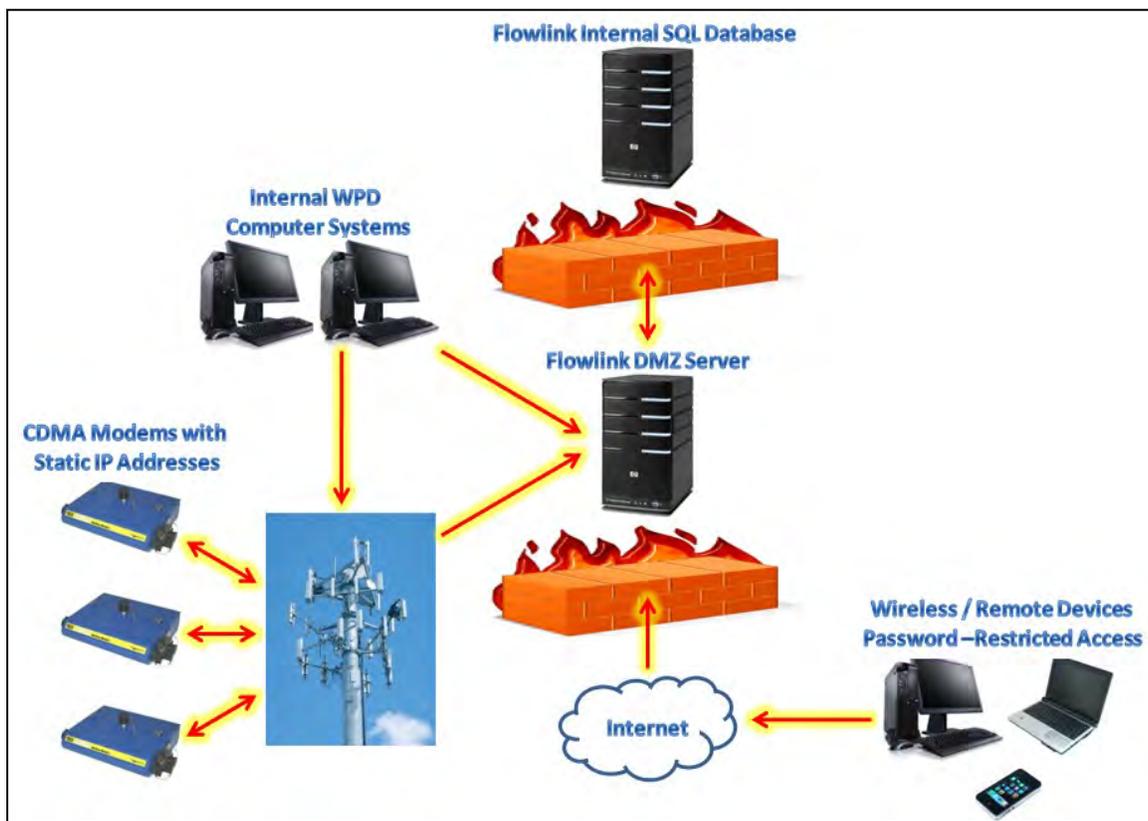


Figure 9-5. Real-Time Data Available in Storm Control Center



9.4.4 Sample Collection

As detailed in the NPDES Permit, the Stormwater Monitoring Program is to sample one dry-weather and three wet-weather events at the mass emission and major outfall stations during each Permit year. Wet-weather events are described as “discharge resulting from a storm event that is 0.25 inches or greater” preceded by at least 7 days of dry weather (<0.10” each day). Mass emission station wet-weather events have the additional criteria of a greater than 20% increase in base flow. The Permit emphasizes capturing the first event of the year, as well as the first part of each storm, both of which can be described as the first flush.

Composite and grab samples were collected at all mass emission and major outfall stations, when possible. Composite samples were collected in glass containers and then delivered to the lab, where they were split by agitating the bottle, pouring off the necessary volume into a sample bottle, and repeating as necessary. When the splitting of a composite sample was performed, the composite sample was continually agitated to provide as much "non-invasive" mixing as possible. Sample splitting allows homogeneous aliquots of a single, large water sample to be divided into several smaller sub-samples for different analyses. The volume of sample collected depended upon the volume required by the lab to perform requested water quality and QA/QC analyses.

Grab samples were collected for constituents that are not suitable for composite sampling (e.g. cannot use an intermediary container, are likely to volatilize, or require immediate preservation). Grab samples were taken as close to mid-stream, mid-depth as possible by immersing the sample bottle directly in the water (see Figure 9-6). In some situations, site conditions precluded such sampling and alternative sampling techniques were used. At the larger, deeper mass emission stations, grab samples were often gathered near the bank, but still in positive flow,

with the help of a long, extended swing sampler (see Figure 9-7) when necessary. This technique was also employed at some of the major outfall stations where getting into the channel would have compromised personnel safety.

Figure 9-6. Grab Sampling at Mid-Stream, Mid-Depth



For constituents analyzed from samples required to be collected as “grabs,” samples were ideally taken at the peak runoff flow to provide the best estimate for an event mean concentration (EMC). In practice, it was difficult to both predict the peak flow for each site and to allocate manpower such that all sites were grab-sampled at the storm event peak flow. It should be noted that peak flow times varied for each monitoring station due to the size and inherent characteristics of the watershed in which the site was located, as well as varying durations and intensities of rainfall. All grab and composite wet weather samples collected during the 2018/19 monitoring season are considered best available estimates of storm EMCs.

The chemical analysis of some constituents is not possible to be accurately performed on samples transported to a laboratory setting and must be performed in the field. These constituents were analyzed at the time when grab samples were collected using pre-calibrated field meters. All field meters were calibrated according to manufacturers’ directions, using vendor-supplied calibration solutions where applicable.

The chemical analysis of some constituents is not possible to be accurately performed on samples transported to a laboratory setting and must be

Figure 9-7. Grab Sampling Using Extended-Reach Swing Sampler



The Stormwater Monitoring Program also documented the samples it collected at each monitoring site during an event, including the date and time of collection, by completing a chain of custody (COC) form for each sampling event. The COC form not only documented sample collection, but also notified the analytical laboratories about which samples should be analyzed for a certain constituent or group of constituents, oftentimes specifying the analytical method to be employed. Finally, the COC form acted as an evidentiary document noting how many samples were relinquished – and at what date and time – to a particular laboratory by the Stormwater Monitoring Program. All chain of custody forms associated with the 2018/19 monitoring year

are presented in Appendix E in Attachment D.

To maintain quality control for the sampling program, the sampling crew, in cooperation with the analytical laboratories, has minimized the number of laboratories and sample bottles used for analysis. This has minimized

bottle breakage, increased efficiency, and reduced the chances for contamination of the samples. Also, dedicated monitoring team leaders were used to provide consistent sample collection and handling.

As a means of documenting all preparatory, operational, observational, and concluding activities of a monitoring event, the Stormwater Monitoring Program produced an event summary for each monitoring event. These event summaries include, but are not limited to, information related to event duration, predicted and actual precipitation, weather conditions, the programming of sampling equipment, equipment malfunctions, sample collection and handling, and sample tracking with respect to delivery to analytical laboratories. All event summaries associated with the 2018/19 monitoring season are presented in Appendix D in Attachment D.

Figure 9-8. Typical Wet-Season, Dry-Weather Sampling Configuration



During the dry sampling events, Stormwater Monitoring Program staff deployed sand-weighted silicone dams where necessary to allow very low flows to pool up to sampleable depths. This provided the depth needed to submerge the grab bottles and/or automated sampler intake line to facilitate successful sample collection (see Figure 9-8). This innovative technique is further discussed in *Ventura Countywide Stormwater Monitoring Program: Water Quality Monitoring Standard Operating Procedures, 2009-2014*.

The QA/QC sampling schedule was designed to be flexible in response to changing conditions, with the analytical chemistry laboratory being instructed to utilize VCWPD samples for MS/MSD and laboratory duplicate analyses when sample volume was sufficient, rather than for specific sites for each event. This flexibility is of benefit for several reasons. First, as is often the case, rainfall duration and intensity were difficult to predict, especially in the early part of the season. Second, extremely dry antecedent conditions made forecasting flow conditions at the various monitoring locations complicated. Finally, site-specific complications can affect sample volume. An example of this is the operation of the diversion canal at ME-SCR by UWCD, which can leave the primary intake line of the sampler out of contact with the water, thereby causing insufficient sample volume as the sampler pulls air instead of river water. The Stormwater Monitoring Program has attempted to deal with the situation at this site by installing a swing arm intake line, which is designed to stay submerged at changing water levels however the shortage of sampleable events since installation prevented the verification of the new model for all conditions. The flexibility in QA/QC sampling station selection allows the laboratory more options for using VCWPD samples for QA/QC tests than would otherwise be possible, due to the ability to select sites with surplus sample volume.

The sampling methods and sample handling procedures are described in *Ventura Countywide Stormwater Monitoring Program: Water Quality Monitoring Standard Operating Procedures, 2009-2014*.

9.4.5 Analyses Performed

Attachment G (Minimum Levels) of the Permit lists the constituents to be analyzed for each event⁷. In addition to this broad suite of constituents, Attachment B (Pollutants of Concern) specifies other site-specific constituents that have been identified as problematic pollutants in previous years of water quality sampling. These, and any unrequested constituents for which results are obtained during method analysis, were incorporated into the sampling program and appear in the tables below.

Table 9-1 shows those constituents that were gathered as discrete samples. Table 9-2 shows those constituents that were gathered as composite samples. Bolded constituents are required by the Permit. Constituents in italics are also measured by the method so results are available even though they are not required by the Permit. Underlined constituents were added in 2016 (starting with Event 2016/17-2) to allow calculations for the Biotic Ligand Model. All laboratory chemical analyses of environmental samples and preseason equipment blank samples were performed by Weck Laboratories, except for analyses for indicator bacteria, which were performed by the Ventura County Public Health Lab, and toxicity, which were performed by Pacific EcoRisk.

Table 9-1. Constituents Derived from Discrete (Grab) Samples

Method	Classification	Constituent
MMO-MUG	Bacteriological	Total Coliform
MMO-MUG	Bacteriological	<i>E. coli</i>
SM 9221-E	Bacteriological	Fecal Coliform⁸
Enterolert	Bacteriological	Enterococcus⁹
ASTM D7511	Conventional	Cyanide
EPA 624	Organic	2-Chloroethyl vinyl ether
	Organic	Methyl tert-butyl ether (MTBE)
EPA 1664A	Hydrocarbon	Oil and Grease
EPA 8015B	Hydrocarbon	<i>Gasoline Range Organics</i> (part of TPH)
Varies	Toxicity	Toxicity
Field Meter	Conventional	Conductivity
	Conventional	DO (%)
	Conventional	DO (mg/L)
	Conventional	pH
	Conventional	Salinity
	Conventional	Specific Conductance
	Conventional	Temperature

Table 9-2. Constituents Derived from Composite Samples

Method	Classification	Constituent
EPA 160.4	Conventional	Volatile Suspended Solids

⁷ For Permit Sections A. Mass Emission and B. Major Outfalls only. The constituents for Section C. Dry Weather Analytical Monitoring are listed separately in that section and are detailed in Section 9.11 of this report.

⁸ Fecal coliform is no longer included in the bacteriological analyses as of May 23, 2018, when the Regional Board authorized the exclusion of fecal coliform from the POC and Minimum Levels list of the Permit, based on the elimination of fecal coliform as a freshwater REC-1 standard in 2010. The authorization occurred after the end of the 2017/18 wet season and prior to the 2017/18 dry event.

⁹ Enterococcus is no longer included in the bacteriological analyses as of the end of the 2016/17 monitoring year as it is a marine water requirement (not freshwater), not listed as a Pollutant of Concern (POC), and is not recommended as a fecal indicator bacteria (FIB) for freshwater.

Method	Classification	Constituent
EPA 180.1	Conventional	Turbidity
EPA 200.7	Cation	<i>Calcium</i>
	Cation	<i>Magnesium</i>
	Cation	<u><i>Potassium E2-E5</i></u>
	Cation	<u><i>Sodium E2-E5</i></u>
	Conventional	Hardness as CaCO₃
	Metal	Iron, total
	Metal	Iron, dissolved
	Nutrient	Phosphorus as P, total¹⁰
	Nutrient	Phosphorus as P, dissolved⁷
	EPA 200.8	Metal
Metal		Aluminum, dissolved
Metal		Antimony, total
Metal		Antimony, dissolved
Metal		Arsenic, total
Metal		Arsenic, dissolved
Metal		Beryllium, total
Metal		Beryllium, dissolved
Metal		Cadmium, total
Metal		Barium, total (POC at ME-CC & ME-SCR)
Metal		Cadmium, dissolved
Metal		Chromium, total
Metal		Chromium, dissolved
Metal		Copper, total
Metal		Copper, dissolved
Metal		Lead, total
Metal		Lead, dissolved
Metal		Nickel, total
Metal		Nickel, dissolved
Metal		Selenium, total
Metal		Selenium, dissolved
Metal		Silver, total
Metal		Silver, dissolved
Metal		Thallium, total
Metal		Thallium, dissolved
Metal		Zinc, total
Metal		Zinc, dissolved
EPA 218.6		Metal
EPA 245.1	Metal	Mercury, total
	Metal	Mercury, dissolved
EPA 300.0	Anion	Chloride
	Anion	Fluoride
	Anion	<u><i>Sulfate E2-E5</i></u>
EPA 314.0	Anion	Perchlorate
EPA 350.1	Nutrient	Ammonia as N

¹⁰ Weck Laboratories, Inc. changed their method for phosphorus to EPA 200.7 from EPA 365.1 for the majority of the 2018/19 year. EPA 200.7 has a higher reporting limit (0.02 mg/l vs 0.01 mg/L) but requires less dilution and therefore will have typically better reporting limits.

Method	Classification	Constituent
EPA 351.2	Nutrient	TKN
EPA 353.2	Nutrient	Nitrate + Nitrite as N
	Nutrient	Nitrate as N (ME-CC only)
EPA 365.1⁷	Nutrient	Phosphorus as P, total
EPA 365.1⁷	Nutrient	Phosphorus as P, dissolved
EPA 410.4	Conventional	COD
EPA 420.4	Conventional	Phenolics
EPA 515.3/515.4¹¹	Pesticide	<i>2,4,5-T</i>
	Pesticide	2,4,5-TP
	Pesticide	2,4-D
	Pesticide	<i>2,4-DB</i>
	Pesticide	<i>3,5-Dichlorobenzoic acid</i>
	Pesticide	<i>Acifluorfen</i>
	Pesticide	<i>Bentazon</i>
	Pesticide	<i>Dalapon</i>
	Pesticide	<i>DCPA (Dacthal)</i>
	Pesticide	<i>Dicamba</i>
	Pesticide	<i>Dichlorprop</i>
	Pesticide	<i>Dinoseb</i>
	Pesticide	Pentachlorophenol
	Pesticide	<i>Picloram</i>
EPA 525.2	Organic	Benzo(a)pyrene
	Organic	<i>Bis(2-ethylhexyl)adipate</i>
	Organic	<i>Bis(2-ethylhexyl)phthalate</i>
	Pesticide	<i>Alachlor</i>
	Pesticide	Atrazine
	Pesticide	<i>Bromacil</i>
	Pesticide	<i>Butachlor</i>
	Pesticide	<i>Captan</i>
	Pesticide	<i>Chloroprotham</i>
	Pesticide	Cyanazine
	Pesticide	Diazinon
	Pesticide	<i>Dimethoate</i>
	Pesticide	<i>Diphenamid</i>
	Pesticide	<i>Disulfoton</i>
	Pesticide	<i>EPTC</i>
	Pesticide	<i>Metolachlor</i>
	Pesticide	<i>Metribuzin</i>
	Pesticide	<i>Molinate</i>
	Pesticide	<i>Prometon</i>
	Pesticide	Prometryn
	Pesticide	Simazine
	Pesticide	<i>Terbacil</i>
	Pesticide	<i>Thiobencarb</i>
	Pesticide	<i>Trithion</i>
EPA 525.2m	Pesticide	<i>Azinphos methyl</i>

¹¹ The laboratory replaced EPA 515.3 with EPA 515.4 between the end of the 2018/19 wet season and prior to the 2018/19 dry event.

Method	Classification	Constituent
	Pesticide	<i>Bolstar</i>
	Pesticide	Chlorpyrifos
	Pesticide	<i>Coumaphos</i>
	Pesticide	<i>Demeton-O</i>
	Pesticide	<i>Demeton-S</i>
	Pesticide	Diazinon
	Pesticide	<i>Dichlorvos</i>
	Pesticide	<i>Dimethoate</i>
	Pesticide	<i>Disulfoton</i>
	Pesticide	<i>Ethoprop</i>
	Pesticide	<i>Ethyl parathion</i>
	Pesticide	<i>Fensulfothion</i>
	Pesticide	<i>Fenthion</i>
	Pesticide	Malathion
	Pesticide	<i>Merphos</i>
	Pesticide	<i>Methyl parathion</i>
	Pesticide	<i>Mevinphos</i>
	Pesticide	<i>Naled</i>
	Pesticide	<i>Phorate</i>
	Pesticide	<i>Ronnel (Fenchlorphos)</i>
	Pesticide	<i>Stirophos (Tetrachlorvinphos)</i>
	Pesticide	<i>Tokuthion</i>
	Pesticide	<i>Trichloronate</i>
EPA 547	Pesticide	Glyphosate
EPA 608	PCB	PCB Aroclor 1016
	PCB	PCB Aroclor 1221
	PCB	PCB Aroclor 1232
	PCB	PCB Aroclor 1242
	PCB	PCB Aroclor 1248
	PCB	PCB Aroclor 1254
	PCB	PCB Aroclor 1260
	Pesticide	4,4'-DDD
	Pesticide	4,4'-DDE
	Pesticide	4,4'-DDT
	Pesticide	Aldrin
	Pesticide	alpha-BHC
	Pesticide	alpha-Chlordane
	Pesticide	beta-BHC
	Pesticide	Chlordane (technical)
	Pesticide	delta-BHC
	Pesticide	Dieldrin
	Pesticide	Endosulfan I
	Pesticide	Endosulfan II
	Pesticide	Endosulfan sulfate
	Pesticide	Endrin
	Pesticide	Endrin aldehyde
	Pesticide	gamma-BHC (Lindane)
	Pesticide	gamma-Chlordane
	Pesticide	Heptachlor
	Pesticide	Heptachlor epoxide
	Pesticide	Methoxychlor

Method	Classification	Constituent
EPA 625	Pesticide	Toxaphene
	Organic	1,2,4-Trichlorobenzene
	Organic	1,2-Dichlorobenzene
	Organic	1,2-Diphenylhydrazine
	Organic	1,3-Dichlorobenzene
	Organic	1,4-Dichlorobenzene
	Organic	2,4,6-Trichlorophenol
	Organic	2,4-Dichlorophenol
	Organic	2,4-Dimethylphenol
	Organic	2,4-Dinitrophenol
	Organic	2,4-Dinitrotoluene
	Organic	2,6-Dinitrotoluene
	Organic	2-Chloronaphthalene
	Organic	2-Chlorophenol
	Organic	2-Nitrophenol
	Organic	3,3'-Dichlorobenzidine
	Organic	4,6-Dinitro-2-methylphenol
	Organic	4-Bromophenyl phenyl ether
	Organic	4-Chloro-3-methylphenol
	Organic	4-Chlorophenyl phenyl ether
	Organic	4-Nitrophenol
	Organic	Acenaphthene
	Organic	Acenaphthylene
	Organic	Anthracene
	Organic	Benz(a)anthracene
	Organic	Benzidine
	Organic	Benzo(a)pyrene
	Organic	Benzo(b)fluoranthene
	Organic	Benzo(g,h,i)perylene
	Organic	Benzo(k)fluoranthene
	Organic	Bis(2-chloroethoxy)methane
	Organic	Bis(2-chloroethyl)ether
	Organic	Bis(2-chloroisopropyl)ether
	Organic	Bis(2-ethylhexyl)phthalate
	Organic	Butyl benzyl phthalate
	Organic	Chrysene
	Organic	Dibenz(a,h)anthracene
	Organic	Diethyl phthalate
	Organic	Dimethyl phthalate
	Organic	Di-n-butylphthalate
	Organic	Di-n-octylphthalate
Organic	Fluoranthene	
Organic	Fluorene	
Organic	Hexachlorobenzene	
Organic	Hexachlorobutadiene	
Organic	Hexachlorocyclopentadiene	
Organic	Hexachloroethane	
Organic	Indeno(1,2,3-cd)pyrene	
Organic	Isophorone	
Organic	Naphthalene	
Organic	Nitrobenzene	

Method	Classification	Constituent
	Organic	N-Nitrosodimethylamine
	Organic	N-Nitrosodi-N-propylamine
	Organic	N-Nitrosodiphenylamine
	Organic	Phenanthrene
	Organic	Phenol
	Organic	Pyrene
	Pesticide	Pentachlorophenol
EPA 8015B	Hydrocarbon	<i>Diesel Range Organics (part of TPH)</i>
	Hydrocarbon	<i>Oil Range Organics (part of TPH)</i>
EPA 8270C	Organic	<i>1-Methylnaphthalene</i>
	Organic	<i>2,4,5-Trichlorophenol</i>
	Organic	2,4,6-Trichlorophenol
	Organic	2,4-Dichlorophenol
	Organic	2,4-Dimethylphenol
	Organic	2,4-Dinitrophenol
	Organic	2-Chlorophenol
	Organic	<i>2-Methylnaphthalene</i>
	Organic	<i>2-Methylphenol</i>
	Organic	2-Nitrophenol
	Organic	<i>3-/4-Methylphenol</i>
	Organic	4,6-Dinitro-2-methylphenol
	Organic	4-Chloro-3-methylphenol
	Organic	4-Nitrophenol
	Organic	Acenaphthene
	Organic	Acenaphthylene
	Organic	Anthracene
	Organic	Benz(a)anthracene
	Organic	Benzo(a)pyrene
	Organic	Benzo(b)fluoranthene
	Organic	Benzo(g,h,i)perylene
	Organic	Benzo(k)fluoranthene
	Organic	Chrysene
	Organic	Dibenz(a,h)anthracene
	Organic	Fluoranthene
	Organic	Fluorene
	Organic	Indeno(1,2,3-cd)pyrene
	Organic	Naphthalene
	Organic	Phenanthrene
	Organic	Phenol
	Organic	Pyrene
	Pesticide	Pentachlorophenol
SM 2320 B	Conventional	Alkalinity as CaCO₃
SM 2510 B	Conventional	Specific Conductance
SM 2540 C	Conventional	Total Dissolved Solids
SM 2540 D	Conventional	Total Suspended Solids
SM 5210 B	Conventional	BOD
SM 5310 C	Conventional	<u><i>Dissolved Inorganic Carbon E2-E5</i></u>
	Conventional	<u><i>Dissolved Organic Carbon E2-E5</i></u>
	Conventional	Total Organic Carbon
SM 5540 C	Conventional	MBAS

Method	Classification	Constituent
Bold:	Permit required constituent	
<i>Italics:</i>	Constituent not required by Permit.	
<u>Underlined:</u>	Constituent added beginning with Event 2, 2016 to allow calculations for the Biotic Ligand Model.	
Note:	The laboratory changed its organic and inorganic carbon method from SM 5310 C to SM 5310 B in September 2017, which did not affect the 2015/16 monitoring year analyses, but is applicable to future monitoring years.	

9.5 2018/19 MONITORING SEASON

The 2018/19 water year began with very dry antecedent conditions and the first storm of the 2018/19 monitoring season was a patchy event across the county on the night of October 12th that was forecast to be too small to sample so sites were not set up, however over 0.25” of rain fell at five sites: SPA (0.27”), MPK (0.25”), SIM (0.29”), THO (0.26”), and HUE (0.31). The next qualifying event was November 21-22, 2018 and was sampled at all sites except ME-SCR, which did not flow. Storms continued for the entire wet season including a particularly wet January and February 2019, resulting in an above average water year. Three wet events were sampled at all fourteen sites. Eleven sites were successfully sampled in dry weather (ME-CC, ME-SCR, ME-VR2, MO-CAM, MO-FIL, MO-HUE, MO-MPK, MO-OJA, MO-SIM, MO-THO, and MO-VEN). Three sites (MO-OXN, MO-MEI and MO-SPA) were dry and therefore did not have runoff available for sample collection, so were not sampled during the dry event. This should not be interpreted as a missed sample, rather as zero discharge of pollutants since removing dry weather flows is a goal of the Program.

9.5.1 The Woolsey and Hill Fires (2018)

The Woolsey and Hill Fires both started on November 8, 2018 and burned 96,949 and 4,531 acres before being 100% contained on November 21 and 16, 2018, respectively, and declared out on January 4, 2019. As with the Thomas Fire in 2017/18, the burned areas became highly susceptible to erosion and landslides due to the bare ground resulting from the burning of vegetation. Monitoring stations in the Calleguas Creek watershed were the most directly impacted, however smoke and ash from both fires may have impacted all sites.

The Woolsey Fire began in Ventura County in the Santa Susana Mountains south of Simi Valley, but spread quickly into Los Angeles County. Tens of thousands of acres within the Santa Monica Mountains Recreation Area burned and 1,841 structures were damaged or destroyed in Ventura and Los Angeles County communities, including Agoura Hills, Calabasas, and Malibu. The burn area included Bus Canyon, which drains to MO-SIM and heavy ash was observed at ME-CC.

The Hill Fire burned mostly open space from Hill Canyon to the west and south within Ventura County and met up with the Springs Fire (2013) footprint, where the reduced vegetation/fuel load at the Hill-Springs boundary helped firefighters prevent further spread. The hillsides around the MO-THO monitoring station burned, and the fire denuded the canyon/hillsides along the access road to MO-THO so grab samples were not collected after dark or during periods of heavy rain due to safety concerns over the unknown risk of landslide/rockfall/debris flow. The fire damaged four structures and destroyed two.

9.5.2 The Thomas Fire (2017-2018)

The Thomas Fire started on December 4, 2017 and burned 281,893 acres, mostly in Ventura County, before being contained on January 12, 2018. Low humidity, dry vegetation, a hot and dry summer, and strong and persistent Santa Ana winds contributed to the speed and magnitude of the fire. The Thomas Fire was declared the largest recorded fire in California history at that time, after burning through forests, grasslands, orchards, and housing tracts, eventually impacting the area from Fillmore to Santa Barbara, and from Ventura north, through Matilija Canyon, Ojai, and beyond destroying 1,063 structures and damaging 280 others.

The monitoring sites in the Ventura River watershed were the most directly affected by the fire as the fire ringed the Ojai Valley for several days, however parts of the Santa Clara River watershed also burned and all of Ventura County, including the Calleguas Creek watershed, received fallout from the ash. The burn areas became highly susceptible to erosion and landslides due to the bare ground resulting from the burning of vegetation. For safety reasons, sampling teams were sent to the Ojai Valley sites to sample as soon as runoff began so that they could sample and be out of the Valley before the risk of landslides increased.

9.5.3 Event Descriptions

Event 1 (Wet)

Event 1 was sampled on November 21-22 (Thanksgiving Day), 2018 at all sites except ME-SCR, which was not flowing. The storm was forecast to rain 0.25-0.75" across the county and actual rainfall was 0.25-0.5" across the county. Grab samples could not be collected at MO-SPA or MO-THO during the storm due to safety concerns (homeless presence and potential post-Hill Fire debris fall, respectively). MO-THO grabs (except for toxicity) were collected during composite pick up, but MO-SPA was not flowing during pick up so grabs could not be collected. Toxicity samples were collected during the storm for all sampled sites except MO-THO and MO-SPA. All other constituents/samples were collected including a field duplicate at MO-CAM. This storm was the first flush event for six sites, however a storm in October that was predicted to be too small to sample produced qualifying rainfall (for what should have been the first flush event) at MO-SPA (0.27"), MO-MPK (0.25"), MO-SIM (0.29"), MO-THO (0.26"), and MO-HUE (0.31).

Event 2 (Wet)

The second monitoring event of the season occurred on November 29-30, 2018. Forecast was 1-2" coasts and valleys and 1.5-3" mountains. Actual rainfall was 0.3-3" across the county. All required constituents were collected at all sites, although the grab samples for MO-THO were collected during daylight hours due to the safety concerns for night time access. ME-SCR began to flow during this event and toxicity samples were collected at ME-SCR, MO-THO, and MO-SPA. A field blank was also collected.

Event 3 (Wet)

Event 3 occurred on January 5-6, 2019. The National Weather Service forecast 0.5-1" coasts and valleys, 1-2" mountains, and orographic enhancement for south-facing slopes. Other forecasts varied 0.25-1.3" across the county. Actual rainfall was 0.3-1" across the county. All sites were successfully sampled for all required constituents as well as a field duplicate at MO-OJA. Grabs at MO-THO were collected during composite pickup due to ongoing night time access safety concerns.

Event 4 (Wet)

Event 4 occurred on January 31 – February 1, 2019 and was sampled as a make-up event for ME-SCR since it was not flowing during Event 1. The forecast was for 0.25-0.75" rain for coasts and valleys and actual rainfall at ME-SCR was 1.15". Thunder storms and high rain intensities occurred during this storm. Samples were collected for all required constituents.

Event 5 (Dry)

The dry-weather sampling was organized and conducted in three parts (by major watershed) during May 2019. Sampling was conducted at the Santa Clara River Watershed sites (ME-SCR, MO-FIL, MO-SPA, MO-OXN, and MO-VEN) on May 1-2, 2019, approximately 8 weeks (depending on site) after the last measurable (>0.25") rain event and after 55 days of dry weather (<0.1" rain). ME-SCR, MO-FIL, and MO-VEN were successfully sampled but MO-SPA and MO-OXN were dry and could not be sampled. The Ventura River Watershed sites (ME-VR2,

MO-OJA, and MO-MEI) were sampled on May 7-8, 2019, approximately 7-9 weeks (depending on site) after the last measurable rainfall and after 6-62 days of dry weather, however there was no runoff at MO-MEI, so samples could not be collected at that site. The Port Hueneme site (MO-HUE) was also sampled during this event, almost 9 weeks after measurable rain and after 62 days of dry weather. The Calleguas Creek Watershed sites (ME-CC, MO-CAM, MO-SIM, MO-MPK, and MO-THO) were sampled on May 13-14, 2019, about 10 weeks after the last measurable rainfall and after 68 days of dry weather, with the exception of MO-MPK which received 0.11” of gentle rain over 24 hours within 7 days of the event. Samples were collected from all 5 Calleguas Watershed sites.

2019-DRY

The dry-season, dry-weather grab samples were collected from representative MS4 outfalls on two days, August 20 and 21, 2019. Fillmore-1 (MO-FIL), Ojai-6 (DRY-OJA6), Oxnard-2 (DRY-OXN2), Santa Paula-3 (DRY-SPA3), Port Hueneme-3 (DRY-HUE3), and Ventura-5 (DRY-VEN5) were sampled on August 20, 2018. Camarillo-1 (MO-CAM), Moorpark-2 (DRY-MPK2), Simi Valley-1 (MO-SIM), Thousand Oaks-1 (MO-THO), and Unincorporated-4 (DRY-UNI4) were sampled on August 21, 2019. There was at least 72 hours of dry weather preceding each sampling event.

A summary of the site status for each monitored event is provided in Table 9-3.

Table 9-3. 2018/19 Site and Event Status

	Event 1	Event 2	Event 3	Event 4	Event 5 (dry)
MO-HUE	-	-	-	NA	-
<u>ME-CC</u>	-	Field blank	-	NA	-
MO-CAM	Field duplicate	-	-	NA	-
MO-MPK	-	-	-	NA	-
MO-SIM	-	-	-	NA	-
MO-THO	No grabs/toxicity (safety). Meter measurements at composite pickup.	Grabs during daylight hours (safety). Toxicity sample collected	Grabs at comp pick up (safety)	NA	-
<u>ME-SCR</u>	Dry	Toxicity sample collected	-	-	-
MO-FIL	-	Field duplicate	-	NA	-
MO-OXN	-	-	-	NA	Dry
MO-SPA	No grabs/toxicity (safety)	Toxicity sample collected	-	NA	Dry
MO-VEN	-	-	-	NA	-
<u>ME-VR2</u>	-	-	-	NA	-

MO-MEI	-	-	-	NA	Dry
MO-OJA	-	-	Field duplicate	NA	-

Key:

- Full data set available.

Mass emission station

NA: Not applicable. Three wet events already successfully sampled.

Dry: There was no or insufficient flow to collect samples.

9.5.4 Event Flow and Duration

Table 9-4 shows site flow and event durations. In Table 9-4, Start Date/Time and End Date/Time describe the length of time the automated sampler was actually taking samples. The true time of the rainfall and related runoff event was always longer; since the samplers were programmed to begin taking samples after flow had risen to greater than 20% of base flow, which takes 0.10” to 0.25” of rainfall, depending on the antecedent conditions and sampling location.¹² Furthermore, flow often continued after the automated sampler had completed its sampling program, because of the Stormwater Monitoring Program’s goal to ensure that enough aliquots were taken to perform the required analyses. Because of this goal, the Stormwater Monitoring Program tried to err on the conservative side, pacing the samplers a bit quicker than the RTR tables dictated. As the RTR tables are refined, this error will become smaller, but will never completely disappear due to the inherent error in rainfall predictive abilities by both commercial and public weather forecasters. The relative timing of the onset of rainfall, commencement of the sampling program and duration of the flow for each site can be found in the event hydrographs located in Appendix B in Attachment D.

¹² This range represents the amount of rainfall needed to generate measurable flow at the monitoring station. Smaller amounts of rainfall generated positive flow in watersheds with proportionally more impervious area. All automated sampling programs were designed to begin when the water in the creek or channel exceeded the elevation of the intake strainer by more than a couple hundredths of a foot, effectively capturing the “first flush.”

Table 9-4: Site Flow Data, Precipitation Data, and Event Durations

Site ID	Event No.	Event Date ^A	Average Flow (CFS) (Calc)	Total ^B Rainfall (inches)	Sampler Start ^C Date, Time	Sampler End ^C Date, Time	Event Duration (HH:MM)	Days since end of previously measurable ($\geq 0.25''$) rain ^D	Total Rainfall (inches) Previous Storm ^D
ME-CC	1	11/22/2018	21.30	0.71	11/21/2018 23:45	11/22/2018 9:39	9:54	245	0.91
	2	11/29/2018	64.18	0.83	11/29/2018 0:04	11/30/2018 3:57	27:53	7	0.71
	3	1/5/2019	221.61	0.98	1/5/2019 19:59	1/6/2019 2:35	6:36	31	1.10
	4	-	-	-	-	-	-	-	-
	5	5/14/2019	10.76	NA	5/13/2019 11:41	5/14/2019 10:15	22:34	68	1.06
ME-VR2	1	11/22/2018	3.00	0.43	11/21/2018 23:59	11/22/2018 4:55	4:56	245	2.05
	2	11/29/2018	4.64	1.64	11/29/2018 0:19	11/29/2018 14:05	13:46	7	0.43
	3	1/5/2019	10.15	0.78	1/5/2019 18:05	1/5/2019 20:33	2:28	31	0.59
	4	-	-	-	-	-	-	-	-
	5	5/8/2019	30.11	NA	5/7/2019 9:43	5/8/2019 8:57	23:14	62	1.37
ME-SCR ^E	1	11/22/2018	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	2	11/29/2018	NA	1.01	11/29/2018 17:08	11/30/2018 4:27	11:19	8	0.51
	3	1/5/2019	NA	0.77	1/5/2019 18:40	1/6/2019 6:33	11:53	31	0.86
	4	1/31/2019	NA	1.15	1/31/2019 8:05	1/31/2019 19:58	11:53	14	1.26
	5	5/2/2019	NA	NA	5/1/2019 9:23	5/2/2019 8:35	23:12	56	0.70
MO-CAM	1	11/21/2018	62.37	0.29	11/21/2018 23:55	11/22/2018 0:35	0:40	244	0.32
	2	11/29/2018	17.64	0.55	11/29/2018 5:35	11/29/2018 18:57	13:22	7	0.29
	3	1/5/2019	40.68	0.65	1/5/2019 14:58	1/5/2019 19:11	4:13	31	1.30
	4	-	-	-	-	-	-	-	-
	5	5/14/2019	<0.1	NA	5/13/2019 12:15	5/14/2019 10:48	22:33	69	0.94

Site ID	Event No.	Event Date ^A	Average Flow (CFS) (Calc)	Total ^B Rainfall (inches)	Sampler Start ^C Date, Time	Sampler End ^C Date, Time	Event Duration (HH:MM)	Days since end of previously measurable ($\geq 0.25''$) rain ^D	Total Rainfall (inches) Previous Storm ^D
MO-MEI	1	11/22/2018	9.02	0.39	11/22/2018 0:01	11/22/2018 0:29	0:28	205	0.29
	2	11/28/2018	8.64	1.79	11/28/2018 23:00	11/29/2018 4:28	5:28	6	0.39
	3	1/5/2019	10.50	0.67	1/5/2019 18:27	1/5/2019 19:43	1:16	31	1.16
	4	-	-	-	-	-	-	-	-
	5	5/8/2019	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MO-OJA	1	11/22/2018	4.25	0.38	11/22/2018 0:02	11/22/2018 0:13	0:11	245	4.26
	2	11/29/2018	10.50	1.60	11/28/2018 23:33	11/29/2018 4:37	5:04	7	0.38
	3	1/5/2019	3.75	0.78	1/5/2019 18:18	1/6/2019 1:58	7:40	31	1.19
	4	-	-	-	-	-	-	-	-
	5	5/8/2019	<0.1 ^F	NA	5/7/2019 8:25	5/8/2019 7:39	23:14	46	4.26
MO-VEN	1	11/21/2018	69.97	0.60	11/21/2018 23:06	11/21/2018 23:33	0:27	245	1.26
	2	11/29/2018	18.08	0.75	11/29/2018 5:21	11/29/2018 17:26	12:05	7	0.60
	3	1/5/2019	184.87	1.02	1/5/2019 18:11	1/5/2019 19:29	1:18	31	0.62
	4	-	-	-	-	-	-	-	-
	5	5/2/2019	<0.1 ^F	NA	5/1/2019 10:39	5/2/2019 9:52	23:13	56	0.76
MO-OXN	1	11/21/2018	11.03	0.62	11/21/2018 22:54	11/22/2018 0:07	1:13	245	1.26
	2	11/29/2018	5.46	0.75	11/28/2018 21:13	11/29/2018 15:39	18:26	7	0.62
	3	1/5/2019	15.39	1.02	1/5/2019 14:36	1/5/2019 19:03	4:27	31	0.62
	4	-	-	-	-	-	-	-	-

Site ID	Event No.	Event Date ^A	Average Flow (CFS) (Calc)	Total ^B Rainfall (inches)	Sampler Start ^C Date, Time	Sampler End ^C Date, Time	Event Duration (HH:MM)	Days since end of previously measurable ($\geq 0.25''$) rain ^D	Total Rainfall (inches) Previous Storm ^D
	5	5/2/2019	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MO-HUE ^E	1	11/22/2018	NA	0.34	11/21/2018 23:22	11/22/2018 2:41	3:19	41	0.31
	2	11/29/2018	NA	0.29	11/29/2018 5:31	11/29/2018 16:50	11:19	7	0.34
	3	1/5/2019	NA	0.83	1/5/2019 18:02	1/6/2019 0:16	6:14	31	1.32
	4	-	-	-	-	-	-	-	-
	5	5/8/2019	NA	NA	5/7/2019 10:33	5/8/2019 9:47	23:14	62	1.19
MO-SPA	1	11/22/2018	6.57	0.51	11/22/2018 23:37	11/23/2018 0:32	0:55	41	0.27
	2	11/29/2018	4.47	1.42	11/28/2018 22:05	11/29/2018 12:35	14:30	7	0.52
	3	1/5/2019	6.59	0.89	1/5/2019 14:41	1/5/2019 20:07	5:26	31	1.57
	4	-	-	-	-	-	-	-	-
	5	5/2/2019	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MO-FIL ^E	1	11/22/2018	NA	0.39	11/22/2018 0:17	11/22/2018 5:56	5:39	244	2.95
	2	11/29/2018	NA	1.39	11/28/2018 23:00	11/29/2018 10:19	11:19	7	0.39
	3	1/5/2019	NA	0.97	1/5/2019 19:08	1/6/2019 1:21	6:13	31	1.24
	4	-	-	-	-	-	-	-	-
	5	5/2/2019	NA	NA	5/1/2019 7:36	5/2/2019 6:49	23:13	55	1.29

Site ID	Event No.	Event Date ^A	Average Flow (CFS) (Calc)	Total ^B Rainfall (inches)	Sampler Start ^C Date, Time	Sampler End ^C Date, Time	Event Duration (HH:MM)	Days since end of previously measurable (≥ 0.25 ") rain ^D	Total Rainfall (inches) Previous Storm ^D
MO-SIM	1	11/22/2018	16.48	0.22	11/22/2018 0:21	11/22/2018 1:27	1:06	40	0.29
	2	11/29/2018	8.62	0.97	11/29/2018 0:44	11/29/2018 18:26	17:42	47	0.29
	3	1/5/2019	94.31	0.65	1/5/2019 19:28	1/5/2019 20:03	0:35	31	1.31
	4	-	-	-	-	-	-	-	-
	5	5/14/2019	<1 ^F	NA	5/13/2019 8:50	5/14/2019 8:03	23:13	68	1.33
MO-MPK	1	11/22/2018	4.43	0.33	11/22/2018 0:50	11/22/2018 1:42	0:52	40	0.25
	2	11/29/2018	6.29	0.90	11/29/2018 2:03	11/29/2018 8:59	6:56	7	0.33
	3	1/5/2019	15.18	0.92	1/5/2019 19:02	1/5/2019 20:13	1:11	31	1.26
	4	-	-	-	-	-	-	-	-
	5	5/14/2019	<0.1 ^F	NA	5/13/2019 7:55	5/14/2019 7:08	23:13	68	1.43
MO-THO	1	11/22/2018	12.21	0.20	11/22/2018 2:09	11/22/2018 7:32	5:23	40	0.26
	2	11/29/2018	11.78	0.41	11/29/2018 4:00	11/29/2018 21:48	17:48	47	0.26
	3	1/5/2019	110.00	0.91	1/5/2019 19:07	1/5/2019 20:26	1:19	32	1.47
	4	-	-	-	-	-	-	-	-
	5	5/14/2019	0.89	NA	5/13/2019 9:30	5/14/2019 8:42	23:12	68	0.91

* All times PST

DRY Site dry or insufficient flow to sample.

- Sample not needed. Three storms successfully sampled for season.

NS Not sampled

^A Event Date describes the sampling event date.

^B Rainfall data from sites that use non-Program rain gauges is considered "best available" at the time of the report. The data is subject to quality control review by the Hydrology section, during which time the telemetered data (if available) is compared to the data logger and to other rainfall gauges in the area at the time to determine best accuracy prior to storing the data as official "archived" data. This typically occurs after the end of the water year and too late for inclusion in this Annual Report. This may result in some slight differences in rainfall amounts if queried later, but typically will not have a large effect for most storms.

^C Start Date/Time and End Date/Time describe the period during which composite sample aliquots were taken. All times PST.

^D Changed from 0.10" to 0.25" for the 2016/17 season and beyond to better comply with the Monitoring Program Permit requirements A.3.a and B.1.b.

Site ID	Event No.	Event Date ^A	Average Flow (CFS) (Calc)	Total ^B Rainfall (inches)	Sampler Start ^C Date, Time	Sampler End ^C Date, Time	Event Duration (HH:MM)	Days since end of previously measurable (≥ 0.25") rain ^D	Total Rainfall (inches) Previous Storm ^D
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^E Time-paced as flows cannot be accurately measured at these sites. ME-SCR: During wet weather the Santa Clara River flows through the river diversion gate and over the diversion dam. Currently, there is no flow meter installed at the river diversion gate where most of the wet weather flow passes. MO-FIL: Site experiences ponding and backwater effects due to natural bottom channel. MO-HUE: Flow is dependent on the release of water at the Hueneme pump station.

^F Flow is below the threshold levels for measurement.

9.6 QUALITY ASSURANCE / QUALITY CONTROL

The following is a discussion of the results of the quality assurance and quality control (QA/QC) analysis performed on the 2018/19 stormwater quality monitoring data. The data were evaluated for overall sample integrity, holding time exceedances, contamination, accuracy, and precision using field- and lab-initiated QA/QC sample results according to the Stormwater Monitoring Program's *Data Quality Evaluation Plan* and *Data Quality Evaluation Standard Operating Procedures*. The *Data Quality Evaluation Plan* (DQEP) describes the process by which water chemistry data produced by the Stormwater Monitoring Program are evaluated. Data quality evaluation is a multiple step process used to identify errors, inconsistencies, or other problems potentially associated with Stormwater Monitoring Program data. The DQEP contains a detailed discussion of the technical review process, based on U.S. Environmental Protection Agency (EPA) guidance and requirements set forth by the Stormwater Monitoring Program used to evaluate water quality monitoring data. The DQEP provides a reference point from which a program-consistent quality assurance/quality control (QA/QC) evaluation can be performed by the Stormwater Monitoring Program. The *Data Quality Evaluation Standard Operating Procedures* (SOPs) document provides a set of written instructions that documents the process used by the Stormwater Monitoring Program to evaluate water quality data. The SOPs describe both technical and administrative operational elements undertaken by the Stormwater Monitoring Program in carrying out its DQEP. The SOPs act as a set of prescriptive instructions detailing in a step-by-step manner how District staff carry out the data evaluation and data quality objectives (DQO) set forth in the DQEP. QA/QC sample results from the 2018/19 monitoring season are presented in Appendix F in Attachment D.

QA/QC sample collection and analysis relies upon QA/QC samples collected in the field (such as equipment blank, field duplicate, and matrix spike samples), as well as QA/QC samples prepared and analyzed by the analytical laboratory (i.e. lab-initiated samples, such as method blanks, filter blanks, and laboratory control spikes) performing the analysis. The actual chemical analysis of field-initiated and lab-initiated QA/QC samples is conducted in an identical manner as the analysis of field-collected environmental samples. After all analyses are complete, the results of the field-initiated and lab-initiated QA/QC sample results are compared to DQO, also commonly referred to as "QA/QC limits." These limits are typically established by the analytical laboratory based on EPA protocols and guidance. However, in some cases, the Stormwater Monitoring Program will set a DQO, such as the QA/QC limit for field duplicate results.

QA/QC sample results are evaluated in order to compare them to their appropriate QA/QC limits and identify those results that fall outside of these limits. The QA/QC evaluation occurs in two separate steps as the laboratory will review those results that fall outside of its QA/QC limits and typically label these results with some type of qualification or note. If a QA/QC sample result falls grossly outside of its associated QA/QC limit, and thus indicates that there is a major problem with the lab's instrumentation and/or analytical process, then the laboratory should re-run both the affected QA/QC and environmental samples as necessary. The second step in the QA/QC evaluation process occurs when the Stormwater Monitoring Program performs an overall sample integrity evaluation, as well as specific holding time, contamination, accuracy, and precision checks. This second evaluation step provides an opportunity to thoroughly review the Stormwater Monitoring Program's data to identify potential errors in a laboratory's reporting of analytical data and/or recognize any significant data quality issues that may need to be addressed. After this evaluation the Stormwater Monitoring Program is ready to qualify their environmental data as necessary based on the findings of the QA/QC assessment.

Data qualification occurs when the Stormwater Monitoring Program assigns a program qualification to an analytical result as a means to notify data users that the result was produced while one or more DQO or QA/QC limitations were exceeded. Environmental sample results are qualified to provide the user of these data with information regarding the quality of the data. Depending on the planned use of the data, qualifications may help to determine whether the data are appropriate for a given analysis. In general, data that are qualified with anything other than an "R" (used to signify a rejected data point) are suitable for most analyses. However, the qualifications assigned to the data allow the user to assess the appropriateness of the data for a given use. The Stormwater Monitoring Program used its NDPEs Stormwater Quality Database to conduct a semi-automated QA/QC evaluation of the current

season's data contained in the database. The use of the database allows the Stormwater Monitoring Program to expedite and standardize the QA/QC evaluation of its monitoring data in conjunction with the use of the DQEP and SOPs. After reviewing the qualifications assigned to each qualified data point in the 2018/19 monitoring year data set, the environmental data are considered to be of high quality and sufficient for all future general uses. However, all data qualifiers should be reviewed and considered prior to the use of the data in a specific analysis or application. Environmental data from the 2018/19 monitoring season are presented in Appendix G in Attachment D.

Both environmental and field-initiated QA/QC samples were collected in the field using clean sampling techniques. To minimize the potential for contamination, Weck Laboratories cleaned all bottles used for composite sample collection with laboratory detergent, a nitric acid rinse, and ultrapure water. Only new containers were used for grab sample collection (except for Oil and Grease, for which previously used, laboratory-cleaned containers are sometimes used) with the appropriate preservative added to chemistry grab bottles by Weck Laboratories. Intake lines for the automated samplers were flushed with 1% nitric acid and distilled water prior to the first event of the season, except for MO-HUE, which was flushed with distilled water only as the sample intake is inaccessible preventing nitric acid recovery. Intake lines were flushed with distilled water before and after each successive event for the remainder of the season. Designated sampling crew leaders were used to ensure that consistent sample collection and handling techniques were followed during every monitoring event.

Field-initiated QA/QC samples performed by the Stormwater Monitoring Program during the 2018/19 monitoring season included field blanks, field duplicates, and equipment blanks. Equipment blanks are typically prepared prior to the start of the monitoring season to check that tubing, strainers, and sample containers aren't sources of contamination for the Stormwater Monitoring Program's environmental samples. Tubing equipment blanks were collected from the sampling equipment by passing ultrapure blank water through cleaned tubing and into brand new sample bottles. Composite bottle equipment blanks were collected by adding ultrapure blank water to a composite bottle and allowing it to sit at 4°C for 24 hours before being split at the laboratory into brand new sample bottles for analysis. Equipment blanks were submitted to the analytical laboratory and analyzed using the same methods as those employed for routine environmental sample analysis.

9.6.1 Equipment Blanks

Equipment blanks, often referred to as pre-season blanks, were collected prior to the monitoring season to test for contamination in sample containers (e.g., composite bottles) and sample equipment (e.g., intake lines, tubing, and strainers). This process consists of running laboratory-prepared blank water through sampler tubing to identify potential contamination of field-collected samples as a result of "dirty" tubing. The blank water (ultrapure deionized water) used to evaluate contamination of composite bottles and tubing can also be analyzed to check for contamination of this analytical sample medium. Equipment blank "hits" or measured concentrations above the laboratory's quantitation limit (RL, PQL, etc.) for a constituent are assessed and acted upon using the guidelines listed below:

1. The Stormwater Monitoring Program requests that the laboratory confirm the reported results against lab bench sheets or other original analytical instrument output. Any calculation or reporting errors should be corrected and reported by the laboratory in an amended laboratory report.
2. If the previous step does not identify improperly reported results, then the analytical laboratory should be asked to identify any possible sources of contamination in the laboratory.
3. If no laboratory contamination is identified, then a note should be made that documents that the equipment blank results indicate that the sample equipment may have introduced contamination into the blank samples.

When practical, remedial measures are initiated by the Stormwater Monitoring Program to replace or re-clean sampling equipment and re-analyze equipment blank samples in an effort to eliminate field contamination. Only the results of field-initiated and laboratory-initiated QA/QC samples associated with the environmental samples collected for any given monitoring event are used to qualify Stormwater Monitoring Program environmental

samples. However, pre-season analyses provide useful information regarding possible sources of environmental sample contamination and insight into how contamination issues might be resolved.

Preseason equipment blank “Carboy Blank” (composite bottle) and “Tubing Blank” (intake line cleaned with nitric acid (HNO₃) and distilled water) samples were collected for the 2018/19 monitoring year on August 9, 2018. The “Tubing Blank” sample was collected through the intake line at MO-OXN after flushing the line with 2 liters of 1% HNO₃ (left over acid from the 2016/17 monitoring year so two liters were used to account for any possible degradation) and two liters of distilled water. The Carboy Blank samples were split off at the laboratory from ultrapure deionized water that had been added to a clean composite bottle and left to sit in a cooler on ice (at 0 - 4 degrees Celsius) for 24 hours. The blanks were analyzed by EPA 200.8 for total metals (iron by EPA 200.7), EPA 353.2 for nitrate+nitrite as nitrogen, and for semi-volatile organics by EPA 625 and EPA 525.2 (the primary method used for bis(2-ethylhexyl)phthalate equipment blanks due to its lower RL) . EPA 245.1 for total mercury was requested on the COC but was missed by the laboratory at sample login and COC review. The laboratory submitted a corrective action report for future samples.

A Detected Not Quantifiable (DNQ) amount of bis(2-ethylhexyl)phthalate was detected in the EPA 625 analysis of the Tubing Blank sample, however it was not detected by EPA 525.2, which has a lower reporting limit and since bis(2-ethylhexyl)phthalate is a common laboratory contaminant, it is likely that laboratory contamination is the cause of this detection so no follow-up tests were needed. A quantifiable amount of diethyl phthalate was found in the Tubing Blank, but the amount of contamination is much lower than the relevant WQO, therefore, the Program determined that the detection was low enough to not require follow up analysis as it would not significantly affect environmental results.

Table 9-5. Organics/Pesticides Detected in Preseason Equipment Blanks

Constituent	Reporting Limit (µg/L)	WQO	WQO	Detections	Detections	Conclusion
		CTRO ^b Wet/Dry (µg/L)	BPO (µg/L)	Carboy Blank Concentration (µg/L)	Tubing Blank (MO-VEN) Concentration (µg/L)	Source Follow up Needed? Y/N
Bis(2-ethylhexyl) phthalate	5	NA/1.8 (HHWO),	4 ^c	<2.3	2.3 ^a	No ^d
	3	5.8 (HHOO)		<1.1	<1.1	
Diethyl phthalate	1	NA/23,000 (HHWO) 120,000 (HHOO)	NA	<0.15	1	No

WQO: Water Quality Objective

CTRO: California Toxics Rule WQO

BPO: Basin Plan WQO

NA: Not Applicable

HHWO: Human Health Water and Organisms (applies to MUN sites)

HHOO: Human Health Organisms Only (applies to non-MUN sites)

^a DNQ

^b The CTR can have multiple different criteria for calculating WQO for a compound based on water characteristics (freshwater vs saltwater), length of exposure (acute vs chronic), and vector of exposure (water and organisms or organisms only).

^c Waters with a “MUN” designation, i.e. municipal supply.

^d Result is ND for the method with the lower reporting limit.

Table 9-6. Metals (Total) Detected in Preseason Equipment Blanks

Constituent	WQO		WQO	Detections	Detections	Conclusion
	Reporting Limit (µg/L)	CTRO Wet/Dry (µg/L)	BPO (µg/L)	Carboy Blank Concentration (µg/L)	Tubing Blank (MO-OXN) Concentration (µg/L)	
Aluminum	5.0	NA/NA	1,000 ^b	<1.3	1.4 ^a	No
Chromium ^e	0.2	(III ^e) 148 ^{c,d,e} /48 ^{c,d,e} (VI ^e) 16/11	50 ^b	0.050 ^a	<0.035	No
Copper	0.5	2.99 ^{c,d} /2.29 ^{c,d}	NA	0.43 ^a	0.29 ^a	No
Nickel	0.8	121 ^{c,d} /13 ^{c,d}	100 ^b	<0.045	0.16 ^a	No

WQO: Water Quality Objective

CTRO: California Toxics Rule WQO

BPO: Basin Plan WQO

NA: Not Applicable

^a DNQ

^b Waters with a “MUN” designation, i.e. municipal supply

^c Dissolved fraction of the metal

^d CTRO are for the dissolved fraction of the metals and are calculated using the water hardness measured at the site (or at the site’s corresponding receiving water station, if available). For this table, they are calculated using a water hardness of 20.3 mg/L, the lowest hardness detected at an ME or MO site (the objective is proportional to the water hardness) through the end of the 2018/19 monitoring year. Receiving water sites tend to be over 100 mg/L of hardness.

^e Total chromium measured for preseason samples and includes chromium (III) and Chromium (VI). BPO is for total chromium^b. CTR does not have a total chromium objective but has separate chromium (III) and Chromium (VI) WQO. Chromium (VI) was not analyzed during the preseason event. CTRO for chromium (VI) are lower than for chromium (III) and so are listed here.

Several metals were present in such low amounts that they were not considered to be of contamination concern in comparison to amounts seen in environmental samples and/or the WQO. This included aluminum, chromium, copper, and nickel. The total fraction of the metal was measured in the equipment blank samples, but it is the dissolved component that is used for the CTRO, which further supports the conclusion that the detections would not significantly affect environmental results. Further investigation into these detections was not warranted based on the above explanation.

Based on these results, the Stormwater Monitoring Program determined that cleaning procedures were adequate for preventing contamination from sampling equipment for the 2018/19 monitoring season. No environmental samples were qualified by the Stormwater Monitoring Program based on the results of pre-season equipment blank analyses. The cleaning procedures will be reexamined during the preseason tests prior to the 20019/20 monitoring season.

9.6.2 Field and Laboratory Duplicates

Duplicate samples – both field duplicates and lab duplicates – are collected in the field using the same techniques as used for all environmental sample collection. For composite samples, a larger volume of water is collected during the monitoring event and then the duplicates are split either in the field (when generating a field duplicate) or in the lab (when generating a lab duplicate) while constantly mixing the contents of the composite containers to ensure the production of homogeneous duplicate samples. The Stormwater Monitoring Program does not collect field duplicates for composite samples as samples are not split in the field due to the risk of sample contamination and breakage. In the case of grab samples, two samples are collected side-by-side or in immediate succession into separate sample bottles when collecting an environmental sample and its field duplicate. Depending on the volume of water required to perform a particular analysis, a lab duplicate analysis of a grab sample may require the collection of additional sample or may be run on a single environmental sample.

Field duplicate grab samples were collected during Event 1 at MO-CAM, Event 2 at MO-FIL, and Event 3 at MO-OJA and achieved a 100% success rate for all constituents. Laboratory-initiated laboratory duplicate samples were analyzed on non-project samples for all events. Laboratory duplicate samples were also analyzed for ME-CC (Event 1 and 3), ME-SCR (Event 2, 3, 4 and 5), ME-VR2 (Event 5), MO-CAM (Event 2 and 5), MO-FIL (Event 5), MO-HUE (Event 1, 2, 3 and 5), MO-OJA (Event 1 and 2), MO-SIM (Event 1 and 5), MO-THO (Event 1, 3, and 5)) and MO-VEN (Event 5). Results are shown in Table 9-7 and Table 9-8. All 123 laboratory duplicates were within the limits for relative percent difference (RPD) except for three 000NONPJ and one ME-SCR BOD samples, which were above the RPD. The records were qualified with data flags where applicable.

Table 9-7. Field Duplicate Success Rates

Classification	Constituent	Method	Total Samples	Samples Outside DQO	Success Rate
Bacteriological	Total coliform / <i>E. coli</i>	MMO-MUG	3	0	100
Conventional	Cyanide	ASTM D7511	3	0	100
Hydrocarbon	Gasoline Range Organics	EPA 8015B	3	0	100
Hydrocarbon	Oil and grease	EPA 1664A	3	0	100
Organic	2-Chloroethyl vinyl ether	EPA 624	3	0	100
Organic	Methyl tert-butyl ether (MTBE)	EPA 624	3	0	100

Table 9-8. Laboratory Duplicate Success Rates

Classification	Constituent	Method	Total Samples	Samples Outside DQO	Success Rate
Conventional	Alkalinity as CaCO ₃	SM 2320 B	10	0	100
Conventional	Biochemical Oxygen Demand	SM 5210 B	13	4	69
Conventional	Chemical Oxygen Demand	EPA 410.4	9	0	100
Conventional	Cyanide	ASTM D7511	1	0	100
Conventional	Dissolved Carbon	SM 5310 B	1	0	100
Conventional	Dissolved Organic Carbon	SM 5310 B	1	0	100
Conventional	Specific Conductance	SM 2510 B	16	0	100
Conventional	Total Chlorine Residual	SM 4500-CL G	3	0	100
Conventional	Total Dissolved Solids	SM 2540 C	18	0	100
Conventional	Total Suspended Solids	SM 2540 D	24	0	100
Conventional	Turbidity	EPA 180.1	8	0	100
Conventional	Volatile Suspended Solids	EPA 160.4	16	0	100
Nutrient	Phosphorus as P	EPA 200.7	1	0	100
Nutrient	TKN	EPA 351.2	2	0	100

9.6.3 Holding Time Exceedances

Most analytical methods used to analyze water quality samples specify a certain time period in which an analysis must be performed in order to ensure confidence in the result provided from the analysis.¹³ A holding time can be

¹³ A sample that remains unanalyzed for too long a period of time sometimes shows analytical results different from those that would have been observed had the sample been analyzed earlier in time. This difference is due to the breakdown, transformation, and/or dissipation of substances in the sample over time.

either the time between sample collection and sample preparation (the preparation holding time limit) or between the sample preparation and sample analysis (the analysis holding time limit). If a sample doesn't require any pre-analysis preparation, then the analysis holding time is the time between sample collection and sample analysis.

These elapsed times are compared to holding time values (typically provided in EPA guidance for analytical methods) to determine if a holding time exceedance has occurred. Elapsed times greater than specified holding time limits are considered to exceed the Stormwater Monitoring Program's DQO for this QA/QC sample type. All holding times for environmental samples, field blanks, and field duplicates were met by laboratories during the 2018/19 monitoring season, with the exceptions as shown in Table 9-9.

Table 9-9. Holding Time Success Rate

Classification	Environ Samples	FD & FB Samples	Total Samples	Total Samples Outside DQO	Success Rate (%)
Anion	212	0	212	0	100
Bacteriological	100	15	184	0	100
Cation	212	0	234	0	100
Conventional	1191	4	1290	35 ^a	97.3
Hydrocarbon	207	8	216	0	100
Metal	1696	0	1729	0	100
Nutrient	283	0	270	0	100
Organic	4872	8	4704	0	100
PCB	371	0	357	0	100
Pesticide	4399	0	4248	63	97.8

^a Total chlorine residual is a Pollutant of Concern for ME-CC due to the contributions of wastewater treatment plants. The method requires that this constituent be analyzed "immediately" and the Permit requires that it be sampled as a composite sample, which combined results in an exceedance of the hold time for each event. 34 of the results outside of the DQO were for total chlorine residual.

9.6.4 Other QA/QC Methods and Analyses

A variety of other QA/QC methods are used by the Stormwater Monitoring Program and associated laboratories to determine the quality of the data. These include method blanks, matrix spikes and matrix spike duplicates (MS/MSD), surrogate spikes, and laboratory control samples. For many of these, the relative percent difference between two separate samples is computed to determine whether the laboratory has achieved the necessary DQO, as described in Section 9.6. Results of QA/QC analyses performed on individual samples can be found in Appendix F and Appendix G in Attachment D.

9.6.5 QA/QC Summary

In summary, a total of 13,543 environmental results were obtained during the 2018/19 monitoring season. Of these, 13,268 met the above DQOs for that sample, which translates into the Stormwater Monitoring Program achieving a 97.9 % success rate in meeting program DQO. Stormwater matrices are typically highly turbid and 2018/19 was no exception, with 5,093 analyses requiring laboratory dilutions (to meet analytical requirements), of which 4,618 were non-detects. There is the potential that the dilutions may have obscured the presence of some of these constituents.

Overall, the wet-weather and dry-weather events monitored during the 2018/19 monitoring season produced a high-quality data set in terms of the low percentage of qualified data, as well as the low reporting levels achieved by the laboratories for the majority of the Stormwater Monitoring Program's water quality samples.

9.7 WATER QUALITY STANDARDS¹⁴ AND IMPACTS

The NDPES Permit requires the Stormwater Monitoring Program to report the results of stormwater monitoring to the Regional Board in two ways. First, within 90 days of a monitoring event, analytical results must be submitted electronically and must highlight elevated constituent levels relative to Basin Plan and CTR acute criteria. The Stormwater Monitoring Program met this requirement for all monitoring events during the 2018/19 monitoring year. Second, an Annual Storm Water Report must be submitted by December 15th and must highlight those same elevated levels relative to applicable water quality objectives (WQO).¹⁵ The contents of this report fulfill that requirement.

9.7.1 Urban Runoff Impacts on Receiving Waters

Pursuant to Part 2 of the Permit, the Permittees are required to determine whether discharges from their municipal separate storm sewer systems are causing or contributing to a violation of water quality standards (WQS). Additionally, Permittees are responsible for preventing discharges from the MS4 of stormwater or non-stormwater from causing or contributing to a condition of nuisance. Specifically, the Order contains the following Receiving Water Limitations Language:

1. Discharges from the MS4 that cause or contribute to a violation of WQS are prohibited.
2. Discharges from the MS4 of stormwater, or non-stormwater, for which a Permittee is responsible, shall not cause or contribute to a condition of nuisance.

Compliance with the above Receiving Water Limitations is achieved by the Permittees through implementation of control measures and other actions to reduce pollutants in stormwater and non-stormwater discharges in accordance with the requirements of the Permit.

9.7.2 “Cause or Contribute” Evaluation Methodology

The evaluation used to determine if a pollutant is persistently causing or contributing to the exceedance of a WQS in receiving waters consists of three steps:

1. The water quality data collected at a mass emission site in the same watershed is used as the receiving water to compare to relevant WQO contained in the CTR and Basin Plan.
2. When a receiving water concentration exceeded a WQO for a constituent, the urban runoff concentration of said constituent measured at a major outfall in that watershed was compared to the WQO. If an elevated level relative to the associated WQO for said constituent was observed in both urban runoff and the receiving water, then the WQS exceedance in the receiving water was determined “likely caused or contributed to by urban runoff.” However, this comparison does not consider the frequency or persistence of WQS exceedances for a given constituent.
3. The persistence of a WQS exceedance was determined by evaluating the number of times (frequency) that a constituent was observed at an elevated level in urban runoff and above the WQO for the receiving water for a particular type of monitoring event (wet or dry) over the course of the monitoring season. If two or

¹⁴ Water quality standards (WQS) are “State Water Quality Standards, which are comprised of beneficial uses, water quality objectives, and the State’s Antidegradation Policy.” Order No. R4-2010-0108 Part 6 p. 116

¹⁵ Water quality objectives (WQO) are “water quality criteria contained in the Basin Plan, the California Ocean Plan, the National Toxics Rule, the California Toxics Rule, and other state or federally approved surface water quality plans.” Order No. R4-2010-0108 Part 6 p. 116

more elevated levels in urban runoff and WQS exceedances in the receiving water were observed for a constituent over the course of the monitoring season, then the WQS exceedances of said constituent were determined to be persistent. Ideally, an assessment of persistency would be based on a larger data set (e.g., 10 events or more) and an assumed percentage of exceedances (e.g., 50%), but given the need for an annual assessment two or more exceedances from the existing, limited data set were used as the criterion to determine persistence.

9.7.3 Water Quality Objective Calculations for Reporting of Exceedances

The Program uses its water quality database to identify water quality monitoring results that are above California Toxics Rule (CTR) and Basin Plan WQO (CTRO and BPO, respectively). The database performs these calculations using a pre-programmed set of reference values for CTRO and BPO, including site specific objectives. The reference values are stored in the CTRO and BPO reference tables and are used for these calculations to reduce the likelihood of human error.

Ammonia BPO Calculations

Updates to the ammonia BPO were made in 2012/13 to accurately determine, calculate, and compare ammonia WQO with sample results based on the Basin Plan updates as described in the 2012/13 Annual Report and re-stated below. The WQO and comparisons are determined using the flow charts and formulas provided in Appendix K in Attachment D.

Ammonia BPO are determined for each site/sample based on salinity and pH, and in the case of dry weather and saltwater samples, temperature. Freshwater WQO are used for samples that are at or below 1 ppt salinity. Saltwater WQO (un-ionized ammonia objective converted to total NH₃-N using the formula in Appendix K in Attachment D) are used for samples that are at or above 10 ppt. Samples that are between 1 ppt and 10 ppt use the more stringent of the freshwater or saltwater WQO. Program staff reviewed the Basin Plan amendments and developed a flow chart to determine which ammonia BPO formulas should be used to calculate the appropriate objective for each site for both wet (acute objective) and dry (chronic objective) monitoring events. The flow charts are included in Appendix K in Attachment D.

There are two formulas for calculating freshwater dry weather (chronic) WQO and the selection of the appropriate formula depends on whether Early Life Stages (ELS) of fish are present or absent in the reach. ELS are presumptively present unless listed as absent in the Basin Plan or a site-specific study is conducted. For the Ventura County mass emission and major outfall stations, the sites that are designated COLD and/or MIGR are also designated “ELS Present”, conversely, the sites that are not designated COLD/MIGR are designated “ELS Absent”.

For Ventura County, waters within the Calleguas Creek Watershed, except for Mugu Lagoon, the estuary, and Reach 2 (estuary to Potrero Rd), are not designated COLD/MIGR, therefore Program stations without a COLD/MIGR designation in this watershed include the mass emission station (ME-CC) and major outfall stations (MO-CAM, MO-MPK, MO-SIM, and MO-THO). Waters within Ventura County that are designated COLD and/or MIGR, include the reaches applicable to the remaining Program mass emission stations (ME-SCR and ME-VR2) and major outfall stations (MO-FIL, MO-SPA, MO-OXN, MO-VEN, MO-HUE, MO-OJA, and MO-MEI).

The correct calculation of ammonia BPO requires the collection of salinity, pH, and temperature data in addition to the total ammonia as nitrogen analysis. Salinity, pH, and temperature are measured in situ in the field using handheld meters at the time that event grab samples are collected, as the samples require immediate measurement to reflect the site conditions to which the organisms are exposed. Ammonia is collected as a composite sample and is analyzed at the laboratory within 28 days of sample collection (28-day holding time). Comparisons of the composite ammonia value to the grab BPO provide the best available assessment of compliance, given the restraints in collecting relevant sample data.

Municipal and Domestic Supply (MUN) Beneficial Use

Historically, the District has considered all receiving waters it monitors as having at least a potential Municipal and Domestic Supply (MUN) beneficial use and, therefore, compared water quality data collected at each of its monitoring sites to WQO applicable to the MUN beneficial use. However, the District was informed by Regional Board staff in 2016 that this “blanket” approach may not be appropriate, given that beneficial use designations (established in the Basin Plan) are identified in multiple ways such as “existing,” “potential,” or conditional for various reasons. More specifically, based upon several findings and decisions by the pertinent regulatory agencies (the State Water Board, Regional Board, and USEPA), MUN beneficial uses designated with an asterisk (“*”) in the Basin Plan are considered to be conditional and requirements based on the WQO that apply to the MUN beneficial use are not to be used to impose requirements in Waste Discharge Requirements, including the Ventura County MS4 permit.¹⁶ As some waterbodies in Ventura County have MUN beneficial uses designated with an asterisk and others do not, the District conducted a review of the specific MUN beneficial use designation for the receiving waters into which the Program discharges stormwater runoff and dry weather flows, along with their tributaries, to determine the waterbodies for which comparisons to WQO applicable to the MUN beneficial use are unnecessary.

The CTR Human Health Water & Organisms criteria (HHWO) historically have been considered by the Program to be applicable to the MUN beneficial use because of the “water consumed by humans” nexus to these criteria, as well as the potential for fish consumption. Water quality data collected at the various Program monitoring sites that are designated as “*” in the Basin Plan will no longer be compared to HHWO; instead, they will be compared to CTR Human Health Organisms Only criteria (HHOO).

As a result of the evaluation, it was determined that most of the Program’s water quality monitoring sites (including three mass emission stations and eleven major outfall stations) are located on waterbodies identified in the Basin Plan as having a conditional MUN beneficial use designation. Only program monitoring data collected at two sites (major outfall stations MO-OJA and MO-MEI) need to be compared to WQO applicable to the MUN beneficial use, while similar comparisons for the other twelve monitoring stations are unnecessary at this time.

¹⁶ Related to State Board Resolution No. 88-63 (Sources of Drinking Water) and Regional Board Resolution 89-03 (Incorporation of Sources of Drinking Water Policy into the Water Quality Control Plans (Basin Plans)).

Table 9-10. Cause or Contribute Evaluation Methodology for MUN vs non-MUN Sites

Ventura Countywide Stormwater Quality Management Program "Cause or Contribute" Evaluation Methodology

WQO Exc = water quality objective exceedance

Old method for water quality objectives comparisons (ALL data compared to WQOs applicable to MUN Beneficial Use)

Major Outfall (urban runoff)	Mass Emission (receiving water)	Cause or Contribute Determination
WQO Exc	---	Urban runoff not causing or contributing to observed WQO Exc in receiving water
WQO Exc	WQO Exc	Urban runoff likely caused or contributed to observed WQO Exc in receiving water
---	WQO Exc	Urban runoff not causing or contributing to observed WQO Exc in receiving water
---	---	Urban runoff not causing or contributing to observed WQO Exc in receiving water

New method for water quality objectives comparisons (Only data from SOME monitoring stations compared to WQOs applicable to MUN Beneficial Use)

Major Outfall site with Existing MUN: MO-OJA & MO-MEI	Mass Emission site with Existing MUN: None	Cause or Contribute Determination
---	---	Urban runoff not causing or contributing to observed WQO Exc in receiving water BASED ON PROGRAM NO LONGER COMPARING RECEIVING WATER DATA TO WQOs APPLICABLE TO MUN B.U.
WQO Exc	---	Urban runoff not causing or contributing to observed WQO Exc in receiving water BASED ON PROGRAM NO LONGER COMPARING RECEIVING WATER DATA TO WQOs APPLICABLE TO MUN B.U.

9.7.4 WQS Evaluation Methodology

For the analysis of wet-weather data (Events 1-4), the BPO and the acute, freshwater WQO in the CTR –Criteria Maximum Concentration (CMC) were used. For some constituents, the CTR does not contain acute criteria. Prior to the 2011/12 Annual Report, the Stormwater Monitoring Program used the HHOO for these cases because these constituents had no other objectives for comparison. However, since these objectives are based on long-term exposure and stormwater discharges are infrequent and of short duration, it was decided that comparing short term stormwater discharges to the long-term chronic criteria was not an accurate representation of the risk of stormwater discharges to human health. CTR chronic criteria were not used for wet-weather analyses because acute criteria better reflect the short-term storm event exposure experienced by organisms, as compared to the long-term exposure considered by chronic criteria.

For the analysis of dry-weather data (Event 5 and 2019-DRY), the applicable BPO and the most stringent of the CTR chronic freshwater objectives - Criteria Continuous Concentration (CCC), HHOO, or HHWO were used. Prior to 2011, if the CTR did not contain chronic freshwater objectives for a constituent, the HHOO was used. In 2011, this was revised to include HHWO in the determination of the most stringent objective exceedances due to their potential for long-term exposure. In December 2016, this was revised to the current method as described above based on the re-evaluation of the applicability of MUN beneficial use designations for these waters.

Table 9-11. Applicable Water Quality Standards

Site and MUN Beneficial Use Designation Status	Wet Weather Standards	Dry Weather Standards
MUN (MO-MEI and MO-OJA)	Basin Plan <u>including</u> Title 22 (drinking water) standards CTR-CMC	Basin Plan <u>including</u> Title 22 (drinking water) standards CTR - most stringent of CCC, HHOO, HHWO
Non-MUN (ME-CC, ME-SCR, ME-VR2, MO-CAM, MO-FIL, MO-HUE, MO-MPK,	Basin Plan <u>excluding</u> Title 22 (drinking water) standards	Basin Plan <u>excluding</u> Title 22 (drinking water) standards

MO-SIM, MO-SPA, MO-THO, MO- VEN)	CTR-CMC	CTR - most stringent of CCC and HHOO
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Section 9.8 presents a discussion of WQS exceedances that occurred during the wet-weather and dry-weather monitoring events during the 2018/19 monitoring year.

9.7.5 Pollutants of Concern

The Permit (Section 1.A.I.16 of Attachment F - Monitoring Program No. CI 7388,) requires that Pollutants of Concern (POC) that exceed the BPO and CTRO for acute criteria for all mass emission test results be highlighted and submitted to the Regional Board. Attachment B of the Permit lists the POC for each watershed. The POC include constituents that have limits in the Basin Plan that are only applicable to sites designated for MUN beneficial use, and constituents in the CTRO that do not have acute objectives but do have CCC, HHWO, and/or HHOO (which are only applicable to dry weather (chronic) conditions). The POC lists also include fecal coliform, which does not have a limit in either document. Therefore, there are not always applicable POC limits for comparison with sample results (e.g. sites without MUN designations in wet and dry weather, wet weather samples for CTR POC, etc.). Table 9-12 shows the POC from Attachment B that only have MUN or CTR dry weather criteria and the associated watershed for which they are listed. The Program will continue to compare sample results to applicable criteria per the approach explained in the preceding sections.

Table 9-12. Applicability of Attachment B - Pollutants of Concern

POC	MUN (µg/L)	CTR HHWO (µg/L)	CTR HHOO (µg/L)	CTR Chronic (µg/L)	Calleguas Creek	Santa Clara River	Ventura River
Fecal Coliform					X	X	X
Aluminum, total	1000				X	X	X
Arsenic, total	10					X	
Barium, total	1000				X	X	
Beryllium, total	4				X		
Cadmium, total	5				X	X	X
Chromium, total	50				X	X	X
Mercury, total	2				X	X	X
Nickel, total	100	610	4600		X	X	X
Selenium, total	50			5.0		X	
Benzo(a)anthracene		0.0044	0.049		X	X	
Benzo(a)pyrene	0.2	0.0044	0.049		X	X	X
Benzo(b)fluoranthene		0.0044	0.049		X	X	X
Benzo(k)fluoranthene		0.0044	0.049		X	X	
Bis(2-ethylhexyl)phthalate	4	1.8	5.9		X	X	X
Chrysene		0.0044	0.049		X	X	X
Dibenz(a,h)anthracene		0.0044	0.049		X	X	
Hexachlorobenzene	1	0.00075	0.00077		X		X
Indeno(1,2,3-cd)pyrene		0.0044	0.049		X	X	
4,4'-DDD		0.00083	0.00084		X		
4,4'-DDE		0.00059	0.00059		X	X	

Note: Blank spaces indicate limits do not apply.

9.8 2018/19 WATER QUALITY STANDARD EVALUATIONS

9.8.1 2018/19 WQS Updates and Corrections

There were no changes to CTRO or BPO during the 2018/19 monitoring year.

Primary Method Determination

Some constituents are measured by more than one analytical method which can yield significantly different results. Since 2009, the Program has utilized some non-40 CFR 136 approved analytical methods to target the low Minimum Levels (ML) listed in Attachment G of the Permit. Prior to July 2019, the Program considered the method with the lowest Reporting Limit (RL) as primary, based on the recommendation of the laboratory at the time. In reviewing this evaluation method and based on updated guidance from the analytical laboratory, the Program determined that the method with the lowest RL may not be the most representative of the level of the constituent due to differences in the matrices for which the analytical methods are intended; and that in keeping with Section K.4(a) of Attachment F of the Permit, the 40 CFR 136 method should be considered the primary method.

As of July 2019, the Program considers the 40 CFR 136 approved method to be primary. In all cases, any result above a WQO by any method triggered the inclusion of that constituent in the Elevated Levels Report and Annual Report with the results from all available methods. A footnote to the table in the reports explained which method was considered primary.

This redetermination applies to phenols (including pentachlorophenol), bis(2-ethylhexyl)phthalate, and polycyclic aromatic hydrocarbons (PAHs). The primary method for all affected constituents is now EPA 625. It is a 40 CFR 136 approved gas chromatography mass spectrometry (GCMS) method intended for use with wastewater matrices and as such has been determined to be the most appropriate method for the Program. The downside is that it tends to have higher RLs than the other methods and it requires dilutions more frequently, which raises the already typically higher RLs and can obscure the presence of constituents at lower concentrations. It also contains more steps than some of the other methods which introduces greater risk of laboratory contamination (especially phthalates).

The three methods used to obtain the lower RLs that are not 40 CFR 136 approved are EPA 515.3 and EPA 525.2 (drinking water methods), and EPA 8270C (wastewater method). The drinking water methods contain fewer steps and were originally selected because they rarely require dilutions and therefore their reporting limits stay low, however it was recently determined that they may not be accurate for a stormwater matrix (however they would still be appropriate for laboratory/equipment/field blank samples). EPA 8270C is a GCMS method intended for wastewater matrices and is very similar to EPA 625 with similar extraction and analysis steps however while EPA 8270C RLs are typically lower, it is not 40 CFR 136 approved.

A letter explaining the change was sent to the Regional Board Executive Officer on July 19, 2019.

2018/19-3 (Wet) pH Issue

The field crew at ME-CC and MO-HUE inadvertently switched their pH meter to read in millivolts (mV) instead of pH, and recorded the mV as pH, but the result was extremely low (2.6 and 3.29, respectively) so the mV readings were back calculated to pH, resulting in estimated measurements that were within water quality objectives (6.85 and 6.84, respectively). Total coliform and *E. coli* samples were also collected at the same time as the field pH measurement and all of these were viable samples, with high concentrations of bacteria as expected in storm water samples, which further indicates that the pH was not as low as originally recorded by the field teams since low pH should affect bacterial survival. During the pre-monitoring event tailgate meetings, a reminder will be given to teams to check units on all meters.

2018/19-5 (Dry) Corrections

The elevated levels report submitted for 2018/19-5(dry) incorrectly used the (more stringent) dry weather HHWO instead of the dry weather HHOO for three constituents at two sites without municipal supply designations. The Program's water quality database is programmed to automatically use the more stringent HHWO to flag elevated levels which are then manually updated to HHOO for sites without a municipal supply designation. The manual update was not made for these results. For dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene at ME-SCR, the CTRO was incorrectly given as 0.0044 µg/L (dry weather HHWO) but should have been 0.049 µg/L (HHOO) and

for bis(2-ethylhexyl)phthalate at MO-THO, the CTR dry weather WQO was incorrectly given as 1.8 µg/L (HHWO) but should have been 5.9 µg/L (HHOO). The results are still above the WQO, but by less than was previously reported. These corrections have been made in Table 9-14 (see table notes and strikeout).

Hexavalent Chromium Update

The State Water Board has not yet adopted a new Title 22 (drinking water) maximum contaminant level (MCL) for hexavalent chromium. The Superior Court of Sacramento County judged the previous one to be invalid in May 2017 due to the failure to “properly consider the economic feasibility of complying with the MCL” prior to adoption. The adoption was expected to take 18-24 months to complete, so may be in effect for the next annual report. The CTR hexavalent chromium and Basin Plan total chromium WQO remain in effect.

9.8.2 2018/19 Water Quality Standard Evaluation Summary

Table 9-13 presents WQO exceedances at mass emission stations based on an analysis of the 2018/19 wet-season stormwater monitoring data. Constituents that were found at elevated levels¹⁷ at sites upstream (i.e., related major outfall stations) are shown in bold and highlighted (see Sections 9.8.3 through 0 for a discussion of the relationship between the mass emission and major outfall stations). Table 9-14 presents the elevated levels of constituents at major outfall stations based on an analysis of the 2018/19 wet-season stormwater monitoring data. Constituents that exceeded the WQO at sites downstream (i.e., related mass emission stations) are shown in bold and highlighted.

The Woolsey and Hill Fires began on November 8th, 2018 and burned in the Calleguas and Malibu watersheds, and may have contributed smoke and ash to other areas. The hills above MO-SIM burned in the Woolsey Fire and the hillsides around MO-THO, including the access road, burned in the Hill Fire, resulting in loss of vegetation cover and increased susceptibility to erosion. The fires had many impacts on both the community and our resources, including potential hazards from ash and toxins, and an increased risk of flooding and landslides, however unlike the Thomas Fire in 2017/18, there was not a noticeable increase in sample concentrations in comparison to other years at the most directly impacted stations (MO-SIM and MO-THO), with a few exceptions. The denuded land combined with heavy rain resulted in higher visual sediment loads in the MO-SIM samples, however this was not reflected in the chemistry results, as dilution amounts were similar in watersheds that did not burn in the fires. MO-SIM had its highest recorded levels of 2,4,-D; aluminum; and bis(2-ethylhexyl)phthalate during the 2018/19 monitoring year, however no WQS were exceeded. MO-THO had its highest recorded levels of glyphosate, bis(2-ethylhexyl)phthalate, and pentachlorophenol but only bis(2-ethylhexyl)phthalate was above the WQO (the non-primary method result was below the detection limit). There was not an increase in WQS exceedances compared to typical years.

Levels of pentachlorophenol were measured above WQO at MO-MPK during Event 2 (November 29-30, 2018) and to a lesser extent during Event 3 (January 5-6, 2019). Event 2 laboratory results were received on January 28, 2019 and follow-up testing around the Edison facility (directly adjacent to the MO-MPK station and the source of elevated pentachlorophenol levels at MO-MPK in 2010/11) was conducted during the next storm, January 31st, 2019. Edison was notified of the high levels on January 30, 2019 and implemented best management practices (BMPs) prior to/during the January 31st storm and results from follow-up testing on January 31st showed levels below WQO and similar to Event 1.

¹⁷ “Elevated levels” is used to describe those concentrations that are above a particular WQS. These amounts are not referred to as “exceedances,” as has been done for the mass emission stations, since, technically, those standards are only applicable to receiving waters, not to the outfalls that were monitored.

Table 9-13. Water Quality Objective Exceedances at Mass Emission Stations

Site	Constituent	2018/19-1 (Wet) ^a	2018/19-2 (Wet) ^b	2018/19-3 (Wet) ^c	2018/19-4 (Wet) ^d	2018/19-5 (Dry)	Applicable WQO
ME-CC	<i>E. coli</i>	2,909	341	3,255	NS	860	235 MPN/100 mL (BPO)
	Chloride [^]	170			NS	210	SSO: 150 mg/L (BPO)
	Total Chlorine Residual	0.54			NS		0.1 mg/L (BPO)
	Total Dissolved Solids [^]				NS	1,000	SSO: 850 mg/L (BPO)
ME-SCR	<i>E. coli</i>	DRY	9,804	309	5,475 ^d		235 MPN/100 mL (BPO)
	Dissolved Oxygen	DRY	4.57				5 mg/L (BPO)
	Total Chlorine Residual ^e	DRY	0.11 (DNQ) ^e				0.1 mg/L (BPO)
	Dibenz(a,h)anthracene ^f	DRY				<1.6 0.11	0.0044 µg/L EPA 625 RL=40 0.049 µg/L ^g EPA 8270C RL=0.1 (CTRO dry weather)
	Indeno(1,2,3-cd)pyrene ^f	DRY				<2.4 0.14	0.0044 µg/L EPA 625 RL=40 0.049 µg/L ^g EPA 8270C RL=0.1 (CTRO dry weather)
ME-VR2	<i>E. coli</i>	670	3,873		NS		235 MPN/100 mL (BPO)
	Dissolved Oxygen			4.63	NS		5 mg/L (BPO)
Highlighted: Elevated level of same constituent in one or more related major outfalls							

Table 9-14. Elevated Levels at Major Outfall Stations

Site	Constituent	2018/19-1 (Wet) ^a	2018/19-2 (Wet) ^b	2018/19-3 (Wet) ^c	2018/19-4 (Wet) ^d	2018/19-5 (Dry)	Applicable WQO
		Value	Value	Value	Value	Value	
MO-CAM	<i>E. coli</i>	2,142	23,820	2,046	NS		235 MPN/100 mL (BPO)
	pH				NS	10.00	6.5 -8.5 pH Units (BPO)
MO-FIL	<i>E. coli</i>	64,880 ^a	68,670	12,033	NS	645	235 MPN/100 mL (BPO)
	pH				NS	8.53	6.5 -8.5 pH Units (BPO)
MO-HUE	<i>E. coli</i>	8,164	1,059	9,804	NS	1,850	235 MPN/100 mL (BPO)
	Dissolved Oxygen	3.23	1.45		NS		5 mg/L (BPO)
	Total Cyanide			0.041	NS		0.022 mg/L (CTRO)
MO-MEI	<i>E. coli</i>	92,080	30,760	11,199	NS	DRY	235 MPN/100 mL (BPO)
	Aluminum, total ^h	6,600	3,100	5,900	NS	DRY	1,000 µg/L (BPO)
	Bis(2-ethylhexyl)phthalate ^{f,h}			<5.3 21 (DNQ)	NS	DRY	EPA 525.2 RL=15 4 µg/L (BPO) EPA 625 RL=25
	Pentachlorophenol ^{f,h}	1.2 3.2 (DNQ) 5.7	0.26 5 (DNQ) 1.3 (DNQ)	0.53 2.6 (DNQ) 2.9 (DNQ)	NS	DRY	EPA 515.3 RL=0.2,0.2,0.2 1 µg/L (BPO) EPA 625 RL=5,10,5 EPA 8270C RL=5,2,5
	MBAS	0.77			NS	DRY	0.5 mg/L (BPO)
MO-MPK	<i>E. coli</i>	68,670	29,090	2,014	NS	839	235 MPN/100 mL (BPO)
	Pentachlorophenol ^{f,h,i}		150 ^j 98 100 ^k	38 23 30	NS		23.12, 18.72 µg/L EPA 515. RL=20,2 (CTRO) EPA 625 RL=2,5 (pH 7.97, 7.76) EPA 8270C RL=2,5
MO-OJA	<i>E. coli</i>	1,299,700	41,600	19,863	NS	1,483	235 MPN/100 mL (BPO)
	Chloride [^]				NS	200	SSO: 60 mg/L (BPO)
	Total Dissolved Solids [^]				NS	1,200	SSO: 800 mg/L (BPO)
	pH				NS	8.74	6.5 -8.5 pH Units (BPO)
	Aluminum, total ^{f,h}	31,000	3,500	3,800	NS		1,000 µg/L (BPO)
	Arsenic, total	11			NS		10 µg/L (BPO)
	Pentachlorophenol ^{f,h}	0.49 2.9 (DNQ) 5.1	0.23 2.7 (DNQ) 0.83 (DNQ)	0.29 2.6 (DNQ) 2.8 (DNQ)	NS		EPA 515.3 RL=0.2,0.2,0.2 1 µg/L (BPO) EPA 625 RL=5,5,5 EPA 8270C RL=5,1,5

Site	Constituent	2018/19-1 (Wet) ^a	2018/19-2 (Wet) ^b	2018/19-3 (Wet) ^c	2018/19-4 (Wet) ^d	2018/19-5 (Dry)	Applicable WQO
		Value	Value	Value	Value	Value	
MO-OXN	<i>E. coli</i>	5,794 ^a	8,164	7,701	NS	DRY	235 MPN/100 mL (BPO)
	MBAS		3.3		NS	DRY	0.5 mg/L (BPO)
	Copper, dissolved ¹	25 ^a			NS	DRY	12.86 µg/L (CTRO-hardness dependent) [95.4 mg/L site water hardness]
	Zinc, dissolved ¹	160 ^a			NS	DRY	112.59 µg/L (CTRO-hardness dependent) [95.4 mg/L site water hardness]
MO-SIM	<i>E. coli</i>	457	14,136	11,199	NS		235 MPN/100 mL (BPO)
	Chloride [^]				NS	160	SSO: 150 mg/L (BPO)
	Total Dissolved Solids [^]				NS	2,300	SSO: 850 mg/L (BPO)
	Total Cyanide			0.025	NS		0.022 mg/L (CTRO)
	Selenium, total				NS	35	5 µg/L (CTRO)
MO-SPA	<i>E. coli</i>	NS ^a	8,164	8,164	NS	DRY	235 MPN/100 mL (BPO)
	Copper, dissolved ¹	19 ^a			NS	DRY	12.77 µg/L (CTRO-hardness dependent) [94.7 mg/L site water hardness]
MO-THO	<i>E. coli</i>	NS ^a	8,164 ^b	NS ^c	NS		235 MPN/100 mL (BPO)
	Chloride [^]	200			NS	230	SSO: 150 mg/L (BPO)
	Total Dissolved Solids [^]	1,000			NS	1,300	SSO: 850 mg/L (BPO)
	Bis(2-ethylhexyl)phthalate ^{f,h}				NS	<1.1 91	1.8 µg/L (CTR) EPA 525.2 RL=3 5.9 µg/L (CTRO) ^m EPA 625 RL=10
MO-VEN	<i>E. coli</i>	6,131 ^a	6,867	6,867	NS		235 MPN/100 mL (BPO)
	pH				NS	8.97	6.5-8.5 pH Units (BPO)
	Copper, dissolved ¹	11 ^a			NS	61 ⁿ	9.93, 29.29 µg/L (CTRO-hardness dependent) [72.5 mg/L site hardness, 400mg/L receiving water hardness]
	Selenium, total				NS	15	5 µg/L (CTRO)

Table 9-13 and Table 9-14 Notes:

^a Event 1: First flush event for ME-CC, ME-VR2, MO-CAM, MO-FIL, MO-MEI, MO-OJA, and MO-OXN, however a storm in October that was predicted to be too small to sample produced qualifying rainfall (for what would have been the first flush event) at MO-SPA (0.27”), MO-MPK (0.25”), MO-SIM (0.29”), MO-THO (0.26”), and MO-HUE (0.31). ME-SCR did not flow during either storm so no cause or contribute comparisons for major outfalls in the Santa Clara River watershed for this event. The Woolsey and Hill Fires began on November 8th and burned in the Calleguas and Malibu watersheds, and may have contributed smoke and ash to other areas. The hills above MO-SIM were burned in the Woolsey Fire. The hillsides of the access road to MO-THO burned in the Hill Fire and denuded the slopes so night time collection of grab samples was not conducted for safety reasons (risk of rockfall/landslide/debris flow) but field meter measurements were taken at composite sample pickup. Grab samples and field measurements could not be collected at MO-SPA due to homeless presence onsite. Lack of field meter data (pH/salinity) prevents calculation of CTR pentachlorophenol and Basin Plan ammonia WQO for MO-SPA.

^b Event 2: Field measurements for MO-THO collected during daylight hours because of potentially unsafe night-time/rain access after the Hill Fire denuded the slopes along the access road.

^c Event 3: Grab samples (except bacteria) and field measurements for MO-THO collected at composite pickup because of potentially unsafe night-time/rain access after the Hill Fire denuded the slopes along the access road.

^d Event 4: ME-SCR sampled to make up for Event 1. Other sites in watershed not sampled so no cause or contribute comparisons for this event.

^e Total chlorine residual not required by Permit at ME-SCR but laboratory analyzed for it by mistake. Result is DNQ and MDL is 0.0075 (below BPO). Result is estimated value.

^f These constituents are each measured by two or more different methods which can yield significantly different results. Prior to July 2019, the Program considered the method with the lowest Reporting Limit (RL) as primary, as of July 2019, the Program considers the 40 CFR 136 approved method (EPA 625) as primary, but in both cases reported all results as required. RLs are indicated in order by event in the “Applicable WQO” column.

^g The CTR dry weather WQO for dibenz(a,h)anthracene and indeno(1,2,3-cd)pyrene at ME-SCR were incorrectly given as 0.0044 µg/L (dry weather human health water and organisms) in the elevated levels report submitted for 2018/19-5(dry) but should have been 0.049 µg/L (human health organisms only) because this site does not have a MUN designation. The results are still above WQO, but by less than was previously reported.

^h The BPO for aluminum, bis(2-ethylhexyl)phthalate, and pentachlorophenol only apply to MUN sites. Only MO-MEI and MO-OJA have an existing MUN designation. [Bis(2-ethylhexyl)phthalate also has a non-MUN CTR dry weather WQO and pentachlorophenol also has a wet and dry CTRO, which apply to all samples.]

ⁱ Follow-up testing for source-tracking pentachlorophenol at MO-MPK was conducted on 1/31/2019, which was the first storm after the results were received from the laboratory on 1/28/2019.

^j Estimated value. Originally analyzed within hold time but needed dilution and re-analysis performed outside of recommended hold time.

^k Estimated value. Above calibration range.

^l CTRO is calculated using water hardness. The receiving water hardness is used unless it is unavailable (as in Event 1 for the Santa Clara River Watershed when ME-SCR was dry), in which case the water hardness at the site is used instead.

^m CTR dry weather WQO for bis(2-ethylhexyl)phthalate at MO-THO was incorrectly reported as 1.8 µg/L (dry weather HHWO) in the elevated levels report submitted for dry weather event 2018/19-5 (dry) but should have been 5.9 µg/L (HHOO) because this site does not have a MUN designation.. The level is still considered elevated when the correct standard is applied.

ⁿ Laboratory confirmed the original analysis and QC were correctly reported. The laboratory re-scanned another sample portion from the same bottle for verification and the result was the same. Total copper was 75 ug/L.

Blank cells indicate the result was within WQO limits or was not required to be analyzed.

DNQ: Detected below the RL and therefore concentration cannot be confidently quantified.

NS: Not sampled.

^ Site Specific Objectives

RPD: Relative Percent Difference

9.8.3 Ventura River Watershed Receiving Water Limit Evaluation¹⁸

Urban stormwater runoff and urban non-stormwater flows were evaluated at two major outfall locations in the Ventura River Watershed during the 2018/19 season: Unincorporated-1 (MO-MEI) and Ojai-1 (MO-OJA). Both major outfalls are located upstream of the ME-VR2 mass emission station (see Figure 9-1), and therefore water quality data collected at ME-VR2 were used to represent receiving water quality in the “cause or contribute” evaluation conducted for both major outfalls. Table 9-15 and Table 9-16 show the constituents that exceeded WQS in the downstream receiving water and compares them to the levels measured at the major outfalls, MO-MEI and MO-OJA, respectively. Receiving water exceedances where the urban runoff from the applicable major outfalls was outside of WQS are shown in bold.

Table 9-15. Comparison of MO-MEI and ME-VR2 Relative to Water Quality Standards

Constituent (Unit)	Unincorporated-1 Major Outfall (MO-MEI)	Receiving Water (ME-VR2)	WQO (BPO or CTRO)
2018/19-1 (Wet) – November 21-22, 2018			
<i>E. coli</i> (MPN/100 mL)	92,080	670	235 BPO
2018/19-2 (Wet) – November 29-30, 2018			
<i>E. coli</i> (MPN/100 mL)	30,760	3,873	235 BPO
2018/19-3 (Wet) – January 5-6, 2019			
Dissolved oxygen (mg/L)	10.61	4.63	5 BPO
2018/19-5 (Dry) – May 7-8, 2019			
No exceedances at ME-VR2 this event			

¹⁸ The Ventura River mass emission station (ME-VR2) was installed during the 2004/05 monitoring year when the original station, ME-VR was decommissioned due to safety concerns because of landslide activity. The station was moved approximately one mile downstream to a safe location, while still representative of the runoff of the Ventura River watershed. The new location for the station put it into a different reach of the river according to the Basin Plan (between the confluence with Weldon Canyon and Main Street rather than between Casitas Vista Road and the confluence with Weldon Canyon), with higher limits for total dissolved solids (TDS), sulfate, chloride, boron, and nitrogen. Of these constituents, TDS, chloride, and nitrogen are monitored as part of the NPDES Permit by the Stormwater Monitoring Program. The limits in the Program’s database were not updated for the new location until the 2011 annual report, and they are now correct for the current location. These changes and revised exceedances were explained in the 2011 annual report.

Table 9-16. Comparison of MO-OJA and ME-VR2 Relative to Water Quality Standards

Constituent (Unit)	Ojai-1 Major Outfall (MO-OJA)	Receiving Water (ME-VR2)	WQO (BPO or CTRO)	
2018/19-1 (Wet) – November 21-22, 2018				
<i>E. coli</i> (MPN/100 mL)	1,299,700	670	235	BPO
2018/19-2 (Wet) – November 29-30, 2018				
<i>E. coli</i> (MPN/100 mL)	41,600	3,873	235	BPO
2018/19-3 (Wet) – January 5-6, 2019				
Dissolved oxygen (mg/L)	10.86	4.63	5	BPO
2018/19-5 (Dry) – May 7-8, 2019				
No exceedances at ME-VR2 this event				

9.8.4 Santa Clara River Watershed Receiving Water Limit Evaluation

Urban stormwater runoff and urban non-stormwater flows were evaluated at four major outfalls in the Santa Clara River Watershed during the 2018/19 monitoring year: Fillmore-1 (MO-FIL), Santa Paula-1 (MO-SPA), Oxnard-1 (MO-OXN), and Ventura-1 (MO-VEN). Two of these stations, MO-FIL and MO-SPA, are located upstream of the ME-SCR mass emission station (see Figure 9-1), and therefore water quality data collected at ME-SCR were used to represent receiving water quality in the “cause or contribute” evaluation conducted for both major outfalls. The other two stations, MO-OXN and MO-VEN, are located downstream of the ME-SCR mass emission station (see Figure 9-1). Because the ME-SCR station is located upstream of MO-OXN and MO-VEN, an assumption was required so that water quality data collected at ME-SCR could be considered to adequately represent Santa Clara River water quality downstream of the confluence of both MO-OXN and MO-VEN with the river. For comparison purposes it was assumed that pollutant concentrations in the Santa Clara River downstream of ME-SCR remain unchanged to those measured at ME-SCR to represent a hypothetical compliance point below the confluence of MO-OXN and MO-VEN and the Santa Clara River. With this assumption in effect, water quality data collected at ME-SCR were used to represent receiving water quality in the “cause or contribute” evaluation conducted for the MO-OXN and MO-VEN stations. Constituents exceeding WQS at the receiving water were compared to the urban runoff levels at the MO-FIL, MO-SPA, MO-OXN, and MO-VEN stations and are shown in Table 9-17 through Table 9-20 below.¹⁹ Receiving water exceedances where the urban runoff from the applicable major outfalls was outside of WQS are shown in bold.

¹⁹ Column order is presented to show whether a site is upstream or downstream of the receiving water station, i.e. if a site is upstream of the receiving water station then the site column is listed first (MO-FIL, MO-SPA) and if a site is downstream of the receiving water station (MO-OXN, MO-VEN) then the site column is listed second.

Table 9-17: Comparison of MO-FIL and ME-SCR Relative to Water Quality Standards

Constituent (Unit)	Fillmore-1 Major Outfall (MO-FIL)	Receiving Water (ME-SCR)	WQO (BPO or CTRO)	
2018/19-1 (Wet) – November 21-22, 2018				
ME-SCR not sampled this event (dry)				
2018/19-2 (Wet) – November 29-30, 2018				
<i>E. coli</i> (MPN/100 mL)	68,670	9,804	235	BPO
Dissolved Oxygen (mg/L)	6.10	4.57	5	BPO
Total Chlorine Residual (mg/L)	0.053	0.11 (DNQ)	0.1	BPO
2018/19-3 (Wet) – January 5-6, 2019				
<i>E. coli</i> (MPN/100 mL)	12,033	309	235	BPO
2018/19-4 (Wet) – January 31-February 2, 2019				
<i>E. coli</i> (MPN/100 mL)	NS	5,475	235	BPO
2018/19-5 (Dry) – May 1-2, 2019				
Dibenz(a,h)anthracene (µg/L)	<1.6 <0.10	<1.6* 0.11	0.049	CTRO
Indeno(1,2,3-cd)pyrene (µg/L)	<2.4 <0.10	<2.4* 0.14	0.049	CTRO

* Primary method. These constituents are measured by two analytical methods which can yield significantly different results. Prior to July 2019, the Program considered the method with the lowest Reporting Limit (RL) as primary, as of July 2019, the Program considers the 40 CFR 136 approved method (EPA 625) as primary, but in both cases reported all results as required by the permit.

Table 9-18. Comparison of MO-SPA and ME-SCR Relative to Water Quality Standards

Constituent (Unit)	Santa Paula-1 Major Outfall (MO-SPA)	Receiving Water (ME-SCR)	WQO (BPO or CTRO)	
2018/19-1 (Wet) – November 21-22, 2018				
ME-SCR not sampled this event (dry)				
2018/19-2 (Wet) – November 29-30, 2018				
<i>E. coli</i> (MPN/100 mL)	8,164	9,804	235	BPO
Dissolved Oxygen (mg/L)	5.33	4.57	5	BPO
Total Chlorine Residual (mg/L)	0.035 (DNQ)	0.11 (DNQ)	0.1	BPO
2018/19-3 (Wet) – January 5-6, 2019				
<i>E. coli</i> (MPN/100 mL)	8,164	309	235	BPO
2018/19-4 (Wet) – January 31-February 2, 2019				
<i>E. coli</i> (MPN/100 mL)	NS	5,475	235	BPO
2018/19-5 (Dry) – May 1-2, 2019				
Dibenz(a,h)anthracene (µg/L)	DRY	<1.6* 0.11	0.049	CTRO
Indeno(1,2,3-cd)pyrene (µg/L)	DRY	<2.4* 0.14	0.049	CTRO

Table 9-19. Comparison of MO-OXN and ME-SCR Relative to Water Quality Standards

Constituent (Unit)	Receiving Water ^a (ME-SCR)	Oxnard-1 Major Outfall (MO-OXN)	WQO (BPO or CTRO)	
2018/19-1 (Wet) – November 21-22, 2018				
ME-SCR not sampled this event (dry)				
2018/19-2 (Wet) – November 29-30, 2018				
<i>E. coli</i> (MPN/100 mL)	9,804	8,164	235	BPO
Dissolved Oxygen (mg/L)	4.57	6.82	5	BPO
Total Chlorine Residual (mg/L)	0.11 (DNQ)	0.023 (DNQ)	0.1	BPO
2018/19-3 (Wet) – January 5-6, 2019				
<i>E. coli</i> (MPN/100 mL)	309	7,701	235	BPO
2018/19-4 (Wet) – January 31-February 2, 2019				
<i>E. coli</i> (MPN/100 mL)	5,475	NS	235	BPO
2018/19-5 (Dry) – May 1-2, 2019				
Dibenz(a,h)anthracene (µg/L)	<1.6* 0.11	DRY	0.049	CTRO
Indeno(1,2,3-cd)pyrene (µg/L)	<2.4* 0.14	DRY	0.049	CTRO

^a Water quality monitoring data collected at ME-SCR were used in the receiving water “cause or contribute” evaluation as downstream surrogate data to represent the water quality in the Santa Clara River at a compliance point below the confluence of MO-OXN and the Santa Clara River. The site column is listed after the receiving water column to represent this difference.

* Primary method. These constituents are measured by two analytical methods which can yield significantly different results. Prior to July 2019, the Program considered the method with the lowest Reporting Limit (RL) as primary, as of July 2019, the Program considers the 40 CFR 136 approved method (EPA 625) as primary, but in both cases reported all results as required by the permit.

Table 9-20. Comparison of MO-VEN and ME-SCR Relative to Water Quality Standards

Constituent (Unit)	Receiving Water ^a (ME-SCR)	Ventura-1 Major Outfall (MO-VEN)	WQO (BPO or CTRO)	
2018/19-1 (Wet) – November 21-22, 2018				
ME-SCR not sampled this event (dry)				
2018/19-2 (Wet) – November 29-30, 2018				
<i>E. coli</i> (MPN/100 mL)	9,804	6,867	235	BPO
Dissolved Oxygen (mg/L)	4.57	6.00	5	BPO
Total Chlorine Residual (mg/L)	0.11 (DNQ)	0.039 (DNQ)	0.1	BPO
2018/19-3 (Wet) – January 5-6, 2019				
<i>E. coli</i> (MPN/100 mL)	309	6,867	235	BPO
2018/19-4 (Wet) – January 31-February 2, 2019				
<i>E. coli</i> (MPN/100 mL)	5,475	NS	235	BPO
2018/19-5 (Dry) – May 1-2, 2019				
Dibenz(a,h)anthracene (µg/L)	<1.6* 0.11	<1.6 <0.20	0.049	CTRO
Indeno(1,2,3-cd)pyrene (µg/L)	<2.4* 0.14	<2.4 <0.20	0.049	CTRO

^a Water quality monitoring data collected at ME-SCR were used in the receiving water “cause or contribute” evaluation as downstream surrogate data to represent the water quality in the Santa Clara River at a compliance point below the confluence of MO-OXN and the Santa Clara River. The site column is listed after the receiving water column to represent this difference.

* Primary method. These constituents are measured by two analytical methods which can yield significantly different results. Prior to July 2019, the Program considered the method with the lowest Reporting Limit (RL) as primary, as of July 2019, the Program considers the 40 CFR 136 approved method (EPA 625) as primary, but in both cases reported all results as required by the permit.

9.8.5 Calleguas Creek Watershed Receiving Water Limit Evaluation

Urban stormwater runoff and urban non-stormwater flows were evaluated at four major outfalls in the Calleguas Creek Watershed during the 2018/19 monitoring year: Camarillo-1 (MO-CAM), Moorpark-1 (MO-MPK), Simi Valley-1 (MO-SIM), and Thousand Oaks-1 (MO-THO). Three of these major outfalls (MO-MPK, MO-SIM, and MO-THO) are located upstream of the ME-CC mass emission station (see Figure 9-1), and therefore water quality data collected at ME-CC were used to represent receiving water quality in the “cause or contribute” evaluation conducted for these major outfalls. As stated earlier, MO-CAM is in a different subwatershed than the closest receiving water location, the ME-CC station, monitored by the Program (see Figure 9-1). MO-CAM is tributary to Revolon Slough, which is tributary to Calleguas Creek several miles downstream of ME-CC. Similar to the ME-SCR station in the Santa Clara River watershed, an assumption was made so that water quality data collected at ME-CC could be considered to adequately represent Calleguas Creek water quality downstream of the confluence of Revolon Slough and the creek. It was assumed that pollutant concentrations in Calleguas Creek downstream of ME-CC remain the same as those measured at ME-CC to a hypothetical compliance point below the confluence of Revolon Slough and Calleguas Creek. With this assumption in effect, water quality data collected at ME-CC were used to represent receiving water quality in the “cause or contribute” evaluation conducted for the MO-CAM major outfall. Constituents exceeding WQS at the receiving water were compared to the urban runoff levels at the MO-

MPK, MO-SIM, MO-THO, and MO-CAM stations and are shown in Table 9-21 through Table 9-24.²⁰ Receiving water exceedances where the urban runoff from the applicable major outfalls was outside of WQS are shown in bold.

Table 9-21. Comparison of MO-MPK and ME-CC Relative to Water Quality Standards

Constituent (Unit)	Moorpark-1 Major Outfall (MO-MPK)	Receiving Water (ME-CC)	WQO (BPO or CTRO))	
2018/19-1 (Wet) – November 21-22, 2018				
<i>E. coli</i> (MPN/100 mL)	68,670	2,909	235	BPO
Chloride (mg/L)	110	170	150	BPO
Total Chlorine Residual (mg/L)	NS	0.54	0.1	BPO
2018/19-2 (Wet) – November 29-30, 2018				
<i>E. coli</i> (MPN/100 mL)	29,090	341	235	BPO
2018/19-3 (Wet) – January 5-6, 2019				
<i>E. coli</i> (MPN/100 mL)	2,014	3,255	235	BPO
2018/19-5 (Dry) – May 13-14, 2019				
<i>E. coli</i> (MPN/100 mL)	839	860	235	BPO
Chloride (mg/L)	140	210	150	BPO
Total Dissolved Solids (mg/L)	480	1,000	850	BPO

NS Not sampled. Total chlorine residual is not typically analyzed at the major outfalls.

²⁰ Column order is presented to show whether a site is upstream or downstream of the receiving water station, i.e. if a site is upstream of the receiving water station then the site column is listed first (MO-MPK, MO-SIM, MO-THO) and if a site is downstream of the receiving water station then the site column is listed second (MO-CAM).

Table 9-22. Comparison of MO-SIM and ME-CC Relative to Water Quality Standards

Constituent (Unit)	Simi Valley-1 Major Outfall (MO-SIM)	Receiving Water (ME-CC)	WQO (BPO or CTRO)	
2018/19-1 (Wet) – November 21-22, 2018				
<i>E. coli</i> (MPN/100 mL)	457	2,909	235	BPO
Chloride (mg/L)	35	170	150	BPO
Total Chlorine Residual (mg/L)	NS	0.54	0.1	BPO
2018/19-2 (Wet) – November 29-30, 2018				
<i>E. coli</i> (MPN/100 mL)	14,136	341	235	BPO
2018/19-3 (Wet) – January 5-6, 2019				
<i>E. coli</i> (MPN/100 mL)	11,199	3,255	235	BPO
2018/19-5 (Dry) – May 13-14, 2019				
<i>E. coli</i> (MPN/100 mL)	183	860	235	BPO
Chloride (mg/L)	160	210	150	BPO
Total Dissolved Solids (mg/L)	2,300	1,000	850	BPO

NS Not sampled. Total chlorine residual is not typically analyzed at the major outfalls.

Table 9-23. Comparison of MO-THO and ME-CC Relative to Water Quality Standards

Constituent (Unit)	Thousand Oaks-1 Major Outfall (MO-THO)	Receiving Water (ME-CC)	WQO (BPO or CTRO)	
2018/19-1 (Wet) – November 21-22, 2018				
<i>E. coli</i> (MPN/100 mL)	NS*	2,909	235	BPO
Chloride (mg/L)	200	170	150	BPO
Total Chlorine Residual (mg/L)	NS	0.54	0.1	BPO
2018/19-2 (Wet) – November 29-30, 2018				
<i>E. coli</i> (MPN/100 mL)	8,164	341	235	BPO
2018/19-3 (Wet) – January 5-6, 2019				
<i>E. coli</i> (MPN/100 mL)	NS*	3,255	235	BPO
2018/19-5 (Dry) – May 13-14, 2019				
<i>E. coli</i> (MPN/100 mL)	175	860	235	BPO
Chloride (mg/L)	230	210	150	BPO
Total Dissolved Solids (mg/L)	1,300	1,000	850	BPO

NS Not sampled

Total chlorine residual is not typically analyzed at the major outfalls.

* Night time collection of grab samples was not conducted for safety reasons (risk of rockfall/landslide/debris flow after Hill Fire denuded access road hillsides.)

Table 9-24. Comparison of MO-CAM and ME-CC Relative to Water Quality Standards

Constituent (Unit)	Receiving Water ^a (ME-CC)	Camarillo-1 Major Outfall (MO-CAM)	WQO (BPO or CTRO)	
2018/19-1 (Wet) – November 21-22, 2018				
<i>E. coli</i> (MPN/100 mL)	2,909	2,142	235	BPO
Chloride (mg/L)	170	24	150 ^b	BPO
Total Chlorine Residual (mg/L)	0.54	NS	0.1	BPO
2018/19-2 (Wet) – November 29-30, 2018				
<i>E. coli</i> (MPN/100 mL)	341	23,820	235	BPO
2018/19-3 (Wet) – January 5-6, 2019				
<i>E. coli</i> (MPN/100 mL)	3,255	2,046	235	BPO
2018/19-5 (Dry) – May 13-14, 2019				
<i>E. coli</i> (MPN/100 mL)	860	106	235	BPO
Chloride (mg/L)	210	180	150 ^b	BPO
Total Dissolved Solids (mg/L)	1,000	910	850 ^b	BPO

NS Not sampled

Total chlorine residual is not typically analyzed at the major outfalls.

^a Water quality monitoring data collected at ME-CC were used in the receiving water “cause or contribute” evaluation as downstream surrogate data to represent the water quality in Calleguas Creek at a compliance point below the confluence of Revolon Slough and Calleguas Creek. The MO-CAM station is tributary to Revolon Slough. The site column is listed after the receiving water column to represent this difference.

^b Site-specific BPO for reach of Calleguas Creek where ME-CC is located. There are no waterbody specific WQO below the confluence of Revolon Slough and Calleguas Creek (the reach to which MO-CAM discharges). Therefore, the level of chloride and total dissolved solids at MO-CAM are not flagged as elevated in Table 9-14 but are included here because they are above the BPO for ME-CC.

9.8.6 Coastal Watershed

Urban stormwater runoff and urban non-stormwater flows were evaluated at one major outfall station that does not have an associated mass emission station located within the watershed. The MO-HUE station is in Port Hueneme and discharges to tšumaš (chumash) creek (formerly named J Street Drain) just upstream of where the drain enters Ormond Beach lagoon. Elevated levels seen at MO-HUE are listed in Table 9-14 and not in a separate table as there is not a mass emission station nearby to which comparisons would be relevant. Backwater effects from Ormond Lagoon preclude the installation of a mass emission station for this watershed.

9.8.7 Discussion of Results above Water Quality Standards

Three wet events were sampled for all sites. For the Calleguas Creek and Ventura River watersheds, there was flow at all sites during each event, allowing representative evaluations of the “cause or contribute” status of pollutants for the mass emission stations and their associated major outfalls. Due to access safety concerns post-Hill Fire, MO-THO grab samples were not collected for Event 1 and a bacteria sample was not collected during Event 3. Three events were sampled for all sites in the Santa Clara River watershed however ME-SCR did not flow during Event 1 and was the only site that needed to be sampled in Event 4, therefore only two events had data for a representative “cause or contribute” evaluation of pollutants. The Woolsey, Hill, and Thomas Fires caused higher sediment loads in the affected watersheds, which required some samples to be diluted, thereby raising the reporting limits which may have obscured some of the effects of the fire on constituent concentrations. One dry event was able to be sampled at all sites except for MO-MEI, MO-SPA, and MO-OXN, which were dry.

The occurrence of elevated levels varied by site, constituent, and event type (wet or dry) and is summarized below. [Note that Table 9-25 does not include magnitude of exceedance.]

Table 9-25. 2018/19 Occurrences of Elevated Levels by Constituent and Site in Wet and Dry Weather

Watershed	Calleguas					Santa Clara					Ventura			-
	ME-CC	MO-CAM	MO-MPK	MO-SIM	MO-THO*	ME-SCR	MO-FIL	MO-OXN**	MO-SPA**,**	MO-VEN	ME-VR2	MO-OJA	MO-MEI**	MO-HUE
<i>E. coli</i>	3W 1D	3W	3W 1D	3W	1W	3W	3W 1D	3W	2W	3W	2W	3W 1D	3W	3W 1D
pH		1D					1D			1D		1D		
Dissolved Oxygen						1W					1W			2W
Total Chlorine Residual	1W					1W								
Chloride	1W 1D			1D	1W 1D							1D		
Total Dissolved Solids	1D			1D	1W 1D							1D		
MBAS								1W					1W	
Total Cyanide				1W										1W
Aluminum, total, MUN only												3W	3W	
Arsenic, total												1W		
Copper, dissolved								1W	1W	1W 1D				
Zinc, dissolved								1W						
Selenium, total				1D							1D			
Bis(2-ethylhexyl)phthalate					1D								1W	
Pentachlorophenol			2W									3W	3W	
Dibenz(a,h)anthracene						1D								
Indeno(1,2,3-cd)pyrene						1D								

*Less than three wet events for *E. coli*, pH, dissolved oxygen and total cyanide due to access issues for grab sample collection (safety concerns).

** Not flowing for dry weather event

“W” indicates number of wet weather occurrences

“D” indicates number of dry weather occurrences

The Program is using this information to identify pollutants of concern and direct efforts to reduce their discharge from the storm drain system. Actions such as studies or the purchasing of new equipment that each permittee has taken or is committing to take to address pollutants found at elevated levels in their outfalls are detailed in Section 9.8.8.

Pathogen Indicators

Urban runoff concentrations of *E. coli* bacteria were detected above their respective BPO in all wet weather samples except ME-VR2 Event 3. These indicator bacteria are routinely measured at concentrations above WQS during wet weather events. For dry weather monitoring, one mass emission site and four of eight sampled major outfall sites exceeded the *E. coli* WQO during Event 5.

Heal the Bay's 2018/19 Annual Beach Report Card (BRC) gave all Ventura County Beaches an A grade for summer dry weather for the 11th consecutive year, and winter dry weather grades were “excellent and above average” with all sites also receiving A grades. Three Ventura County beaches made the honor roll (A+ for all seasons and weather conditions year-round). Ventura County wet weather scores were above average for the Southern California according to the BRC; however, grades were unusually low, with only 67% of the 40 sites receiving A or B grades. The wetter than average winter (38% higher than average in Ventura County according to BRC) may have contributed to the lower grades. Grades are given on an A to F scale, with higher grades representing lower risk of illness for beachgoers.

Bacteriological contamination is a common occurrence throughout California and the United States. However, several issues make compliance with existing standards challenging:

- The WQS are based on fecal indicator bacteria, not the actual pathogenic micro-organisms that can cause illness. As a result, it is difficult to ascertain whether a water concentration of indicator bacteria is associated with an increased risk of human illness. This complicates establishment of priority watersheds or drainage areas and introduces considerable risk of spending significant resources to comply with bacteria standards but with little to no benefit to recreational beneficial uses.
- Urban (anthropogenic) sources, wildlife, bacterial regrowth and other non-urban sources all potentially contribute fecal indicator bacteria to outfalls and receiving waters. However, identifying the sources of bacteria impairment through sanitary surveys and source identification studies are costly and not always conclusive, as the science is still evolving.
- Even if likely dominant sources of fecal indicator bacteria can be identified, remediation or control of these sources is often difficult, e.g. high volumes of stormwater runoff, bacterial regrowth, and wildlife. There are only a limited number of BMPs that can effectively control fecal indicator bacteria pollution to meet these objectives, and they may not always be technically feasible at a given location.

Implementation of bacteria control strategies and BMPs

The Program has control strategies in place that directly address indicator bacteria concentrations in urban runoff. The existing Program includes a comprehensive residential public outreach program that uses radio, newspaper, online banners, outdoor bulletins, and transit shelters to educate the public about preventing animal waste from entering storm drains. The pollutant outreach campaign was expanded in 2009 to include the mailing of a brochure to horse owners, equestrian supply stores, and horse property owners. The brochure identified BMPs that horse owners should take to reduce bacteria in stormwater runoff. Section 3 - Public Outreach describes in detail the outreach conducted during the 2018/19 year. The Permittees also install dispensers for pet waste pickup bags at beaches, parks and trail heads. It is estimated that over 2 million pet waste bags are given out each year and there are now close to 400 pet waste bag dispensers throughout the County encouraging pet owners to pick up after their pets.

The efforts of the Illicit Discharges/Illicit Connections Program likely help to reduce bacteria in stormwater runoff by identifying and stopping illicit wastewater discharges. As indicator bacteria may also grow in natural environments and sediments, measures to prevent sediment transport may also help reduce bacteria in stormwater

runoff. Steps to remove sediment from the storm drain system include street sweeping, catch basin cleaning, and maintenance of debris basins and publicly owned BMPs. Industrial and commercial inspections, construction inspection, and illicit discharge response and elimination therefore also represent significant efforts towards reducing the discharge of fecal indicator bacteria. These are covered respectively in Section 7 - Public Agency Activities, Section 4 - Industrial/Commercial Facilities Programs, Section 6 - Development Construction, and Section 8 - Illicit Connections and Illicit Discharges Elimination. Some Permittees have conducted field efforts to track bacteriological contamination detected at the major outfalls. General conclusions were that the data evaluation did not indicate specific identifiable sources because elevated concentrations were determined throughout the tested subwatershed areas (Section 8).

In addition to the municipal stormwater program, bacteria are being addressed through TMDL programs in Malibu Creek, Miscellaneous Ventura Coastal Watersheds (Hobie and Kiddie Beaches), and Santa Clara River. Various reaches of Calleguas Creek and Ventura River are also listed on the Section 303(d) list due to indicator bacteria impairment. The Malibu Creek and Ventura Coastal beaches Bacteria TMDLs have been in effect since January 24, 2006 and December 18, 2008, respectively. Implementation Plans for both dry-weather and wet-weather were prepared and submitted for both TMDLs and compliance monitoring has been conducted at Malibu Creek and Ventura Coastal beaches since 2007 and 2009, respectively. The Santa Clara River Bacteria TMDL went into effect on March 21, 2012 and a comprehensive in-stream bacteria water quality monitoring plan and TMDL implementation plan were developed by the responsible parties according to the TMDL schedule. Receiving water and outfall monitoring began in October 2016 and September 2018, respectively, and continue in accordance with the approved monitoring plan. Several BMPs implemented in Calleguas Creek and Ventura River watersheds to meet compliance with other TMDLs also address bacteriological impairment such as prohibition of illicit discharges and implementation of LID/Green Street retrofits. The Calleguas Creek TMDL MOA group developed a draft Bacteria Work Plan to address this problematic pollutant in the Calleguas Creek Watershed.

Developing control measures to reduce observed bacteria concentrations to meet WQS is challenging. Treatment measures to address bacteria are likely to be costly and difficult to implement (especially with respect to the infrequent and short-term but high-volume events that compose stormwater runoff). As a result, implementing measures that will result in compliance with the existing WQS at all times will be extremely difficult. Consequently, the tasks in the Calleguas Creek Draft Bacteria Work Plan are designed to address these complexities to the greatest extent possible and provide mechanisms for protecting the identified beneficial uses in the watershed as is feasible. The strategy outlined in this draft work plan will assess the beneficial uses and risks to human health from bacteria and use that information to develop a TMDL to address bacteriological impairments. In the near-term an educational program focusing on the requirements of local domestic animal waste ordinances and the effects of domestic animal waste on the watershed is being considered. Like the metals TMDL, it is expected that the results from the bacteria TMDL will assist the municipal stormwater program in addressing this problematic pollutant because the successful efforts in Calleguas Creek can be applied throughout the County to address indicator bacteria.

The Program collected samples for host-specific DNA marker analysis to identify bacteria sources (e.g. humans, dogs, birds) in the 2013/14 – 2015/16 permit years. Knowing what bacteria sources are responsible for high levels of indicator bacteria will assist in the selection of BMPs better suited to control a particular bacteria source. The goal of the county-wide fecal indicator bacteria source identification study is to assess county-wide dry and wet weather sources of fecal pollution in receiving waters, MS4 and control sites, in order to provide a regional assessment framework, inform future local studies and BMP implementation efforts.

The Program conducted a dry weather study in 2014 to quantify *E. coli* and look for host-specific DNA markers (human, dog, and bird) in storm drains and outfalls across the County. A hybrid sampling design with probabilistic and targeted stations was developed, with assistance from SCCWRP, and 22 outfall samples, 45 random MS4 samples and 6 random control samples were collected and analyzed. All 73 samples were negative for the sensitive human marker HF 183. Dog markers were only detected in 11% of the samples, and bird in 37% of the samples.

None of the three markers were detected in 60% of the samples and the detection proved independent of *E. coli* concentrations. The dominant source of *E. coli* remains unclear.

The Program collected wet weather samples from major outfalls and mass emission stations during 2014-2016 for DNA marker analysis. A subsample of the wet-weather major outfall samples was sent to Weston Laboratories in 2016 for human, dog, and bird DNA marker analysis. Dog and bird markers were detected in all samples, and the human marker was detected in quantifiable amounts in 12 of 40 samples. The mass emission station samples were analyzed as part of the Bight '13 Microbiology study for the human DNA marker HF 183.

The Bight '13 Microbiology study for human DNA markers included wet and dry weather samples. The wet weather samples were collected at the mass emission stations and the dry weather samples were collected from the same receiving waters but lower in the watershed than the mass emission stations. The Program collaborated with SCCWRP to transfer technology of qPCR-based analysis of host-specific DNA markers to the Ventura County Public Health Laboratory, which then performed the analyses and submitted the data to SCCWRP for analysis. For dry weather, HF 183 was found in quantifiable amounts in 11 of 49 samples. For wet weather, the number of samples was low for drawing conclusions; however ME-SCR and ME-VR2 were near the middle of the field in the Bight '13 region for detections/amplifications, but ME-CC had a higher percentage of samples that amplified and a very high max sample (5 log is equivalent to ~10 % sewage) which indicates a likely a human fecal source (or at least for HF183 marker) upstream of ME-CC. Preliminary studies have shown that advanced treatment of wastewater can result in varying levels of marker/pathogen in the treated effluent from day to day and there are two wastewater treatment plants that discharge tertiary treated effluent in this watershed.

These complex issues related to bacteriological contamination and impairment of beneficial uses have been considered and still need to be discussed among the regulators, regulated communities, and environmental groups with a goal to identify cost-effective water quality protective solutions.

Aluminum

The BPO for total aluminum (1,000 µg/L) is a Title 22 Primary MCL standard which is only applicable to MUN designated reaches. MO-OJA and MO-MEI are the only two of the fourteen sites that are in reaches designated as MUN. Elevated levels of aluminum were seen at both sites during the three monitored wet events but MO-OJA was below the objective and MO-MEI was dry during the dry weather monitoring.

Since the Program began monitoring for aluminum in 2004, it has frequently observed levels above 1,000 µg/L at all Program monitoring sites (receiving water and land use). Aluminum is a ubiquitous natural element in sediments throughout Ventura County geology. These sediments are mobilized during stormwater runoff events from urban, agriculture, and natural sources resulting in concentrations of aluminum above the BPO for MUN designated reaches (BPO-MUN). This is clearly shown by the wet weather concentrations of the metal measured in all three watersheds monitored by the Program. Dry weather aluminum concentrations above WQS have not been observed at MO-OJA or MO-MEI.

To investigate the high concentrations of total aluminum identified in urban runoff and surface waters in Ventura County, primarily during storm events, the Program conducted a historical data evaluation, and initiated new monitoring during the 2013/14 monitoring season. The findings are summarized below while the full aluminum data evaluation report can be found in the appendices of the 2013/14 Annual Report.

The majority (74.2 percent) of all wet weather water quality samples collected by the Program for the aluminum study exceeded the BPO-MUN for total aluminum of 1,000 µg/L (this standard only applies to the reaches to which MO-MEI and MO-OJA discharge). However, all wet weather samples collected upstream of anthropogenic activities also exceeded the objective. In comparison, concentrations of total aluminum in dry weather samples

appear to be a much smaller issue, since dry weather samples have always been below the BPO-MUN at MO-MEI and MO-OJA.

Required to protect MUN beneficial uses of receiving waters, the Program investigated the geospatial and seasonal trends in aluminum concentrations measured in the Ventura River, Santa Clara River, and Calleguas Creek watersheds. A better understanding of the major sources and factors contributing to elevated aluminum concentrations is needed to identify potential solutions. As aluminum occurs naturally in soils and sediments and is the most abundant metal in the earth's crust it is suspected that naturally occurring aluminum is the primary source, and sampling was designed to confirm this hypothesis.

Data evaluation for total aluminum included surface water quality samples and soil samples. Data sources include the Ventura Countywide Stormwater Monitoring Program, Calleguas Creek Watershed Total Maximum Daily Load (TMDL) Compliance Monitoring Program (CCWTMP), Surface Water Ambient Monitoring Program (SWAMP), Southern California Stormwater Monitoring Coalition, and the Southern California Bight Monitoring Program. Monitoring was also performed on river sediments and on wet weather flows from pristine upstream areas in the three watersheds and included in this analysis.

A summary of the main conclusions of this evaluation are provided below.

- Wet weather exceedance rates of the Title 22 Primary MCL were greater than 50% for eleven of the fourteen individual Program monitoring sites. The three exceptions included the current mass emission station in the Ventura River Watershed, the City of Fillmore's major outfall, and the Port Hueneme major outfall.
- Average and median total aluminum concentrations measured in the Santa Clara River and Calleguas Creek watersheds were noticeably higher than those observed for the Ventura River watershed and the Port Hueneme major outfall that discharges to the Pacific Ocean.
- Agricultural discharges contribute higher levels of total aluminum to receiving waters than urban discharges (based on the CCCWTMP data set, which distinguished between runoff from different land use types).
- For dry weather monitoring, publicly owned treatment works (POTWs) contribute very little total aluminum to surface waters (also based on the CCCWTMP data set). During wet weather events, POTW discharges are not monitored.
- Within the Calleguas Creek Watershed, upstream agricultural land use discharges appear to appreciably influence surface water total aluminum concentrations measured downstream of such discharges within a subwatershed.
- Correlation analyses of total aluminum and total suspended solids (TSS), and total aluminum and flow:
 - Measured total aluminum and TSS concentrations were strongly correlated for both wet weather and combined dry and wet weather data.
 - Measured water column aluminum concentrations were more dependent on the amount of solids suspended in the water column than the flow transporting the aluminum and TSS (based on total aluminum concentrations at the mass emission sites correlating more strongly with TSS than with flow).
- Review of soils data in the three watersheds:
 - The total aluminum measured in water quality samples appears to be derived from the erosion of soil (based on the consistency between the average mass of total aluminum per mass of TSS in the water column and the range of total aluminum soil concentrations in Ventura County; and on the high correlation between total aluminum and TSS concentrations measured in Program water quality samples).
- Data gaps in historical monitoring and additional monitoring:
 - Data gaps were identified for upstream portions of the three watersheds where sediment and runoff is little influenced by anthropogenic activities. Monitoring was initiated at new upstream

locations in each of the three watersheds in December 2013 and February 2014 to help fill this gap.

- Natural background sites were monitored for water (December 2013 and February 2014) and sediment (December 2013) and data showed that upstream locations in each of the three watersheds also possess elevated water column and sediment aluminum concentrations. Wet weather aluminum at these background sites was seen from 19,000 µg/L to 250,000 µg/L.
- Limited stormwater runoff data collected from parking lots at the Ventura County Government Center in February and March 2014 also revealed elevated aluminum and TSS concentrations in half of the samples collected, even so these were much lower than the natural background with the highest concentration being only 2,100 µg/L.

The exceedingly high level of total aluminum detected in sediment and runoff from undeveloped areas suggests that wet weather aluminum will routinely exceed WQO regardless of Permittee efforts. A sound scientific and regulatory approach to managing the elevated concentrations of aluminum observed in Ventura County surface waters will be needed to sufficiently protect beneficial uses potentially impacted by this naturally occurring metal.

Copper

The CTRO for copper is calculated for each site using the water hardness at the applicable receiving water station, as that is where the objective applies. If the receiving water hardness is not available, then the water hardness at the site is used instead. Typically, the water hardness at the receiving water stations is higher than at the outfalls, which results in a higher CTRO.

There were no results above the CTRO for dissolved copper in the receiving water samples collected during the 2018/19 monitoring year. Elevated levels of dissolved copper occurred at three major outfalls in wet weather during the 2018/19 monitoring year, however all three occurrences (MO-OXN, MO-SPA, and MO-VEN) were in the Santa Clara Watershed during Event 1 when a sample could not be collected at ME-SCR, therefore the site hardness was used for calculating the CTRO rather than the receiving water hardness, resulting in much lower objectives. The only dry weather occurrence of elevated levels of dissolved copper was observed at MO-VEN during Event 5 (dry weather), which used the receiving water hardness for calculating the objective. MO-VEN is located near a freeway and a railroad line, which may contribute to the elevated level of copper.

Based on the “cause or contribute” methodology, copper from urban outfalls was not determined to persistently cause or contribute to WQS exceedances because results for copper were not observed above the CTRO in receiving waters (i.e., measured at the receiving water stations). There is no evidence to conclude that copper in urban runoff appreciably impacted receiving water beneficial uses during the 2018/19 monitoring season.

This conclusion does not mean these data will be ignored by the Program as it is actively addressing copper. Permittees supported the Brake Pad Partnership and Senate Bill (SB) 346 adopted September 27, 2010 – that authorized legislation to phase out the copper contained in vehicle brake pads. SB 346, authored by Senator Christine Kehoe (D-San Diego), requires brake pad manufacturers to reduce the use of copper in brake pads sold in California to no more than 5% by 2021 and no more than 0.5% by 2025. This true source control action will help significantly reduce copper in urban runoff. Several of the major outfall sites are next to freeways or railroad lines (MO-CAM, MO-OXN, MO-SPA, and MO-VEN) where copper-containing dust from vehicles and trains is continually produced and deposited; the SB346 legislation will help address this issue. In the future, similar legislation to address train brake pads may help to further reduce copper in runoff.

Other Metals

MO-OJA was above the BPO-MUN for total arsenic during Event 1. ME-VR2 and MO-SIM were above the total selenium dry weather CTRO during Event 5. MO-OXN was above the dissolved zinc wet weather CTRO during

Event 1, however similar to copper, the dissolved zinc objective is hardness-based and applicable at the receiving water station where hardness is typically higher, however ME-SCR was dry during Event 1 so the much lower water hardness at MO-OXN resulted in a much lower calculated CTRO. Since there were no corresponding exceedances at their respective major outfall/receiving water stations, these sites do not appear to have a cause or contribute relationship within their watersheds.

The exact sources of the metals are elusive. Arsenic is used in paints, dyes, metals, drugs, semi-conductors, fertilizers, and as a wood preservative. Sources of selenium include discharge from petroleum and metal refineries, erosion of natural deposits, and discharge from mines. Selenium is used in electronic and photocopier components, glass, pigments, rubber, metal alloys, textiles, petroleum, medical therapeutic agents, and photographic emulsions. Selenium is known to occur at elevated levels in Monterey Formation rocks (Miocene marine mudstone) which are common in Ventura County. The relative contributions of anthropogenic and natural sources to elevated selenium concentrations are not clear at this point. Potential anthropogenic sources of zinc are die-casting for automobiles, galvanizing iron, and roofs and gutters in buildings. Zinc can be used as a pigment, as a heat disperser in rubber products, and for the negative plates in some electric batteries. Zinc occurs naturally but activities such as mining, coal and waste combustion, and steel processing can release it to the environment in unnatural amounts.

Efforts to reduce metals in urban runoff

Because total metal fractions are associated with sediment, the Stormwater Program has several control measures and BMPs that address metals in general, and sediment specifically. These control measures include steps to remove sediment from the storm drain system through street sweeping, catch basin cleaning, debris basin maintenance and publicly owned BMPs. A thorough discussion of these programs is provided in Section 7 Public Agency Activities. Preventing sediments containing metals from entering the storm drain system is just as (if not more) important than removing them after they enter the storm drain system. Industrial and commercial inspections, construction inspection, and illicit discharge response and elimination, are significant efforts targeted at eliminating the discharge of metals. These are covered respectively in Sections 4 Industrial/Commercial Facilities Programs, Section 6 Development Construction, and Section 8 Illicit Connections and Illicit Discharges Elimination.

In addition, the construction program element is structured to address sediment from construction sites and includes review of grading plans, requirements for sediment and erosion control BMPs, and field inspections to confirm BMP implementation. More recently the State Water Resources Control Board adopted WDR Order 2009-0009 DWQ (latest amendment 2012-0006-DWQ), the Construction General Permit, which covers all construction sites with greater than one acre of active land disturbance. The Construction General Permit incorporates a risk-based approach to address pollutants from construction sites including sediments and associated metals. The Construction General Permit includes rigorous site planning, numeric effluent and action limits, and minimum BMPs as a function of the site risk for discharging sediment. It is expected that this new Construction General Permit will provide further control of sediment from construction sites within Ventura County.

Although the transport of metals is not usually through direct actions of the public, public education of stormwater pollution prevention can reduce the overall transport of pollutants including sediment and dry weather runoff both which if reduced would also reduce metals. Current efforts can be further tailored to address sources of metals such as promoting household hazardous waste collection events to dispose of mercury containing compact fluorescent light bulbs and thermometers. Other efforts include the Brake Pad Partnership and [Senate Bill \(SB\) 346](#), legislation that authorizes the phase out of copper from vehicle brake pads discussed above.

Beyond these efforts conducted under our municipal stormwater programs, certain metals (copper, nickel, selenium, and mercury) are being addressed under the various TMDL programs. These constituents have been identified as causing impairment in Calleguas Creek, its tributaries, and Mugu Lagoon. As a result, a Metals Work Plan has been

developed by the Calleguas Creek TMDL MOA Parties and is currently being implemented²¹. This multiple year plan provides the framework to (1) determine whether metals impairments still exist in the watershed, (2) develop site-specific objectives for copper and nickel, and (3) if necessary, identify the control measures needed to meet the TMDLs. It will be developed in two phases. A draft of Phase I of the implementation plan was issued in February 2015. The draft Phase I Implementation Plan conveys which pollutants are watershed priorities, the magnitude of reduction necessary to bring the priorities into compliance, where appropriate regulatory strategies may affect the WQO, the BMPs to control the discharge of the priorities, and a framework to develop scenarios of watershed controls. Phase I will provide the Stakeholders with the tools and a roadmap to develop scenarios of regulatory strategies, institutional controls and watershed actions. Phase II of the plan will integrate developed scenarios into the modeling framework to demonstrate that the proposed actions will result in receiving water compliance with standards. Between Phases I and II, the stakeholders will collaboratively develop the implementation scenarios. The complete implementation plan will be comprised of work products developed in Phases I and II. It is expected that the control measures identified under this effort will inform the efforts to address aluminum and mercury in the Calleguas Creek and Santa Clara River watersheds.

Organics and Pesticides

The CTRO for organics and pesticides apply to all sites, although the dry weather Human Health objective may differ for MUN and non-MUN sites. BPO-MUN for pesticides and organics are only applicable to MUN designated reaches. MO-OJA and MO-MEI are the only two of the fourteen sites that are in reaches designated as MUN so they are the only sites to which the BPO-MUN apply.

Several organics/pesticides are measured by more than one analytical method, which often have different reporting limits (RL) and can yield significantly different results²². Prior to July 2019, the Program considered the method with the lowest Reporting Limit (RL) as primary, based on the recommendation of the laboratory at the time. In reviewing this evaluation method and based on updated guidance from the analytical laboratory, the Program determined that the method with the lowest RL may not be the most representative of the level of the constituent due to differences in the matrices for which the analytical methods are intended; and that in keeping with Section K.4(a) of Attachment F of the Permit, the 40 CFR 136 method should be considered the primary method. As of July 2019, the Program considers the 40 CFR 136 approved method to be primary. In some cases, the primary method is below the objective and the secondary method is not and vice versa. The Program is reporting those results that were above the objective according to the primary (40 CFR 136 approved) method.

For 2018/19, MO-MEI and MO-OJA pentachlorophenol results were above the BPO-MUN of 1 µg/L by one or more methods, including the primary method, for wet weather Events 1-3. Although the results were all detected not quantifiable (DNQ), the method detection level (MDL) was close to or above the objective and therefore detections can be considered to be above the WQO. All pentachlorophenol results for their corresponding receiving water station ME-VR2 (non-MUN) were non-detects, therefore there is not an established cause or contribute relationship. Pentachlorophenol at MO-MPK was above the CTRO during Events 2 and 3 by all analytical methods but not at the corresponding receiving water station (ME-CC) so there is no cause or contribute relationship. Pentachlorophenol is a manufactured chemical that is used industrially as a restricted use pesticide and wood

²¹ <http://www.calleguascreek.org/ccwmp/4d.asp> November 3, 2011.

²² Bis(2-ethylhexyl)phthalate results are obtained from two analytical methods used by the Program, EPA 525.2 and EPA 625. Pentachlorophenol results are obtained from three analytical methods used by the Program: EPA 515.3, EPA 625, and EPA 8270Cm. PAHs are measured by two to three analytical methods (depending on constituent) used by the Program, EPA 525.2, EPA 625, and EPA 8270C.

preservative for railroad ties, utility poles, and wharf pilings. It is not available to the general public and its use has been restricted to certified applicators since 1984.

Elevated levels (by the non-primary method) of two polycyclic aromatic hydrocarbons (PAH) – dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene) – were seen at ME-SCR in dry weather but not at the corresponding major outfalls. Primary method results were diluted by a factor of 40 and were non-detects. Dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene are combustion byproducts and do not have wet weather CTRO or BPO. Indeno(1,2,3-cd)pyrene and dibenz(a,h)anthracene are polycyclic aromatic hydrocarbon (PAH) and are produced by the incomplete combustion of organic matter. They are primarily found in gasoline and diesel exhaust, cigarette smoke, coal tar and coal tar pitch, soot, petroleum asphalt, and certain foods, especially smoked and barbecued foods.

Bis(2-ethylhexyl)phthalate levels were above CTRO at MO-THO by the primary method but not by the secondary method during dry weather (Event 5). Bis(2-ethylhexyl)phthalate was above the BPO-MUN at MO-MEI by the primary method in Event 3. Bis(2-ethylhexyl)phthalate is ubiquitous in plastics and is therefore a common sampling and laboratory contaminant.

Salts

Concentrations above WQS for salts (chloride and/or total dissolved solids) at the stations monitored by the Program mainly occurred during dry weather (Event 5). This is in accordance with historical data from dry weather events, when flows are comprised of a larger groundwater component. Concentrations of salts were also elevated during the first wet event at ME-CC and MO-THO. The Simi Valley area is known to have high ground water levels with natural springs, seeps and artesian conditions in the western part of Simi Valley. In addition, there is a Salt TMDL that is evaluating monitoring and implementing solutions throughout the Calleguas Creek watershed. More information on this is provided below.

Simultaneous high concentrations of salts occurred in dry weather during Event 5 in the Calleguas Creek Watershed at ME-CC, MO-SIM, and MO-THO, and during wet weather Event 1 at ME-CC and MO-THO, therefore a cause or contribute relationship may be inferred for these sites/event. In the Ventura River Watershed, MO-OJA exceeded salts WQO in dry weather Event 5 but its corresponding receiving water station (ME-VR2) did not exceed the Basin Plan site-specific objectives, therefore there is no cause or contribute relationship for salts in the Ventura River Watershed.

The Program is unable to evaluate if concentrations above salts WQO within the watershed are a persistent issue during any given monitoring season because the Program only samples one dry weather monitoring event for all stations. Additionally, the other dry weather event, the dry season-dry weather monitoring event, required to be conducted by the Program represents grab sampling (as opposed to composite sampling), is only conducted at the major outfalls, and does not include a requirement to evaluate chloride and TDS. However, historic monitoring data collected during dry weather sampling events show regular elevated levels of chloride and total dissolved solids concentrations in the Calleguas Creek and Santa Clara River watersheds, therefore it can be concluded that the issue is a persistent one.

Boron, chloride, sulfate, and total dissolved solids (“salts”) are currently being addressed in the Calleguas Creek Watershed through the implementation of the Calleguas Creek Salts Total Maximum Daily Load (TMDL), adopted by the Los Angeles Regional Water Quality Control Board in October 2007. The CCW Salts TMDL only applies during dry weather and applies to the receiving water, not at tributary outfalls. During the first three years of the TMDL implementation plan for the watershed, the primary implementation action was water conservation, a program all Permittees have. The goal of the TMDL is to bring the watershed into “salt balance” where the inputs of salts are equal to or less than the amount of salts exported out of the watershed during dry weather. Water conservation on the part of municipalities reduces the input side of the equation. The salts loading calculation is

performed on an annual basis and wet weather exports are not considered in the analysis. Beyond water conservation, the proposed implementation plan does not include many options for MS4 dischargers. Most of the planned actions are construction of groundwater desalters and wastewater treatment plants reverse osmosis as these are considered to be the major source of the salts. Municipal stormwater actions to control salts are limited because most salts in runoff come from source water supplies. The primary course of action for municipalities is to reduce outdoor water use, thereby limiting the amount of runoff that may contain high salts from entering urban tributaries and receiving waters. Permittees have also taken steps to the prohibition of discharges from Salt Water pools. Camarillo has conducted outreach to pool service companies and provided articles in their local newsletter to residents alerting them that they cannot discharge salt water pools to the storm drain system. The cities of Thousand Oaks and Simi Valley also banned the discharge of salt water pools to the storm drain system but will allow it to the wastewater system with a permit. Self-regenerating water softeners are a source of salts in the watershed, though not commonly to the storm drain system. Permittees have prohibited their use at commercial and industrial facilities, while education is provided to discourage their use by residents. These are all efforts that should assist with reducing salts in the watershed.

Other Constituents

Four major outfall sites, MO-CAM, MO-FIL, MO-OJA, and MO-VEN, had pH levels above the Basin Plan's 8.5 standard unit upper limit in dry weather (Event 5). Elevated pH is commonly observed during dry weather in concrete lined channels, such as the outfalls. The lack of exceedances for pH at the receiving water stations indicates that pH levels in urban runoff do not typically affect receiving water beneficial uses for this parameter.

Low levels of dissolved oxygen (DO) were seen in wet weather at ME-SCR during Event 2 (the first sampleable event of the wet season), at ME-VR2 during Event 3, and at MO-HUE during Event 1 and 2. There were not corresponding DO issues at the major outfalls within the ME-SCR or ME-VR2 watersheds, and MO-HUE does not have a corresponding receiving water station, so there is not a cause or contribute relationship. The low DO may be due to ponding and low flow conditions at ME-SCR, and similarly at MO-HUE where ponding is caused by the closed gates at the pump station.

Elevated levels of total cyanide were measured in wet weather during Event 3 at MO-SIM and MO-HUE but the WQO were not exceeded at the corresponding receiving water stations (ME-CC for MO-SIM but MO-HUE does not have a corresponding receiving water station) so there is not a cause or contribute relationship. Cyanides have both man-made and natural sources. Common man-made sources include industrial processes, vehicle exhaust, biomass burning, and wastewater treatment facilities. Cyanide can also be produced by some bacteria, fungi, and algae, and is present in some foods and plants, including almonds, stone fruit pits, and spinach.

Methylene Blue Active Substances (MBAS) were measured above the BPO of 5 mg/L at two major outfalls during wet weather, MO-MEI in Event 1 and MO-OXN in Event 2. MBAS exceedances were not observed at the receiving water stations. MBAS measures anionic surfactants (i.e. detergents or foaming agents). Possible sources include residential car washing and cleaning of restaurant mats and outdoor areas. These issues are routinely the subject of the Business Inspection Program and Illicit Discharge Investigations.

Total chlorine residual was above the objective at ME-CC in Event 1 and ME-SCR in Event 2 (DNQ). Total chlorine residual is only a Permit requirement for ME-CC and was not analyzed at the other sites during Event 1 so a cause or contribute relationship is unknown but unlikely as chlorine tends to break down during aeration and UV exposure, such as that which occurs during stormwater transport. A matrix interference or undocumented laboratory error is suspected since the ME-CC sample is part of a composite that is representative of approximately one million cubic feet of river water. The laboratory analyzed for total chlorine residual by mistake at eleven sites during Event 2 and the ME-SCR result was DNQ and the MDL is 0.0075 (below BPO) so the result is an estimated value and the concentration could be below the BPO. The other sites in the watershed during this event were all below the BPO.

pH - To address the elevated level of pH in the dry event Camarillo attaches stormwater quality conditions to all business tax certificates for mobile detailers and provides the following fact sheet to mobile detailers.

Copper - Camarillo was an active participant in the CASQA Brake Pad Partnership Subcommittee which was successful in getting legislation passed (SB-346) to reduce the level of copper in brake pads. This is important source control legislation, since EPA studies have stated that the copper in dust from brake pads produced from vehicles braking on roadways has been found to enter waterways and the environment. The first visible steps to implement SB-346 began in 2014 with the requirement for the certification of brake pads for compliance with the toxic metals, asbestos, and copper standards. The regulations require that manufacturers of brake pads sold in California must begin phasing out any brake pads that have more than 5.0 percent of copper by 2021 and by 2025 brake pads must have no more than .5 percent copper by weight.

Bacteria & Other Constituents - Camarillo also educates its residents on pollution prevention controls via our local Cityscene Newsletter that is mailed to over 18,000 residents. Articles that assist with addressing the problems with bacteria, aluminum, chloride, copper, and other constituents include information on how to control pet waste and construction debris such as sediment, proper use and application of pesticides and disposal of yard waste, proper disposal of swimming pool discharges, trash management, and proper maintenance of vehicles (please refer to the PIPP section of this report for a list of these articles).

Further, since several constituents may be attached to sediment, Camarillo has continued increased inspections of construction sites to quarterly for all private developments and monthly at higher risk private developments as well as all city capital improvement program projects. This increased inspection level should help to ensure sediment and erosion controls are being properly applied. Further, Camarillo's stormwater program manager is a certified QSP with the underlying certification of CESSWI to assist with insuring proper controls are being applied at construction sites. In addition, the stormwater program manager plans to obtain the CPMSM and CPSWQ certifications during Fiscal Year 2019/20.

In October 2012 with assistance from District staff, additional dry weather monitoring of bacteria was conducted; however, there were no standout contributors to the higher levels of bacteria found at the urban outfall station. Camarillo completed the permit required illicit screening of outfalls in 2012. However, to address the higher level of pH detected in the countywide dry weather monitoring in 2017, Camarillo staff conducted further dry weather screening of the channel upstream of our urban outfall monitoring station. The results of the screening did not locate any illegal discharges and no discharges were coming from any of the outfalls upstream of the monitoring station. Camarillo will continue to screen this channel during dry weather runoff in the current permit year.

Chlorides/Salts - Although Chlorides were slightly elevated in one wet sample and one dry sample in the receiving water (Calleguas Creek), the levels in the outfall monitoring samples for Camarillo were well below the water quality objective (WQO) of 150 in the wet season sample which was 24 and only slightly above the WQO in the dry season sample, which was 180. However, as discussed in Section 1.87, Boron, chloride, sulfate, and total dissolved solids ("salts") are currently being addressed in the Calleguas Creek Watershed through the implementation of the Calleguas Creek Salts Total Maximum Daily Load (TMDL), adopted by the Los Angeles Regional Water Quality Control Board in October 2007. The primary implementation action was water conservation, which Camarillo has embraced fully (see section below). Beyond water conservation, the proposed implementation plan does not include many options for MS4 dischargers. Most of the planned actions are construction of groundwater desalters and wastewater treatment plants reverse osmosis as these are considered to be the major source of the salts. The City of Camarillo has currently started construction of a desalter and are hopeful that it will be in operation by end of 2021. Municipal stormwater actions to control salts are limited because most salts in runoff come from source water supplies. The primary course of action for municipalities is to reduce outdoor water use, thereby limiting the amount of runoff that may contain high salts from entering urban tributaries and receiving waters. In addition to the Cityscene article to residents on swimming pool discharges, Camarillo distributes mailouts to new pool and spa owners alerting them to the prohibition of salt water pool discharges and

proper maintenance of swimming pools. Camarillo will continue to mail this same pool maintenance information to all pool construction permit applicants.

Water Conservation/Decreased Dry Weather Runoff. Further, due to the City's stringent water conservation ordinance, dry weather runoff has been significantly reduced. In accordance with the Statewide Drinking Water Systems Discharge Permit WDR 4DW0718, the City continued implementing the following requirements in the 2018/19 permit year:

- a. Established and implemented BMPs, including the capture of potable water discharges with sulfate concentrations above 250 mg/l and sent discharges to the sewer system.
- b. Ensured that all planned potable water discharges complied with the applicable effluent limitations for chlorine residual and turbidity.
- c. Conducted monitoring and reporting in compliance with the provisions of the permit and maintained self-monitoring reports.
- d. Responded to 9 water conservation violations and issued 2,284 warnings.

Calleguas Creek TMDL Compliance. In addition to the above actions, Camarillo is an active participant in the Calleguas Creek Watershed Management Program (CCWMP). Please refer to the Calleguas Creek Watershed TMDL Monitoring Program Annual Report for the period of July 2018 to June 2019, which was sent to Los Angeles Regional Water Quality Control Board staff. This report provides details on compliance with the TMDLs in which Camarillo is listed as a responsible party. At this point, the majority of special studies identified in the TMDLs have been completed and almost eleven years of TMDL monitoring data are available for analysis. Recommended actions under consideration include increasing outreach and education to property owners with sediment discharges, coordination with RWQCB on agricultural parcels that may drain into the MS4, and outreach to pest control operators that may still use chlorpyrifos for urban pest control. As mentioned earlier, Camarillo will also increase construction site inspection frequency and may increase inspection/outreach for any commercial agricultural operations covered by the MS4 permit that could contribute chlorpyrifos. Further, the Calleguas Creek stakeholders initiated development of an implementation plan to identify the additional actions necessary to meet the remaining TMDL requirements and 303(d) listings. The draft implementation plan outlines the steps Stakeholders will take to address the remaining water quality issues in the Calleguas Creek Watershed. It is being developed in two phases. Phase I of the implementation plan was issued in February 2015. The Phase I Implementation Plan conveys which pollutants are watershed priorities, the magnitude of reduction necessary to bring the priorities into compliance, where appropriate regulatory strategies may affect the water quality objectives, the BMPs to control the discharge of the priorities, and a framework to develop scenarios of watershed controls. Phase I will provide the Stakeholders with the tools and a roadmap to develop scenarios of regulatory strategies, institutional controls and watershed actions. A draft of Phase II of the plan was released in September 2016 which integrates developed scenarios into the modeling framework to demonstrate that the proposed actions will result in receiving water compliance with standards. Between Phases I and II, the stakeholders will collaboratively develop the implementation scenarios which may be incorporated into future potential watershed management plans required under the future municipal stormwater permit.

Revolon Slough/Beardsley Wash Trash TMDL Compliance. For compliance information for this TMDL, refer to the 2018/2019 Annual Report for the Revolon Slough and Beardsley Wash (RSBW) Trash TMDL, which will be submitted to Los Angeles Regional Board staff in January 2020. This report provides monitoring results and Camarillo's compliance strategies being implemented and proposed for future years. The Los Angeles Regional Water Quality Control Board revised the RSBW Trash TMDL on June 14, 2017, modifying compliance to align with the Statewide Trash Amendments. However, until the revised Trash TMDL is approved by the State Water Resources Control Board and Office of Administrative Law and becomes effective, the City will continue to address

all land uses (non-priority and priority) within the Revolon Slough and Beardsley Wash watershed by conducting a point source MFAC/BMP Program, which consists of implementing the suite of BMPs currently employed by the City, as detailed in TMRP - Addendum No. 1 and Annual Monitoring Reports, as well as inspecting and monitoring catch basins for trash and/or leaf litter quarterly. In 2018/19 the City removed 74,507 gallons of trash, therefore, the City is in compliance with the 100 percent reduction from the baseline WLA of 2,738 in the RSBW subwatershed, as well as addressing trash within the other subwatershed in the City. Further, the City continued the MFAC/BMP compliance quarterly inspections and in 2018/19 the City conducted quarterly inspections of 549 nonpriority catch basins in RSBW. Only 170 of those 549 nonpriority catch basins had to be cleaned out two or more times for a total of 595 nonpriority catch basin cleanouts in the year. Of the 595 nonpriority catch basin cleanouts, there were no category 3 levels (100+ pieces of trash), 64 were a category 2 level (10-100 pieces of trash), and the remaining 341 nonpriority catch basin cleanouts had only leaf debris and one or less pieces of trash. Therefore, trash and debris were not accumulating in deleterious amounts between the inspection and collection events.

Further, the City has installed 206 full capture devices citywide, of which 122 are within the RSBW subwatershed. The City has also installed 15 trash excluders and will be installing approximately another 60 full capture devices in high priority trash areas throughout the City in permit year 2019/20. We are confident that the current trash control measures implemented by the City as well as the point source MFAC/BMP program are meeting the required 100 percent reduction from the baseline WLA.



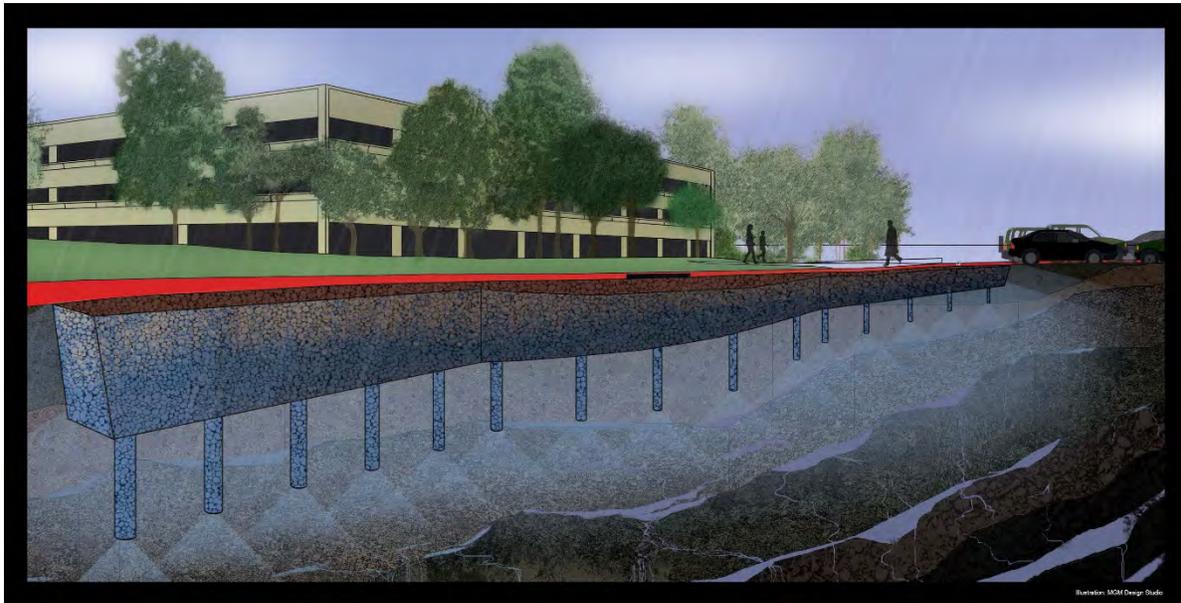
Full Capture Device Cleanout

County of Ventura

The County is an active participant in the Countywide Stormwater Program and supports the actions that were discussed in the sections above. In addition, County participates and, in many cases, leads stakeholder efforts to meet monitoring and implementation requirements of the effective TMDLs (regardless if TMDL is included or not in the Ventura MS4 Permit). Section 2.3.3 provides summary of plans, reports, and documentation produced by various TMDL responsible parties including the County and TMDL Memorandum of Agreement (MOA) groups to meet the TMDL implementation schedule requirements.

In response to elevated concentrations of some of the stormwater pollutants at the County's stormwater monitoring station, the County initiated stormwater treatment efforts in the County Unincorporated Urban areas. The County successfully applied for State grant funding for four stormwater retrofit projects including:

1. Ventura County Government Center Parking Lot Green Streets Retrofit project located at 800 S. Victoria Ave, Ventura, CA. Construction completed in September 2014. The project captures 100% of nuisance flows and the first flush stormwater discharges from 39 acres of impervious parking lot area for infiltration and groundwater recharge. Total project cost including effectiveness monitoring and educational outreach was \$1.9M. In 2016, the County executed a maintenance contract for estimated \$400,000 to provide operation and maintenance of the project for five years. More project information is available at <http://uninc.vcstormwater.org/>.



2. Meiners Oaks Urban Low Impact Development Retrofit project. Construction of bioswale was completed in February 2016. The project captures nuisance flows and stormwater runoff from 40% urbanized area (or over 36 acres) of Meiners Oaks community to meet Ventura River Algae TMDL compliance. Total project cost including monitoring and educational outreach was \$0.95M. In 2016, the County executed a maintenance contract for estimated \$85,000 to provide operation and maintenance of the project for five years. More project information is available at <http://uninc.vcstormwater.org/>.



3. El Rio Retrofit for Groundwater Recharge. Construction was completed in March 2016. The project captures 100% nuisance flows and the first flush stormwater discharges from 46 acres of residential community of El Rio for infiltration and groundwater recharge. Total project cost is \$1.3M. In 2016, the County executed a maintenance contract for estimated \$300,000 to provide operation and maintenance of the project for five years. More project information is available at <http://uninc.vcstormwater.org/>.



4. Oak Park Green Streets Retrofit project. Using proprietary systems, Modular Wetlands System Linear by BioClean (<https://biocleanenvironmental.com/modular-wetlands-system-linear/>), the project will provide nuisance low treatment about 1,600,000 cubic feet of runoff annually from over 120 acres of residential area in Oak Park. The proposed biofiltration treatment is to meet compliance with dry weather Malibu Creek Bacteria TMDL. Construction and installation of 10 modular wetlands for runoff filtration and treatment (project Phase I) was completed in October 2017. Phase II, installation of additional 10 units, is scheduled for spring 2019. Total cost for the Proposition 84 funded project is \$1.75M.



5. In SCR watershed, the County is in the construction process of a retrofit to the existing Piru Spreading Grounds for stormwater capture from 36 urban acres in unincorporated community of Piru for groundwater recharge and water supply enhancement for disadvantaged community of Piru, CA. Project funded by Proposition 1 Storm Water Grant Program is estimated to capture 17 acre-feet of stormwater runoff per year at about \$0.5M.



6. In collaboration with California Department of Transportation (Caltrans), County is also working on a preliminary design of a stormwater infiltration project to treat about 40 acres of Saticoy urban area scheduled for construction in 2022. Caltrans provides funding for design and construction and County will

provide for long-term maintenance. With generally high soil infiltration rates present, SCR watershed offers good opportunities for multibenefit projects.

7. In late 2017, the County became involved in development of a concept project to divert low flows and stormwater runoff from Central Avenue Drain for infiltration and groundwater recharge at an existing Ferro Basin owned by United Water Conservation District. About 25% of the 487 acres of drainage area is under County's jurisdiction and remaining 75% are agricultural fields. Currently ag dischargers, the County, United Water Conservation District, nonprofit organizations and other interested stakeholders are meeting on monthly basis to discuss planning and concept design. Construction is pending securing grant funding and stakeholder contributions for long-term O&M.

All State funded projects include BMP effectiveness monitoring and educational outreach including free to public Watershed Friendly Garden™ (WFG) seminars and hands on workshops conducted in cooperation with Surfrider Foundation and Green Garden Group. In September-October 2015, the County offered series of 5 WFG seminars and hands on workshops at the County Government Center. Over 120 participants attended seminars and workshops resulting in transformation of about 1,200 sq. ft. of turf into a drought-tolerant garden. County also offered garden maintenance training for County and other municipal employees. In fall 2016, similar workshop series were scheduled in the County unincorporated communities of Meiners Oaks and Oak Park in collaboration with local school districts.

The County participated in the Countywide Bacteria Special Study since fall of 2013. Dry weather urban runoff and stormwater samples were collected at Casitas Springs, Oak View, and Meiners Oaks outfalls, which represent discharges from the County urban areas above receiving water monitoring (mass emission) station in Ventura River.

In response to elevated bacteria concentrations measured in County's outfall during summer 2016 (outfall ID: Unincorporated-4"), County staff conducted an investigation within the drainage area, i.e., Arroyo Santa Rosa Channel and Camelot Estates, see map below. Total coliform and E. coli were tested at various upstream locations on two occasions to evaluate possible sources of bacteria in County's outfall. In addition, one set of samples was collected on September 14, 2016 for DNA markers for dogs, gulls, horses, and humans. The purpose of this additional analysis was to provide information regarding potential sources of elevated bacteria, in addition to the specific areas where these sources may be originating. Low levels were detected (below the level of quantification) at Outfall #2 for the HF183 human marker and at Outfalls #1 and #6 (quantifiable) for the HumM2 human marker. No human markers were detected at Outfall #3, the V-ditch discharge, or Unincorporated-4. Reclaimed water, used in the Santa Rosa Channel and Camelot Estates, has been shown to contain quantifiable levels of human DNA markers in other areas and could be responsible for the low concentrations of human marker detected. It is also possible that indicator bacteria levels are remaining high, while the source specific DNA markers are decaying more rapidly, resulting in low or absent detections of the source specific markers. Recent research has shown that these DNA markers are best indicators of fresh fecal contamination, whereas indicator bacteria can persist in the environment. County's consultant prepared a brief memorandum to document investigation and testing results. The County mailed a letter to HOAs of both Arroyo Santa Rosa Channel and Camelot Estates communities with educational brochures. No response has been received.



In February 2019, the County submitted the Compliance Response to Water Code Section 13383 Order for Implementation of Track 1 of the Statewide Trash Provisions for Ventura County Unincorporated Urban Areas. To meet compliance, the County identified 41 additional Full Capture Systems will be required for installation within unincorporated areas.

Santa Clara River Watershed

The County has been leading Memorandum of Agreement (MOA) group to complete required in-stream and outfall monitoring as well as reporting activities. The County is working on projects and actions listed in the approved TMDL Monitoring Plan and Draft Implementation Plan for Santa Clara River Bacteria TMDL dated June 2015 including implementation of grant funded projects. On behalf of MOA group, Ewelina Mutkowska, County Stormwater Program Manager, gave a presentation at Regional Water Board’s meeting in October 2017 to provide requested update on implementation of the SCR Bacteria TMDL requirements. Copies of the required TMDL Reports submitted to RWQCB in FY2018-2019 are also provided in Attachment E.

Ventura River Watershed

The County has been leading a couple of TMDL MOA groups to implement requirements of the Ventura River Algae and Ventura River Estuary Trash TMDLs. All required monitoring, reporting and implementation activities have been on-going.

The County has been working on identifying potential stormwater treatment opportunities within its urban areas during development of TMDL Implementation Plan for Ventura River Algae TMDL. County developed preliminary concept of an infiltration project in Ventura River watershed, which was included in the Ventura Countywide Municipal Stormwater Resources Plan dated September 2016.

To meet compliance with Ventura River Estuary Trash TMDL, County installed full trash capture devices to meet 100% point source compliance in the estuary subwatershed. The County and TMDL Responsible Parties have been conducting trash monitoring and Minimum Frequency Assessment and Collection (MFAC)/BMP program since 2009. Recently in collaboration with Ventura Land Trust (formerly Ventura Hillside Conservancy), and as approved by the RWQCB, the monitoring program was modified to include monthly volunteer cleanups and weekly patrols to prevent new establishments of transient encampments. On behalf of MOA group, Ewelina Mutkowska, County Stormwater Program Manager, gave a presentation at Regional Water Board's meeting in June 2019 to provide an overview of TMDL implementation efforts during reopener hearing. All MFAC/BMP efforts and results are described in the 2019 Annual Trash Monitoring Report submitted to RWQCB (copies of the report are provided in Attachment E).

Malibu Creek Watershed

As mentioned above, County has successfully secured grant funding to implement Oak Park Green Streets Retrofit project to address elevated bacteria levels and compliance with dry weather Bacteria TMDL requirements. Copies of monthly TMDL monitoring reports prepared and submitted to RWQCB are provided in Attachment E.

To meet compliance with Malibu Creek Trash and Santa Monica Debris TMDLs, in collaboration with the City of Thousand Oaks and the Ventura County Watershed Protection District, the County has been implementing MFAC/BMP program described in the Trash Monitoring and Reporting Plan dated April 2010. In addition, the County completed installation of full trash capture devices to meet point source compliance in Malibu Creek Watershed in July 2017. On behalf of Upper MCW Trash TMDL Responsible Agencies, Ewelina Mutkowska, County Stormwater Program Manager, gave a presentation at the RWQCB's Hearing in June 2018. All MFAC/BMP efforts and results are described in the TMDL Annual Report submitted to RWQCB in January 2019 (Attachment E).

Ventura Coastal Watershed

In cooperation with Channel Island Beach Community Services District (CIBCSD), the County has been diverting dry-weather runoff from County unincorporated community of Silver Strand subject to Ventura Coastal Beaches Bacteria TMDL. In December 2018, the County submitted Bacteria TMDL Final Compliance Report for Harbor Beaches of Ventura County (Kiddie Beach and Hobie Beach) as required by the TMDL Implementation Plan (copy of this report is provided in Attachment E). To address bacteria exceedances previously measured during dry winter weather, automated system for pump shut-off was installed and operation of the pump was extended through winter dry weather days. County also conducted a die test to ensure that there are no leaks into the beach. In winter of 2019/2020, the County, the Ventura County Watershed Protection District and the City of Oxnard are cost-sharing special study to be conducted by Southern California Coastal Water Research Project (SCCWRP) to determine the average load of bacteria and human fecal markers being discharged to Kiddie and Hobie beaches and to confirm or rule out the presence of human fecal and chemical sewage markers in stormwater conveyances during rain events from the County's storm drain system discharging into District's San Nicholas Pump Station, and from the City's storm drain at the North end of Hobie Beach.

Calleguas Creek Watershed

The County has been working on identifying potential stormwater treatment opportunities within its urban areas as a part of on-going development of TMDL Implementation Plan for Calleguas Creek Watershed TMDLs.

To meet compliance with Revolon Slough/Beardsley Wash (RS/BW) Trash TMDL, County installed full trash capture devices to meet point source compliance. The County and TMDL Responsible Agencies have been conducting trash monitoring and MFAC/BMP program since 2009. All field work has been conducted by California Conservation Corps under oversight by the Ventura Land Trust and TMDL Responsible Agencies. On behalf of the TMDL MOA group, Ewelina Mutkowska, County Stormwater Program Manager, gave a presentation at the

RWQCB's Hearing in June 2018. All MFAC/BMP efforts and results are described in the TMDL Annual Report submitted to RWQCB in January 2019 (Attachment E).

Fillmore

The City of Fillmore has addressed the elevated levels of E. coli at the MO-FIL station through active participation in the Countywide Stormwater Program and supports the actions that were discussed in the section above. In addition, the City works in collaboration with the Lower Santa Clara River (LSCR) Watershed Permittees, the cities of Santa Paula, Oxnard, Ventura, and County of Ventura, to address the Santa Clara River Estuary and Reach 3 Watershed Bacteria TMDL (Final In-Stream Compliance Monitoring Plan). The Memorandum of Agreement (MOA) was executed October 5, 2016. Monitoring commenced October 11, 2016. Under the program, additional SCR bacteria TMDL outfall monitoring commenced in September 2018.

The City of Fillmore, in collaboration with the LSCR Watershed permittees, continues to implement public outreach to city residents and commercial businesses, in the watershed to target the cause of high levels of bacteria in our waterways. In addition, the City is currently working on updating the North Fillmore Specific Plan and is working closely with developers to include the implementation of Regional post-construction BMPs that most effectively target key pollutants, including bacteria, as a part of the specific plan.

Monitoring results have revealed high bacteria amounts in the past. Staff has visited the monitored outfall in the City and very little non-stormwater runoff was observed in the drainage area to the outfall. The upper reaches of the watershed are natural, extending into the National Forest lands. This area includes wildlife that can contribute bacteria to stormwater run-off naturally. Staff continues to monitor the bacteria levels and sampling site in addition to providing public outreach to residents. Additionally, the City implements a street sweeping program, cleans out catch basins regularly, and hosted a Coastal Cleanup Day site for the past three years, in which the public had the opportunity to volunteer to remove trash and debris from Sespe Creek, a tributary to the Santa Clara River. By actively participating in the Ventura Countywide Stormwater Program and Lower Santa Clara River Bacteria TMDL and through efficient implementation of the MS4 Permit, the City of Fillmore is consistently working to reduce pollutants from urban runoff throughout its jurisdiction.

Moorpark

Bacteria: Bacteria is a common problem in many watersheds throughout the country, not only in Ventura County. It remains to be determined how effective any particular BMP is in attaining reduced bacteria levels in stormwater flow.

The City continues to work on implementing stormwater infiltration projects, such as updating its existing Metrolink North Parking Lot, which was built before stormwater requirements were in place. Rather than simply performing a maintenance project, the parking lot will be rebuilt to achieve the current MS4 Permit's stormwater capture requirements. Completion of the project is expected in December 2020. The City is also designing a second entrance into the Metrolink South Parking Lot which will also capture run-off from the entrance and potentially additional run-off from the parking lot itself. Completion of this project is expected by March 2020.

Pentachlorophenol (PCP): Detections of pentachlorophenol that measured higher than the California Toxics Rule (CTR) were attributed to run-off from an adjacent Southern California Edison (Edison) substation, which discharges directly to the channel of the Moorpark Major Outfall Station. Ventura County and City staff made contact with representatives from Edison about the elevated detection levels. Edison implemented additional BMPs and County and City staff met with Edison representatives at the site to tour the facility and go over the implemented BMPs. Future levels of PCP detections were below the CTR objective and it appeared Edison's BMPs were effective.

Ojai

The City is an active participant in the Countywide Stormwater program and supports the actions that were discussed in the section above. To help address elevated pollutant levels the City installed curb extensions with urban stormwater runoff capture and treatment features in 2018 and plans to install more as part of our current fiscal year paving program. In private construction developments, the City is also requiring substantial construction post-construction BMPs including onsite biofiltration and detention basins in compliance with the TGM.

In an effort to address elevated levels of E. coli City staff continues to inspect the Fox drainage channel from the north end to the sampling point south of the Ojai trail for possible contaminations. There are obvious contaminations from dog feces and occasionally human feces, likely from homeless population in an area that is secluded and easily accessible. The City continues to reach out to residents along the Fox Canyon channel to stop polluting the channel with dog feces, including additional monitoring of the channel for infractions. Maintenance staff have increased visual inspection and clean up in the area to decrease contamination, including dog feces and other discarded materials. The City is partnering with the VCWPD in monitoring and managing trash and feces removal from the Fox Canyon channel. The City has also increased the number of pet waste bag stations at City Parks and the downtown area. This area is north of the sampling point and is easily access to the channel easement. City maintenance staff have increased visual inspection and clean up in that area to decrease possible contamination, which includes dog/human feces and other discarded materials.

Clean up continues for the restaurant previously identified requiring cleanup of their trash bin and discarded grease storage area. The area is continuing to be monitored. During business inspections educational information handouts are provided.

In an effort to meet compliance with the Trash TMDL in the Ventura River watershed, the City has installed several additional permanent public trash containers in the downtown area and at parks. The City has also installed full capture devices in catch basins following the Trash TMDL implementation schedule.

Oxnard

As indicated by the 2018/2019 storm water monitoring results, elevated levels of E.coli were detected at the MO-OXN during wet weather sampling. The MO-OXN is located in the El Rio Drain which receives stormwater and non-stormwater runoff from the El Rio, East Vineyard, and North Ventura subwatersheds. The El Rio drain (a tributary to the Santa Clara River) is located near the Oxnard Village-Wagon Wheel Junction development.

Within the Oxnard Village-Wagon Wheel Junction development there are currently 63 acres being converted into a multiple-use redevelopment primarily containing multi-family apartment units. This project is located near Oxnard Blvd and Highway 101 and drains to the Santa Clara River. The project has been conditioned to install post-construction BMPs including a CDS Treatment Device as well as biofiltration as part of an onsite detention basin. The project is required to meet County of Ventura and City of Oxnard SQUIMP requirements. With updated BMPs and land development this project may decrease the amount on bacteria, trash, and other pollutants entering from the area into the Santa Clara River. These updates may also potentially decrease the amount E. Coli detections in the wet weather sampling.

In an effort to prevent or reduce elevated levels of E. coli, the City of Oxnard Technical Services Program –Source Control (TSP-SC) Division implements a stormwater program with established Best Management Practices (BMPs). Annual reviews of land use data, business inventories, and critical source inspection records within the El Rio, East Vineyard, and North Ventura subwatersheds are conducted to identify and prevent illicit discharges. TSP-SC staff inspected businesses with a focus on outdoor trash enclosures, outdoor storage of waste and materials, and grease interceptor/clarifier maintenance. BMP information was provided regarding surface cleaning, waste management, and grease interceptor/clarifier maintenance. In addition, TSP-SC staff met with Wastewater

Collections staff to review sanitary sewer overflow and grease interceptor overflow response protocol and training was provided for illicit discharge response.

TSP-SC staff went into communities and identified possible bacteria sources such as excessive dog feces. TSP-SC staff disseminated brochures on pet ownership and dog waste bags at community events and local businesses. Dog waste bags and dispensers are also provided in various parks and neighborhoods throughout the city. TSP-SC staff along with other City staff departments were trained on illicit discharge response and BMP information forms were put in a share drive so that all City departments could access and download the forms as needed.

The City of Oxnard is a participating agency in a subcommittee to address the requirements of the Santa Clara River TMDL which became effective March 21, 2012. The City of Oxnard in partnership with the Cities of Fillmore, Santa Paula, Ventura, and the County of Ventura, have prepared an In-Stream Compliance Monitoring Plan and a Draft Implementation Plan for the Estuary and Reach 3 of the Santa Clara River. On April 11, 2016, we received Regional Board approval for the Final In-Stream Compliance Monitoring Plan for the Santa Clara River Estuary and Reach 3 Bacteria TMDL. The City of Oxnard and the other participating agencies have since entered into a memorandum of agreement to actively support the monitoring and reporting efforts as required by the SCR Bacteria TMDL by funding equal contributions of the total cost of the water monitoring described in the Final In-Stream Compliance Monitoring Plan.

As of March 2019, the City of Oxnard installed full capture devices within the Revolon Slough/Beardsley Wash Trash TMDL area. The installation of these devices are in accordance with the requirements as specified in Table 9 of the TMDL, achieving 100% reduction of trash from baseline WLA.

The Regional Water Quality Control Board gave approval on November 17, 2017 to move forward with a special study to investigate human waste sources to the Harbor Beaches of Ventura County as specified under the Harbor Beaches of Ventura County (Kiddie Beach and Hobie Beach) Bacteria TMDL. This study is in response to recent wet weather single sample exceedances and the information gained will be used to determine an effective compliance approach.

TSP-SC staff are constantly evaluating what programs and BMPs are most effective. We have enlisted the help of all city departments with the common goal of meeting our water quality standards and maintaining the beneficial uses for our receiving waters. The City of Oxnard has been and will continue to be proactive and diligent in its efforts to implement BMPs to prevent or reduce the discharge of E. coli.

Port Hueneme

Bacteria

The City of Port Hueneme addresses elevated levels of E. coli through active participation in the Countywide Stormwater Program.

Educational outreach is also utilized to help educate on reducing E. coli. The City participates with the countywide media campaign and sponsors outreach at local events, City Hall, and the City website. Messaging includes the importance of collecting and properly disposing of pet waste. The City also diligently monitors for homeless encampments and offers multiple contact points to assist homeless in getting into sanitary conditions within shelters.

The City contains a creek that is part of the drainage system with unrestricted use by various forms of wildlife. It is the City's belief that controlling bacteria in this area is beyond its control.

Trash

The City of Port Hueneme continues to implement a street sweeping program that exceeds permit requirements, cleans out catch basins quarterly, and hosted a 2019 Coastal Cleanup Day site in which the public had the opportunity to volunteer to remove trash and debris from Hueneme Beach. The City has also contracted with Ventura County Probation and has weekly trash removal from the recreation corridor, beach, and medians and parkways.

The City requires, and provides, both trash and recycle containers for all public events requiring a CUP. Port Hueneme continues to partner with VCWPD and City of Oxnard in monitoring and managing trash removal from the Oxnard West Drain.

Also, in accordance with the State Trash Policy, the City will install trash excluders throughout their catch basin system. It is the intention to outfit each of the catch basins within the jurisdiction with trash excluders

Santa Paula

General. Santa Paula is an active participant in the Countywide Stormwater program and supports the actions that were discussed in the section above. In addition to the countywide discussion in the monitoring section of the annual report, please also refer to the “Public Outreach, Public Agency Activities, Construction, Planning and Land Development, Illicit Discharge, and Business Program” sections of the annual report for a list of actions Santa Paula has taken and will continue to implement in the current year and future years to address elevated levels constituents that were found in our urban outfall monitoring station near the south end of 10th Street.

Private Construction. The City conditions private projects to install construction BMPs and post-construction BMPs including onsite biofiltration and detention basins. These BMPs are anticipated to decrease the amount of bacteria, trash, and other pollutants entering from the area into the Santa Clara River. The East Area 1 Project will include onsite biofiltration and detention basins.

Public Construction. The City conducts inspections at all significant City capital improvement program projects. These inspections are anticipated to ensure sediment and erosion controls are being properly applied and reduce sediment loading into the Santa Clara River. The City monitors to ensure that sediment and erosion control measures are implemented.

Bacteria Special Study. The City participated in the Countywide Bacteria Special Study since fall of 2013. Dry weather urban runoff and storm water samples were collected at the 10th Street storm water outfall and monitoring station, which represents discharges from the City’s urban areas upstream of the receiving water monitoring station in Santa Clara River. Total coliform and E. coli were tested to evaluate possible sources of bacteria in City’s outfall. In addition, samples were collected for DNA markers for dogs, gulls, horses, and humans. The purpose of this additional analysis was to provide information regarding potential sources of elevated bacteria.

Bacteria TMDL for Santa Clara River. The City works in collaboration with the Santa Clara River Watershed Permittees, including the cities of Fillmore, Oxnard, Ventura, and County of Ventura, to address the Santa Clara River Estuary and Reach 3 Watershed Bacteria TMDL (Final In-Stream Compliance Monitoring Plan). Water quality monitoring of two required sample sites within the Santa Clara River commenced October 2016 and permittee outfalls in September 2018. A final Bacteria TMDL Implementation Plan was completed and submitted in March 2015.

Trash Removal and Street Sweeping. The City continues to implement an enhanced trash removal and street sweeping program in the downtown commercial district. The City also conducts additional trash removal and street sweeping prior to and following special events (parades, street fairs, etc.) in the downtown district. These BMPs

are anticipated to decrease the amount of trash and other pollutants entering from the area into the Santa Clara River. The City is evaluating potential locations for installation of full capture devices in compliance with the SWRCB Trash Amendment in stormdrain inlets within the City.

Water Conservation/Decreased Dry Weather Runoff. Due to the City's stringent water conservation ordinance, dry weather runoff has been significantly reduced. The City's water customers met or exceeded State requirements for water conservation. In response to the Governor's 2015 Order for water conservation, the City continues to reduce its water use. The State Water Board approved (July 2016) the City's Self-Certification.

In addition, the City has implemented the Statewide Drinking Water Systems Discharge Permit WDR 4DW0718, including the following requirements:

- a. Established and implemented BMPs.
- b. Ensured that all planned potable water discharges complied with the applicable effluent limitations for chlorine residual and turbidity.
- c. Conducted monitoring and reporting in compliance with the provisions of the Permit and maintained self-monitoring reports.

Simi Valley

Simi Valley actively participates in the Countywide Stormwater program by participating in all the subcommittees as well as the Management Committee. The City also is an active participant the Calleguas Creek Watershed Management Program. Simi Valley has continued to focus additional efforts on trash in the arroyo this year by continuing to work with community groups to facilitate cleanup events throughout the year, removing several thousand pounds of trash and debris at these events. The City continues to provide outreach to residents through community events such as the City's annual Street Fair, Moorpark College Multi-Cultural Day, Moorpark College Earth Day, and the Living Green Expo. Flyers are handed out at each of the City's Household Hazardous Waste event that stress the importance of picking up pet waste along with other BMPs. Presentations are given at elementary schools and afterschool programs to teach children the importance of keeping our environment clean. In the coming year, the City will contract with Eco Hero to make presentations at many of the schools in Simi Valley focusing on anti-littering messages and stormwater concerns. Pet waste bags are provided to the East County Animal Shelter to be given out at pet adoption events. The City has also worked with the Animal Shelter to install and maintain a mutt mitt station for the dog run at the shelter where potential adoptive pet parents can spend time and bond with their chosen dog prior to adoption.

The City continues to add approximately 30 storm drain catch basin Connector Pipe Screen (CPS) units each year to catch basins in high priority areas to reduce trash and bacteria discharged to the Arroyo Simi and comply with the State's Trash Provisions.

Thousand Oaks

The City of Thousand Oaks works with the countywide stormwater management group to share information and develop and assist with implementation strategies. City Staff also attend annual California Stormwater Quality Association (CASQA) Conferences to stay current with state-of-the-art advances in pollution reduction to and from an MS4.

To maintain the integrity of its MS4, the City has installed and required installation of various BMPs such as swales, pre and post construction BMPs, and a free supply of dog waste collection bags. Additionally, the City has an

ongoing maintenance and operations program to minimize pollutant sources, add additional BMPs as needed, and keep existing equipment in functional condition.

Regardless of these efforts, there were dry and wet weather storm drain emissions that caused or contributed to exceedances of E. coli, Chloride, and Total Dissolved Solids (TDS). Looking at these pollutants individually, the following may be said:

- E. Coli – Wet Weather

The City takes further efforts to reduce potential sources of fecal bacteria. For example, restaurant inspections verify that facilities use effective garbage control to prevent both dumpster leakage and avian scavenging. The City conducts local outreach and participates with the countywide media campaign. Messaging used by these programs stress the importance of the proper disposal of dog waste. Even so, wet weather presents a challenge because many nonpoint sources such as terrestrial and avian wildlife can become mobile in wet weather and further contaminate a sample location.

- Chloride – Dry and Wet Weather

The city has banned commercial and industrial onsite water softener regeneration and discharge from salt pools. It is thought that a combination of marine sediments and stranded salts accumulated from irrigation dissolve in ground water to contaminate base flow.

- High TDS – Wet Weather

Elevated levels of dissolved solids may be attributable to increased erosion from areas affected by the Woolsey Fire in 2018.

The City of Thousand Oaks continues its participation with the countywide stormwater management program to reduce urban sources of MS4 pollutant loading. The City has installed various BMPs and has an ongoing maintenance and operations program to minimize pollutant sources, add additional BMPs as needed, and keep existing equipment in good condition. To help reduce E. coli and 4,4'-DDE, the parameters that have exceeded the water quality objectives during the current reporting cycle, the City has taken the actions outlined in the following discussion.

The City attempts to control potential sources of fecal bacteria. For example, restaurant inspections are conducted to verify proper garbage control that prevents dumpster leakage and avian scavenging. Domestic animal waste is reduced by the availability of City-provided waste collection bags where dog walking occurs such as public parks and parkways. The City conducts local outreach and participates with the countywide media campaign. Messaging used by these programs stress the importance of collecting and properly disposing dog waste.

Despite the many efforts to control indicator bacteria, open channels and creeks in undeveloped land areas are part of the flood control drainage system that have unrestricted use by avian and other forms of wildlife. Their indicator bacteria contribution may be significant, but it is beyond the control of an MS4 agency. As the final compliance date for wet weather draws nearer, Thousand Oaks will consider source evaluations of its MS4 outfalls using microbial source tracking or other methods for identifying fecal contamination of human origin.

DDE continues to show up in surface water samples although current urban watershed activities do not contribute this contaminant. It is a degradation product from earlier DDT use that has a continued presence owing to DDT's earlier widespread use, high stability, and tendency to partition in soil. The City of Thousand Oaks in partnership with the Ventura County Public Information and Participation Program (PIPP) has targeted pesticides as a priority

class of pollutants. Various media are used such as animated videos that encourage residents to follow label instructions, seek the safest effective alternative, and use the minimum effective application amount. These steps will reduce potential contamination from alternative insecticides currently in use.

Ventura

The City of Ventura is an active participant in the Countywide Stormwater program and supports the actions that were discussed in sections above.

In addition to the countywide discussion in the monitoring section of the 2018/19 annual report, please also refer to the Public Outreach, Public Agency Activities, Construction, Planning and Land Development, Illicit Discharge, and Business Program sections of the annual report for a list of actions City of Ventura has taken and will continue to implement in the current year and future years to address elevated levels of bacteria, trash, metals and other constituents that have been found in our urban outfalls.

Four wet weather sampling events occurred during the 2018/19 monitoring year with ME-SCR being dry during event one and MO-VEN not sampled during event four. E. Coli concentrations were detected above Basin Plan objective during wet weather sampling events two, three and four at MO-VEN. E. Coli concentrations were detected above Basin Plan objective during wet weather sampling events one, two and three at ME-SCR. MO-VEN appears to be causing or contributing to ME-SCR exceedance of E.Coli Basin Plan objective during wet weather sampling events two and three.

The Lower Santa Clara River Bacteria TMDL became effective on March 21, 2012 with dry and wet weather compliance 11 and 17 years after effective date of TMDL, respectively. The Lower Santa Clara River Bacteria TMDL Implementation Plan was submitted to the Los Angeles Regional Water Quality Control Board on March 20, 2015 and approved December 26, 2017. The City of Ventura is currently implementing BMPs identified in the Implementation Plan. The City anticipates Watershed Management Programs associated with the new Los Angeles - Region Four Regional MS4 Permit will include additional structural BMPs, not included in the TMDL Implementation Plan, that will further mitigate fecal indicator bacteria pollutant loading. Additionally, the City in partnership with the Cities of Fillmore, Oxnard, Santa Paula, and the County of Ventura, implemented an In-Stream Compliance Monitoring Plan for the Estuary and Reach 3 of the Santa Clara River, which commenced October 2016. Outfall monitoring commenced October 2018 in Santa Clara River Bacteria TMDL responsible MS4 agencies' jurisdictions. Since E. coli concentrations in the Santa Clara River Watershed are routinely detected above Basin Plan objectives in both wet and dry weather, the City of Ventura in collaboration with Santa Clara River Watershed permittees implement targeted public outreach to residents and businesses in the watershed to address the causes of high levels of bacteria in our waterway.

Selenium concentrations were not detected above CTR objective during 2018/19 and 2017/18 dry weather events at ME-SCR, however elevated concentrations, above CTR objective, were detected at MO-VEN. Selenium concentrations were detected above CTR objective during the 2016/17 dry weather monitoring event at both MO-VEN and ME-SCR. MO-VEN does not appear to be causing or contributing to a persistent selenium CTR objective exceedance at ME-SCR monitoring year 2018/19. In the last five years, 2012/13 and 2016/17 reporting periods were the only periods MO-VEN contributed to a ME-SCR selenium CTR objective exceedance.

Dissolved copper concentrations were not detected above CTR objective during 2018/19, 2017/18, 2016/17 dry weather events at ME-SCR, however elevated concentrations, above CTR objective, were detected at MO-VEN. MO-VEN does not appear to be causing or contributing to a copper CTR objective exceedance at ME-SCR and does not appear to be persistent.

As discussed above, the City of Ventura has an industrial and commercial facilities program designed to prohibit unauthorized non-stormwater discharges and reduce pollutants in stormwater runoff from these businesses.

Stormwater runoff information and best management practices educational materials are given to business owners during industrial and commercial facilities inspections. In addition, City of Ventura has a street sweeping program to reduce pollutants, such as selenium and copper, from accumulating in the public right of way. In the 2018/19 reporting period over 15,000 miles of total curb area was swept in City of Ventura's jurisdiction and 947 tons of debris removed from streets.

In an effort to meet compliance with the Trash TMDL in the Ventura River watershed, the City of Ventura installed several additional permanent public trash containers along the Ventura River trail in locations where there were documented patterns of uncaptured trash (pictured below). The City of Ventura has also installed full capture devices in catch basins following the Trash TMDL implementation schedule. Furthermore, in December of 2016 City of Ventura, in collaboration with the Surfrider Ventura County Chapter, began installing cigarette butt collection receptacles (pictured below) in high generating cigarette butt areas. As of December 2019, over 90 cigarette collection receptacles had been installed with cigarette butt collection totals over 200,000. Cigarette waste collected is being recycled.

City of Ventura staff work with businesses to educate them on general environmental sustainability, which includes stormwater pollution prevention. We provide educational materials and training and run the Green Business Certification program. This program is available currently to office/retail, restaurants, multi-family dwellings, and brewery businesses. To date, the city has certified over 80 businesses, with many other in the process. Stormwater pollution prevention and best management practices play an important role in this program.



Examples of permanent public trash enclosure and cigarette butt collection receptacles

pH was detected above Basin Plan objective during the 2018/19 dry weather monitoring event at MO-VEN, however pH was not detected above Basin Plan objective at ME-SCR. pH was detected above Basin Plan objective during the 2017/18 dry weather monitoring event at MO-VEN and ME-SCR. MO-VEN does not appear to be contributing to a pH Basin Plan objective exceedance at ME-SCR in 2018/19 monitoring year. As discussed above, the City of Ventura has an industrial and commercial facilities inspection program as well as a construction inspection program designed to prohibit unauthorized non-stormwater discharges and reduce pollutants in stormwater runoff from these activities. Stormwater runoff information and best management practices educational materials are dispersed during facilities' inspections and are also available on City webpages.

9.8.9 Mass Emission Calculations

Mass loadings were estimated for constituents detected at the ME-CC and ME-VR2 mass emission stations during the 2018/19 monitoring season. Mass loadings could not be calculated at the ME-SCR station because total flow could not be accurately measured, as described in Section 9.3.1.

Constituents that are inappropriate for mass emission calculations (e.g. bacteria, alkalinity, DO, conductivity, specific conductance, hardness, salinity, temperature, pH, turbidity, dissolved metals, dissolved phosphorus, etc.) are excluded from the calculations.

Mass loads were calculated by using the average flow [total flow volume between first and last aliquot collection in cubic feet divided by the time elapsed between the first and last aliquots in seconds] measured in cubic feet per second (cfs), estimated over the duration of a monitoring event and the concentrations of detected constituents. For grabs, this is the concentration measured in the grab sample. For composites, this is the concentration measured in the composite bottle, which is a combination of aliquots collected during the event. Event duration was defined as the number of hours elapsed between the collection of the first and the final aliquots by the composite sampler at each site. Event durations during 2018/19 at the ME-CC and ME-VR2 stations lasted from 2.47 hours (Event 3 at ME-VR2) to 27.88 hours (Event 2 at ME-CC). Based on the average flow rate for a sampling event, loadings were calculated in lbs/event to allow for comparisons between sites as well as between events (see example in Table 9-26) These mass loading estimates are presented in Table 9-27 and Table 9-28.

Table 9-26. Example Mass Loading Calculation

Event 1 at ME-CC
Chloride concentration: 170 mg/L Event duration: 9 hours, 54 minutes = 9.90 hours
Average flow rate: 21.52 cfs $21.52 \text{ cfs} \times 7.48 \text{ gal/cf} \times 3.785 \text{ L/gal} = 609.27 \text{ L/sec}$
Load = concentration x volume $609.27 \text{ L/sec} \times 170 \text{ mg/L} = 103575.89 \text{ mg/sec}$ $103575.89 \text{ mg/sec} \times 60 \text{ sec/min} \times 60 \text{ min/hr} \times 9.90 \text{ hr/event} \times 1 \text{ kg}/10^6 \text{ mg} \times 2.2 \text{ lb/kg} = \mathbf{8120 \text{ lb/event}}$ (rounded)

Table 9-27. Estimated Mass Loadings at ME-CC

Classification	Constituent	Event 1	Event 2	Event 3	Event 5
		(Wet) 11/22/2018 9.90 hrs. (lbs/event)	(Wet) 11/30/2018 27.88 hrs. (lbs/event)	(Wet) 1/5/2019 6.60 hrs. (lbs/event)	(Dry) 5/14/2019 22.57 hrs. (lbs/event)
Anion	Chloride	8120	39300	23700	11100
Anion	Fluoride	22.5	108*	67.8*	23.8
Anion	Sulfate	8600	44100	25800	14300
Cation	Calcium	3050	19700	16400	4960
Cation	Magnesium	1620	11600	11400	2590
Cation	Potassium	1050	5620	4070	1110
Cation	Sodium	6210	31300	19300	10000
Conventional	BOD	315	4010	4410	ND
Conventional	COD	1100	24900	28800	1000
Conventional	Cyanide	0.08*	0.68*	1.9	ND

Classification	Constituent	Event 1 (Wet) 11/22/2018 9.90 hrs. (lbs/event)	Event 2 (Wet) 11/30/2018 27.88 hrs. (lbs/event)	Event 3 (Wet) 1/5/2019 6.60 hrs. (lbs/event)	Event 5 (Dry) 5/14/2019 22.57 hrs. (lbs/event)
Conventional	Dissolved Inorganic Carbon	2150	13200	7800	2750
Conventional	Dissolved Organic Carbon	449	4810	2710	306
Conventional	MBAS	2.1*	17.7*	ND	2.1*
Conventional	Phenolics	ND	3.5*	8.1	ND
Conventional	Total Chlorine Residual	25.8	15.2*	ND	2.0*
Conventional	Total Dissolved Solids	36300	185000	132000	52800
Conventional	Total Organic Carbon	468	4410	2650	296
Conventional	Total Suspended Solids	4010	152000	302000	740
Conventional	Volatile Suspended Solids	621	23300	47500	ND
Hydrocarbon	Diesel Range Organics	5.3	64.2	(<) 31.2*	(<) 3.6*
Metal	Aluminum (Total)	115	2370	7120	17.4
Metal	Antimony (Total)	0.03	0.32	0.24*	0.02*
Metal	Arsenic (Total)	0.17	1.8	1.9	0.14
Metal	Barium (Total)	2.4	25.7	37.3	1.8
Metal	Beryllium (Total)	0.004*	0.08	0.19	ND
Metal	Cadmium (Total)	0.02	0.23	0.27	0.008
Metal	Chromium (Total)	0.27	6.4	24.1	0.07
Metal	Chromium VI	ND	0.06	0.03	0.009
Metal	Copper (Total)	0.47	6.8	11.2	0.16
Metal	Iron (Total)	162	3290	10500	25.4
Metal	Lead (Total)	0.12	1.9	5.8	0.01
Metal	Mercury (Total)	ND	0.009*	0.01*	ND
Metal	Nickel (Total)	0.43	6.4	19.3	0.3
Metal	Selenium (Total)	0.03	0.48	0.37	0.05
Metal	Silver (Total)	ND	0.03*	0.04*	ND
Metal	Thallium (Total)	0.002*	0.03*	0.05*	ND
Metal	Zinc (Total)	2.5	25.7	37.3	1.1
Nutrient	Ammonia as N	10	80.2	84.8	6.9
Nutrient	Nitrate + Nitrite as N	234	1400	1150	523
Nutrient	Nitrate as N	325	1400	1120	518
Nutrient	Phosphorus as P (Total)	158	762	678	211
Nutrient	TKN	62.1	441	475	ND
Organic	2,4-Dinitrophenol	ND	ND	0.41*	ND
Organic	4,6-Dinitro-2-methylphenol	ND	0.37*	0.19*	ND
Organic	Butyl benzyl phthalate	(<) 0.01*	(<) 0.08*	0.11*	ND
Organic	Diethyl phthalate	0.01*	ND	ND	ND
Pesticide	2,4-DB	0.01*	0.13*	0.16*	ND

Classification	Constituent	Event 1 (Wet) 11/22/2018 9.90 hrs. (lbs/event)	Event 2 (Wet) 11/30/2018 27.88 hrs. (lbs/event)	Event 3 (Wet) 1/5/2019 6.60 hrs. (lbs/event)	Event 5 (Dry) 5/14/2019 22.57 hrs. (lbs/event)
Pesticide	4,4'-DDE	ND	ND	0.01*	ND
Pesticide	DCPA (Dacthal)	0.03	0.24	0.37	0.05
Pesticide	Glyphosate	0.96	4.8	2.1	ND
Pesticide	Malathion	0.004	0.01	ND	ND
Pesticide	Metolachlor	ND	ND	0.07*	ND
Pesticide	Pentachlorophenol (EPA 515.3)	0.003*	0.04*	0.02*	ND
Pesticide	Pentachlorophenol (EPA 625)	ND	0.23*	0.18*	ND
Pesticide	Pentachlorophenol (EPA 8270C)	0.04*	(<) 0.40*	0.21*	ND
Pesticide	Prometryn	ND	ND	0.24*	ND

ND - Constituent not detected, and, therefore, no estimated mass loading was calculated.

* - Calculation of mass loading derived from result flagged as DNQ - constituent detected but not quantified (MDL < result < RL).

(<) - Analyte was detected in the method blank so result is an upper limit. Environmental detection may be due to laboratory contamination.

Table 9-28. Estimated Mass Loadings at ME-VR2

Classification	Constituent	Event 1 (Wet) 11/22/2018 4.93 hrs. (lbs/event)	Event 2 (Wet) 11/29/2018 13.77 hrs. (lbs/event)	Event 3 (Wet) 1/5/2019 2.47 hrs. (lbs/event)	Event 5 (Dry) 5/8/2019 23.23 hrs. (lbs/event)
Anion	Chloride	239	1120	349	5650
Anion	Fluoride	1.4	5.2*	1.8*	56.5*
Anion	Sulfate	962	4150	1290	45500
Cation	Calcium	497	2080	765	19900
Cation	Magnesium	131	542	198	5720
Cation	Potassium	15.3	87.4	19.7	361
Cation	Sodium	232	1090	354	8470
Conventional	COD	ND	90.3	67.5	1240
Conventional	Cyanide	0.002*	ND	ND	ND
Conventional	Dissolved Inorganic Carbon	262	1120	326	7800
Conventional	Dissolved Organic Carbon	9	57.3	11.8	345
Conventional	MBAS	0.07*	0.79	0.16*	ND
Conventional	Total Chlorine Residual	ND	0.63*	(<) 0.14*	1.7*
Conventional	Total Dissolved Solids	2890	11500	4380	110000
Conventional	Total Organic Carbon	9	50.1	9	267
Conventional	Total Suspended Solids	16.6	731	22.5*	(<) 157*
Conventional	Volatile Suspended Solids	ND	143	ND	ND
Hydrocarbon	Diesel Range Organics	(<) 0.18*	(<) 0.8*	(<) 0.36*	(<) 6.4*
Hydrocarbon	Gasoline Range Organics	ND	ND	ND	(<) 3.1*

Classification	Constituent	Event 1 (Wet) 11/22/2018 4.93 hrs. (lbs/event)	Event 2 (Wet) 11/29/2018 13.77 hrs. (lbs/event)	Event 3 (Wet) 1/5/2019 2.47 hrs. (lbs/event)	Event 5 (Dry) 5/8/2019 23.23 hrs. (lbs/event)
Metal	Aluminum (Total)	0.14	3.6	0.27	3.9
Metal	Antimony (Total)	0.0003*	0.001*	0.0004*	0.01*
Metal	Arsenic (Total)	0.002	0.01	0.003	0.06*
Metal	Barium (Total)	0.2	0.95	0.29	8.3
Metal	Cadmium (Total)	0.0003*	0.001*	0.0003*	0.009*
Metal	Chromium (Total)	0.0003*	0.006	0.0004*	0.02*
Metal	Chromium VI	0.0001*	ND	0.00004*	0.01
Metal	Copper (Total)	0.002	(<) 0.02	0.004	0.08
Metal	Iron (Total)	0.63	7.3	0.9	6.7
Metal	Lead (Total)	0.0002*	0.004	0.0004*	0.006*
Metal	Nickel (Total)	0.004	0.04	0.006	0.1*
Metal	Selenium (Total)	0.003	0.01	0.005	0.33
Metal	Zinc (Total)	0.004*	(<) 0.04*	0.009*	0.16*
Nutrient	Ammonia as N	0.17*	ND	0.84	ND
Nutrient	Nitrate + Nitrite as N	0.43*	3.3	1.2	235
Nutrient	Nitrate as N	ND	ND	ND	235
Nutrient	Phosphorus as P (Total)	0.13	1.4	0.19	ND
Nutrient	TKN	0.36	2	0.73	ND
Organic	Butyl benzyl phthalate	(<) 0.001*	(<) 0.003*	ND	ND
Organic	Diethyl phthalate	0.002*	0.006*	0.002*	0.08*
Pesticide	2,4-DB	0.0005*	0.001*	ND	ND
Pesticide	Atrazine	0.0001*	ND	ND	ND
Pesticide	Prometon	ND	ND	0.0003*	ND
Pesticide	Prometryn	ND	ND	0.0003*	ND
Pesticide	Simazine	0.0002*	0.002	0.0003*	ND
Pesticide	Thiobencarb	0.0001*	ND	ND	ND

ND - Constituent not detected, and, therefore, no estimated mass loading was calculated.

* - Calculation of mass loading derived from result flagged as DNQ - constituent detected but not quantified (MDL < result < RL).

(<) - Analyte was detected in the method blank so result is an upper limit. Environmental detection may be due to laboratory contamination.

Note: Not much rain had fallen by Event 3 so saturation was very low for all three wet events. Big storms came after Event 3 so base flow was much higher during the dry event than even storm flow was early in the wet season.

9.9 WATER QUALITY INDEX

Description

The County of Ventura River Water Quality Index mathematically combines several variables, based on a large set of monitoring data, in one easily understood value. It was developed specifically for the County of Ventura to summarize chemical, microbiological and toxicity monitoring data, and is based on the Alberta River Water Quality Index (<http://environment.alberta.ca/01275.html>). The Index provides a simple snapshot of annual water quality conditions in the main rivers of the County (Calleguas Creek (ME-CC), Santa Clara River (ME-SCR), and Ventura River (ME-VR including ME-VR2²³)), with a strong focus on its ability to meet applicable water quality objectives (WQO).

Methodology

The County of Ventura River Water Quality Index is calculated annually for each watershed, for dry and wet weather separately, based on the average of six sub-indices calculated for six variable groups:

- Salts
- Bacteria
- Nutrients
- Organics (includes pesticides)
- Metals
- Toxicity

The constituents included in the Index were selected based on their relevance to river water quality. They include almost all constituents that have exceeded WQO since 2004 in the County of Ventura receiving waters (excluding a few that correlate with other constituents) and all pesticides that were detected by the MS4 outfall monitoring program (often these do not have WQO). Toxicity test results are included in the toxicity variable group.

Most chemistry and microbiology variables are currently measured once per year during dry weather and three times per year during storm events. Toxicity is currently measured for the first wet event per year (seasonal first flush) per site.

In 2017, the Program ceased to use drinking water standards for determining exceedances at sites located in Reaches that have an asterisk under the MUN beneficial use designation in the Basin Plan, which includes all three mass emission (receiving water) stations used for calculating the Index. Water quality standards that are specific to drinking water include the Title 22 objectives referenced in the Basin Plan, California primary and secondary MCLs, CTR Human Health Water & Organisms criteria, California DPH Drinking Water Notification Levels, US EPA Drinking Water Health Advisories, USEPA IRIS Reference Doses, and National Academy of Sciences Drinking Water Health Advisories. Some of these standards have been used as thresholds for calculating the Index scores and so to retain comparability of Index scores between past and present years, the methods and thresholds used for

²³ ME-VR2 replaced ME-VR in 2005 after landslide activity made accessing the original ME-VR station unsafe. For the purposes of the Index, ME-VR refers to data from both stations.

the 2018 Index remained the same as those in previous years, however it should be noted that drinking water objectives are not enforceable thresholds. Drinking water thresholds are marked with “(DW)” in Table 9-29.

The mathematical formula used to calculate the individual sub-indices is the same one as used by the province of Alberta, Canada. However due to unique aspects in climate, pollutants of concern, urbanization, monitoring programs and environmental regulations that apply to the County of Ventura, compiling of the overall Index is tailored to Ventura County.

The Index formula is based on three aspects of water quality that relate to WQO:

- Scope (F1): how many constituents do not meet objectives?
- Frequency (F2): how frequently do measurements not meet objectives?
- Magnitude (F3): by how much do measurements not meet objectives?

The formula used to calculate the Ventura County Water Quality Index is:

$$WQI = 100 - \left(\frac{\sqrt{F_1^2 + F_2^2 + F_3^2}}{1.732} \right)$$

Most constituent concentrations are compared to the applicable WQO, as explained in the Ventura Countywide Stormwater Quality Management Program 2011/12 Water Quality Monitoring Report. For some pesticides WQO have not been adopted by the State Water Resources Control Board (State Water Board). In those cases, the most stringent thresholds available from the State Water Board’s Water Quality Goals website were used (http://waterboards.ca.gov/water_issues/programs/water_quality_goals/search.shtml). Note that the calculations for constituents without WQO is slightly different²⁴ to reflect the priorities of the State Water Board.

The constituents included in the Ventura County River Water Quality Index are summarized in Table 9-29, together with the WQO or other environmentally relevant although not enforceable thresholds applicable during dry and wet weather.

Table 9-29. Water Quality Index Constituents and Thresholds

Constituents	Units	Threshold dry	Threshold wet	Threshold reference
Salts				
Total Dissolved Solids	mg/l	SSO	SSO	WQO
Chloride	mg/l	SSO	SSO	WQO
Organics				
2,4,5-T	µg/L	70	n/a	US EPA IRIS Reference Dose (DW)
2,4-D	µg/L	70	70	WQO (DW)

²⁴ F3 is not included for constituents without WQO. This ensures that no excessive weight is given to constituents for which (often multiple) environmentally relevant human health or ecotoxicity thresholds are available national or state recommended water quality criteria, but for which the State Water Resources Control Board has not formally adopted water quality objectives. Note that parameters F1 and F2 are still included, to ensure that exceedances of these constituents are still reflected in the Ventura County Water Quality Index.

Constituents	Units	Threshold dry	Threshold wet	Threshold reference
2,4-DB	µg/L	56	n/a	US EPA IRIS Reference Dose (DW)
4,4'-DDE	µg/L	0.00059	n/a	WQO
4,4'-DDT	µg/L	0.00059	1.1	WQO
Aldrin	µg/L	0.00013	3	WQO
Azinphos methyl	µg/L	0.01	0.01	US EPA National Recommended Water Quality Criteria
Bromacil	µg/L	70	n/a	US EPA Drinking Water Health Advisory (DW)
Chlorpyrifos	µg/L	0.014	0.02	CA Department of Fish and Game Recommended criterion
Dalapon	µg/L	200	n/a	Drinking water MCL (DW)
DCPA (Dacthal)	µg/L	0.008	14300	US EPA IRIS Reference Dose (DW)
delta-BHC	µg/L	500	n/a	National Academy of Sciences Drinking Water Health Advisory (DW)
Demeton-O	µg/L	0.1	n/a	US EPA National Recommended Water Quality Criteria
Demeton-S	µg/L	0.1	n/a	US EPA National Recommended Water Quality Criteria
Diazinon	µg/L	0.05	0.08	CA Department of Fish and Game Recommended criterion
Dicamba	µg/L	210	n/a	US EPA IRIS Reference Dose (DW)
Dimethoate	µg/L	1	n/a	CA DPH Drinking Water Notification Level (DW)
Diphenamid	µg/L	200	n/a	CA DPH Drinking Water Notification Level (DW)
Glyphosate	µg/L	700	700	WQO (DW)
Malathion	µg/L	0.1	0.1	US EPA National Recommended Water Quality Criteria
Metolachlor	µg/L	44	100	US EPA Drinking Water Health Advisory (DW)
Pentachlorophenol	µg/L	1	1	WQO (DW)
Simazine	µg/L	4	4	WQO (DW)
Toxaphene	µg/L	0.00073	0.73	WQO
Benzo(a)pyrene	µg/L	0.0044	0.2	WQO (DW)
Chrysene	µg/L	0.0044	n/a	WQO (DW)
Dibenz(a,h)anthracene	µg/L	0.0044	n/a	WQO (DW)
Indeno(1,2,3-cd)pyrene	µg/L	0.0044	n/a	WQO (DW)
DEHP	µg/L	1.8	4	WQO (DW)
DEP	µg/L	23000	n/a	WQO (DW)
Bacteria				
<i>E. coli</i> ²⁵	MPN/100 ml	235	235	WQO

²⁵ *E. coli* concentrations are log-transformed before calculating F3. Log-transformation of *E. coli* concentrations is commonly applied in environmental statistics, to account for the log-normal concentrations distribution. Here, it ensures that *E. coli* exceedances do not low bias

Constituents	Units	Threshold dry	Threshold wet	Threshold reference
Nutrients				
DO	mg/L	5	5	WQO
pH	pH units	6.5-8.5	6.5-8.5	WQO
Nitrate+Nitrite-N ²⁶	mg/l	SSO or 10	SSO or 10	WQO
Ammonia-N	mg/l	calc	calc	WQO
MBAS	mg/l	0.5	0.5	WQO
Metals				
Aluminum, total	µg/L	1000	1000	WQO (DW)
Antimony, total	µg/L	6	6	WQO (DW)
Arsenic, total	µg/L	10	10	WQO (DW)
Barium, total	µg/L	1000	1000	WQO (DW)
Beryllium, total	µg/L	4	4	WQO (DW)
Cadmium, total	µg/L	5	5	WQO (DW)
Cadmium, dissolved	µg/L	calc	calc	WQO
Chromium, total	µg/L	50	50	WQO (DW)
Chromium, VI	µg/L	11	16	WQO
Copper, dissolved	µg/L	calc	calc	WQO
Lead, dissolved	µg/L	calc	calc	WQO
Mercury, total	µg/L	0.05	2	WQO (DW)
Nickel, total	µg/L	100	100	WQO (DW)
Nickel, dissolved	µg/L	calc	calc	WQO
Selenium, total	µg/L	5	50	WQO (DW)
Silver, dissolved ²⁷	µg/L		calc	WQO
Thallium, total	µg/L	1.7	2	WQO (DW)
Zinc, dissolved	µg/L	calc	calc	WQO
Toxicity				
IC50 ²⁸	%	100	100	NPDES Permit

Notes SSO: site-specific objectives, n/a: not applicable, calc: threshold calculated based on other water quality parameters, WQO: water quality objective, DW: drinking water threshold.

the index, relative to exceedances of other constituents.

²⁶ Changed from Nitrate-N in 2018.

²⁷ No dissolved silver WQO for dry weather. Corrected in 2018.

²⁸ Toxicity in 2017/18 and 2018/19 only run with 100% concentrations so cannot calculate IC50s.

Index values are calculated annually for the six variable groups for each watershed, and separately for dry and wet weather events. The latter is important because water quality and pollutants of concern are often different during dry and wet weather, as our Mediterranean climate hardly produces rain between May and September. The sub-indices are then averaged to produce an overall River Water Quality Index for dry and wet weather events. Multiple indices can also be averaged to obtain an Index for all watersheds combined, or for dry and wet weather combined.

Rating System

Index results are reported as a number between 0 and 100, where 100 represents the best water quality, relative to objectives. The numbers are further ranked into five grades, each with a color code for graphing and mapping purposes:

Table 9-30. WQI Rating System

Index score	Grade	Interpretation
96 – 100	A	Excellent – Guidelines almost always met
81 – 95	B	Very Good
66 – 80	C	Fair
46 – 65	D	Marginal
0 – 45	F	Poor – All constituents exceed guidelines with high frequency

2019 WQI

Scores for 2018/19 monitoring year showing how multiple indices can also be averaged to obtain an Index for all watersheds combined, or for dry and wet weather combined:

Table 9-31. 2018/19 WQI Scores

Site	Event	Salts	Bacteria	Nutrients	Organics	Metals	Toxicity	Overall Index
ME-CC	Dry	17	18	100	98	100	n/a	67
	Wet	70	17	100	100	79	100	78
	Year	43	17	100	99	90	100	72
ME-SCR	Dry	100	100	100	66	95	n/a	92
	Wet	100	16	88	84	42	100	72
	Year	100	58	94	75	69	100	82
ME-VR	Dry	100	100	100	100	100	n/a	100
	Wet	100	30	88	100	100	100	86
	Year	100	65	94	100	100	100	93
All	Dry	72	73	100	88	98	n/a	86
	Wet	90	21	92	95	74	100	79
	Year	81	47	96	91	86	100	82

Using the same example as above, the grades for 2018/19 are:

Table 9-32. 2018/19 WQI Grades

Site	Event	Salts	Bacteria	Nutrients	Organics	Metals	Toxicity	Overall Index
ME-CC	Dry	F	F	A	A	A	n/a	C
	Wet	C	F	A	A	C	A	C
	Year	F	F	A	A	B	A	C
ME-SCR	Dry	A	A	A	C	B	n/a	B
	Wet	A	F	B	B	F	A	C
	Year	A	D	B	C	C	A	B
ME-VR	Dry	A	A	A	A	A	n/a	A
	Wet	A	F	B	A	A	A	B
	Year	A	D	B	A	A	A	B
All	Dry	C	C	A	B	A	n/a	B
	Wet	B	F	B	B	C	A	C
	Year	B	D	A	B	B	A	B

What does the Index show?

Water quality at the mass emission Stations in Ventura County is generally good but does fluctuate from year to year, usually associated with changes in salts and bacteria in dry weather, and salts and metals in wet weather. Water quality is usually better during dry weather events compared to storm events (Figure 9-9). Trends of sub-indices are shown in Figure 9-11. The sub-indices quickly indicate what constituent classes are associated with drops of the overall Index. Lower scores are typically affected by salts in dry weather, and salts, metals, and bacteria in wet weather.

Overall water quality improved in Ventura County from 2003/04 to 2011/12, but then began dropping through 2016/17 coinciding with increasing (severe) drought conditions in Ventura County and a corresponding decrease in scores for salts and metals. A return to closer to average rainfall in 2017/18 and 2018/19 coincided with an improvement in salts scores, however, the heavy impact of the Thomas Fire on the Ventura River Watershed likely dragged down the 2017/18 scores at ME-VR (metals and toxicity in wet weather and bacteria²⁹ in dry weather), reducing the scores overall. The Ventura River Watershed appears to have rebounded significantly in 2018/19 (Figure 9-10) and the Index shows overall improvement in scores, except for ME-CC, which had a similar log transformation exaggeration for the dry weather bacteria score, which dragged down the score overall, despite some improvement in scores for salts and organics in dry weather in 2018/19.

Index scores have generally been best for ME-VR/VR2, followed by ME-SCR then ME-CC in non-drought years, and ME-CC then ME-SCR in drought years (Figure 9-10). The order could be related to the degree of urbanization and agriculture in each watershed, as well as the effect of drought conditions on the watersheds.

²⁹ The exceedance was low in magnitude but the log transformation rule in the Index exaggerated the effect.

Overall water quality in the County of Ventura is generally good, with the overall Index showing A to C grades across the county during 2018/19 in both wet and dry weather.

Figure 9-9. WQI Trends for All Locations Combined

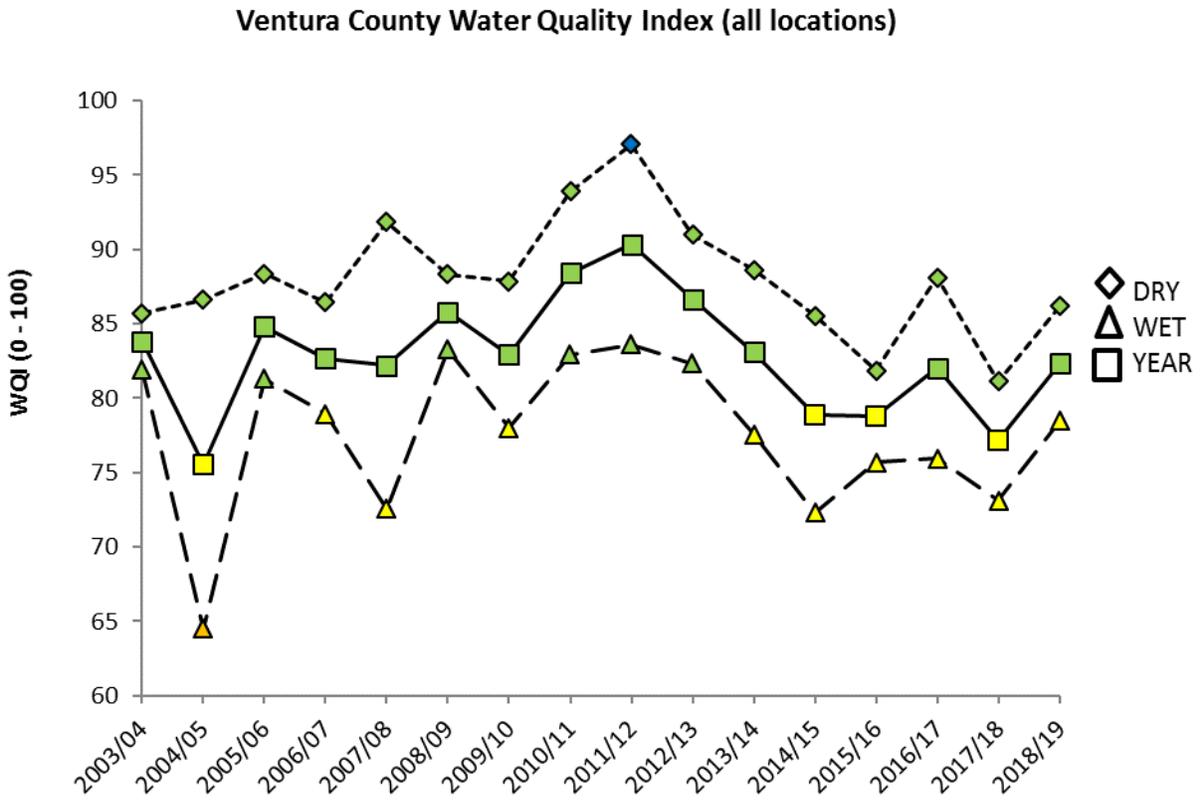


Figure 9-10. Combined Wet and Dry WQI Trends for Each Receiving Water Station

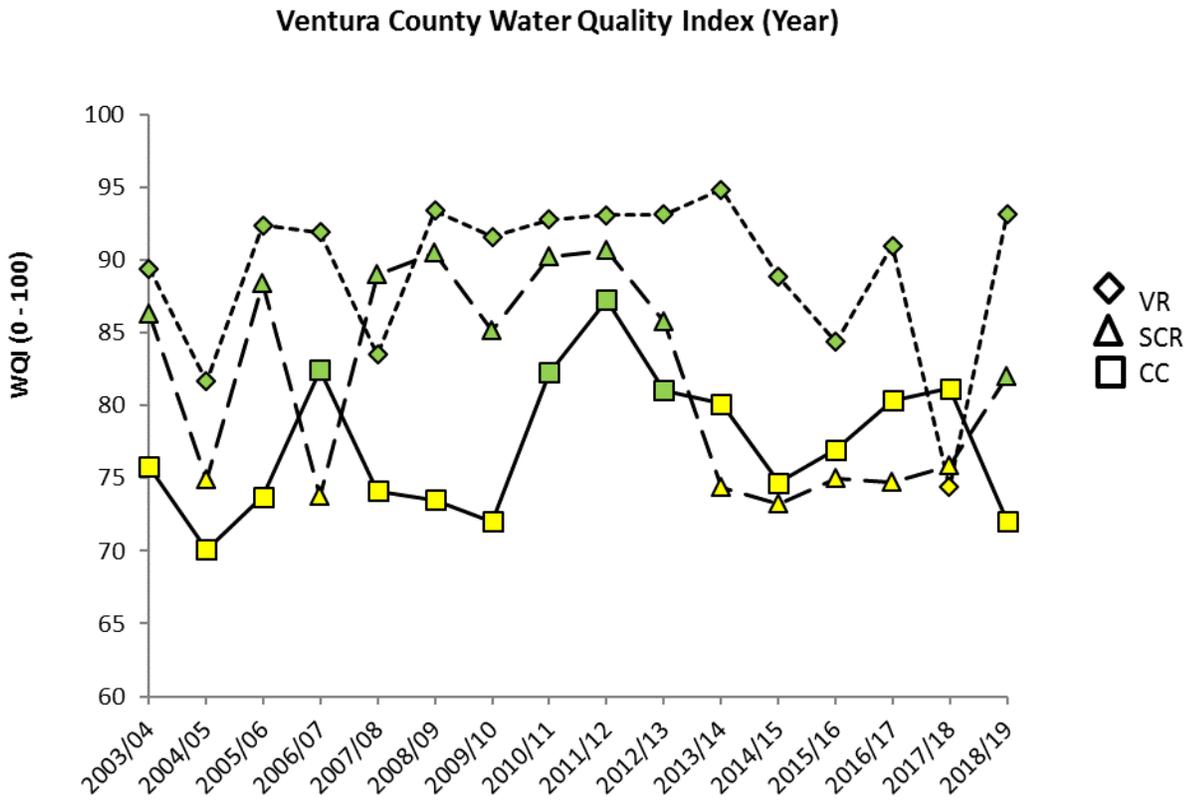
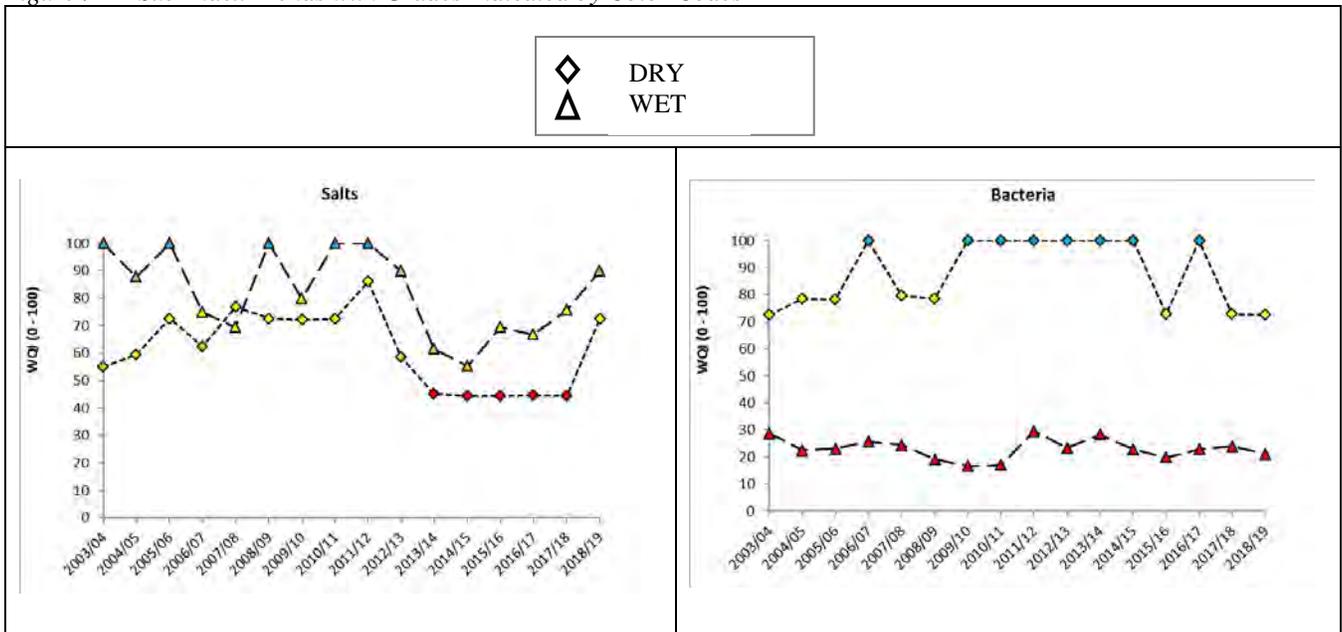
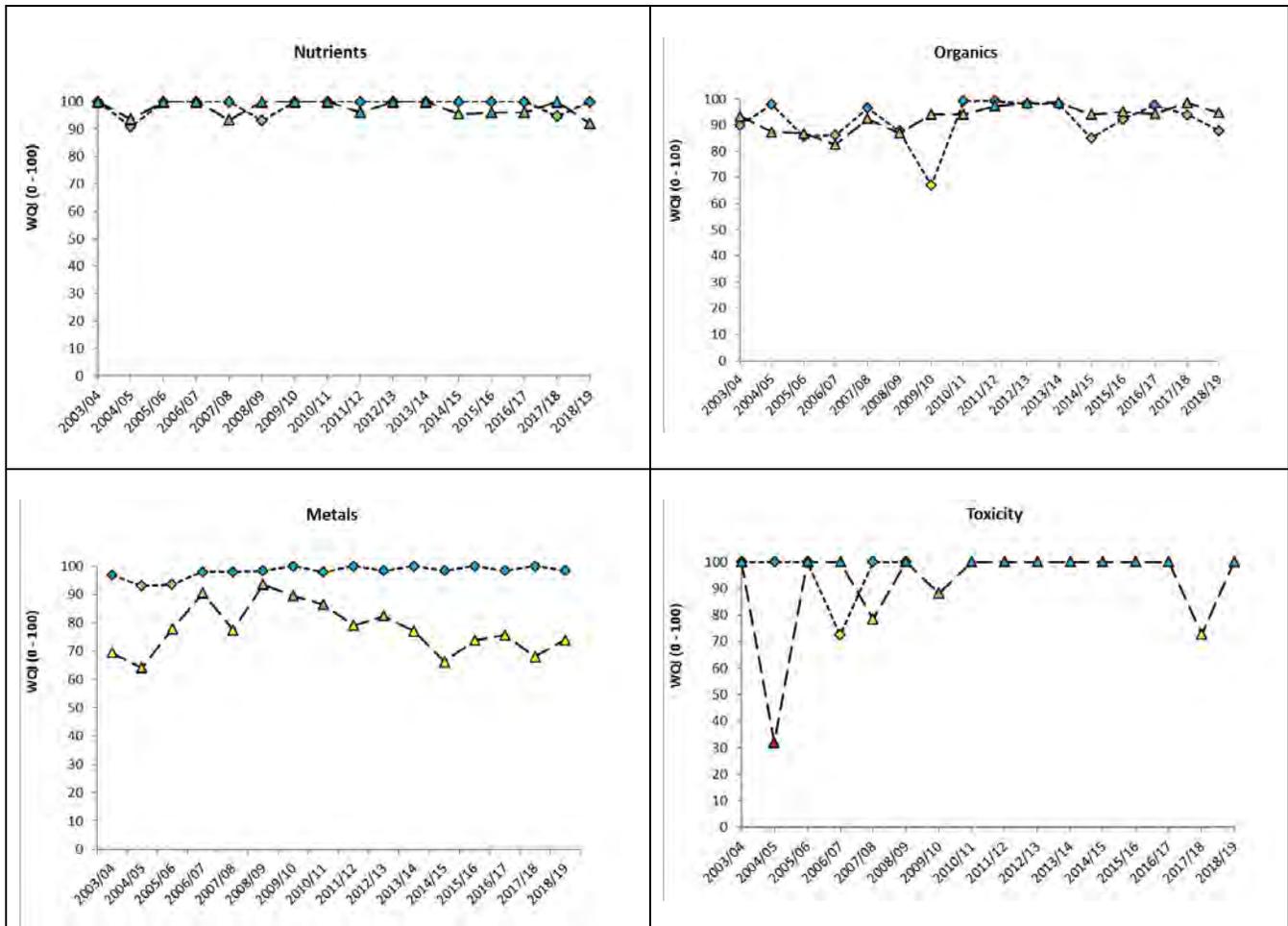


Figure 9-11 Sub-Index Trends with Grades Indicated by Color Codes





9.10 AQUATIC TOXICITY RESULTS

The Stormwater Monitoring Program's NPDES Permit includes chronic toxicity monitoring requirements for the mass emission and major outfall stations. The Permit specifies that for the first year a station is online for the Permit cycle, chronic toxicity testing is to be conducted using three species during two storm events, the first of the wet season plus one other. For each site, the most sensitive species determined during the initial year of sampling is then to be used for toxicity testing for the first storm of the season for the next four years. The Program has continued to analyze samples from the first storm of the season for aquatic toxicity, even though the requirement was completed in the 2014/15 monitoring year.

The Permit requires that marine/estuarine species [topsmelt (*Atherinops affinis*), giant kelp (*Macrocystis pyrifera*), and purple sea urchin (*Strongylocentrotus purpuratus*)] be used for the mass emission stations and for sites that discharge into marine receiving waters. Freshwater species [fathead minnow (*Pimephales promelas*), water flea (*Ceriodaphnia dubia*), and green algae (*Selenastrum capricornutum*)] must be used for sites that discharge into freshwater receiving waters. This means that marine species are required to be used in freshwaters, such as at the three mass emission stations. Although flow from all sampling sites is ultimately discharged to the ocean, mass emission samples are freshwater with very low salt concentrations. The use of marine species for the mass emission sites requires the sample to be greatly manipulated by adding a large quantity of salt. Salt addition results in oxygen

uptake and requires the sample to be vigorously aerated. The results from marine organisms for freshwater toxicity tests are less applicable to the existing conditions in the receiving water than freshwater organisms.

The most sensitive species was determined for seven stations (ME-CC, ME-SCR, ME-VR2, MO-CAM, MO-MEI, MO-OJA, and MO-VEN) during the 2009/10 monitoring year. The other seven stations (MO-FIL, MO-HUE, MO-MPK, MO-OXN, MO-SIM, MO-SPA, and MO-THO) were brought online for the 2010/11 monitoring year and the most sensitive species were determined from the results from that year. The most sensitive species for each site are shown in Table 9-33 and will be used for toxicity analysis during the first rainfall event of future years, as required by the NPDES Permit.

Table 9-33. Most Sensitive Species Selected for Annual Toxicity Testing

Site	Most Sensitive Species
ME-CC	Topsmelt*
ME-SCR	Purple sea urchin
ME-VR2	Topsmelt*
MO-CAM	Fathead minnow
MO-OJA	Fathead minnow
MO-MEI	Fathead minnow
MO-VEN	Water flea
MO-FIL	Water flea
MO-HUE	Water flea. ³⁰
MO-MPK	Green alga
MO-OXN	Fathead minnow
MO-SIM	Water flea
MO-SPA	Fathead minnow
MO-THO	Water flea

As part of the routine contracting cycle, the Program put out a Request for Qualifications (RFQ) in 2017 for aquatic toxicity laboratory services. A new laboratory, Pacific EcoRisk, was selected. The laboratory was contracted to perform toxicity analyses using the most sensitive species for each site at 100% concentration and not a series of dilutions. The choice to skip dilutions was made to balance cost with information, given that the previous years' results had been relatively stable. Annual reports prior to the 2017/18 monitoring year incorporated the dilution series data into the summary tables, so new (as of 2017/18) table formats are presented below.

Event 1 was sampled on November 21-22, 2018 for eleven sites. The three sites that could not be sampled during Event 1 were ME-SCR (no runoff), MO-SPA (safety concerns during grab sample collection due to homeless presence on site), and MO-THO (access road was heavily burned during the Hill Fire and night-time access (for grab sample collection) was avoided due to landslide/rockfall concerns). These three sites were sampled on

³⁰ MO-HUE discharges into tšumaš (chumash) creek (formerly J Street Drain), near where tšumaš (chumash) creek enters the Ormond Lagoon/Pacific Ocean. This area is influenced both by tides and by the status of the sand berm, which can cause backwater effects. Since salinity at MO-HUE is strongly influenced by the ocean, with measured levels of 0.3-7.7 parts per thousand (ppt), a different approach for selecting an organism is sometimes needed for this site. *Ceriodaphnia dubia* (water flea) was determined to be the most sensitive species in 2010, when both the samples used for that determination were below 1 ppt, however it can only tolerate a maximum salinity of 1-2 ppt. When salinity is above 2 ppt, a second test using topsmelt (a euryhaline organism that can tolerate salinities of 3-36 ppt and is the most sensitive species utilized for ME-CC and ME-VR2) is run concurrently with the *Ceriodaphnia* to verify whether salinity is the likely cause of any mortality. The salinity for the MO-HUE sample (field meter) was 5.4 ppt at the time of sample collection for 2018/19, and sample conductivity was 8500 μ S/cm as measured by the toxicity laboratory, so topsmelt was used in addition to *Ceriodaphnia*.

November 29, 2018 during Event 2. All samples were shipped on ice in coolers via a dedicated courier to Pacific EcoRisk, which received the samples on November 23 and 30, 2018.

Due to a lack of *C. dubia* culture neonates on November 23, the *C. dubia* tests using samples collected November 21-22 were initiated the morning after receipt by the laboratory, outside the 36-hour hold time but within 72 hours as allowed in the Permit. Due to the timing of the storms, the urchin fertilization test, all fathead minnow tests, and the *C. dubia* test using the sample collected November 29 were initiated outside the 36-hour hold time, but within 72 hours as allowed in the Permit. Topsmelt (ME-CC, ME-VR2, MO-HUE) and *Selenastrum* (MO-MPK) tests were initiated on November 23, 2018. Fathead minnow (MO-CAM, MO-OJA, MO-MEI, MO-OXN) and *Ceriodaphnia* (MO-VEN, MO-HUE, MO-SIM, MO-FIL) tests were initiated on November 24, 2018. Tests were initiated on December 1, 2018 for fathead minnow (MO-SPA), *Ceriodaphnia* (MO-THO), and purple sea urchin (ME-SCR).

During the routine dissolved oxygen (DO) check of the *A. affinis* test on Day 3, the DO in the MO-HUE sample dropped to 5.7 mg/L. In order to prevent mortalities due to hypoxia, all replicates for this treatment were aerated for the remaining duration of the test. During the routine DO check of the November 24 fathead minnow test on Day 1, a low DO of 3.3 mg/L, 1.4 mg/L, 2.6 mg/L, and 3.7 mg/L was measured in the MO-CAM, MO-OJA, MO-MEI, and MO-OXN samples, respectively, resulting in aeration for the remainder of testing. During the routine DO check of the December 1 fathead minnow test on Day 1, a low DO of 2.4 mg/L was measured in the MO-SPA sample, resulting in aeration for the remainder of testing. One replicate in the MO-VEN *C. dubia* test was observed with two adult females in the replicate cup at test termination. As the brood count for that replicate was higher than the rest of the treatment, it is likely that both females had broods. Further investigation did not result in determining the source of the second adult and as such, the replicate was excluded from both survival and reproduction statistics.

Many sites may have been impacted by the Thomas (2017), Hill (2018), and Woolsey (2018) fires through direct effects such as burning or indirect effects such as ash deposition.

The results for the marine species sites (mass emission stations and MO-HUE) are shown in Table 9-34 and Table 9-35. There was not a significant reduction in survival or growth compared to the laboratory controls for any of the marine species tests.

Table 9-34. Marine Species (Mass Emission Stations and MO-HUE) Toxicity Summary

Site	Event	Event Date	Purple sea urchin (<i>Strongylocentrotus purpuratus</i>)	Topsmelt (<i>Atherinops affinis</i>)	
			Fertilization	Survival	Growth
ME-CC	Event 1 (Wet)	11/22/2018		no	no
ME-VR2	Event 1 (Wet)	11/22/2018		no	no
MO-HUE ^a	Event 1 (Wet)	11/22/2018		no	no
ME-SCR	Event 2 (Wet)	11/29/2018	no		

^a This site is a major outfall station, and is tested using *A. affinis* when the salinity of the site water is >2 ppt.

Table 9-35. Effects of Mass Emission Station and MO-HUE Stormwater on Most Sensitive (Marine/Estuarine) Species

Most Sensitive Species	Treatment/Sample ID	Endpoints	
		Mean % Survival	Mean Biomass Value (mg)
Topsmelt (<i>Atherinops affinis</i>)	Lab Control	92	1.94
	Salt Control	88	1.70
	ME-CC	84	1.68
	ME-VR2	92	2.20
	MO-HUE ^a	88	1.83

Purple sea urchin (<i>Strongylocentrotus purpuratus</i>)		<u>Mean % Fertilization</u>	NA
	Lab Control	94.3	
	Salt Control	89.8	
	ME-SCR	98.5	

^a This site is a major outfall station, and is tested using *A. affinis* when the salinity of the site water is >2 ppt.

The results for the major outfall stations are shown in Table 9-36 and Table 9-37. MO-SIM, MO-THO, and MO-MPK did not exhibit significant toxicity for any of the tested endpoints (survival and reproduction for MO-THO and MO-SIM, growth for MO-MPK). MO-FIL, MO-VEN, MO-MEI, and MO-OXN did not exhibit significant toxic effects for survival but did see a significant decrease in reproduction (MO-FIL and MO-VEN) or growth (MO-MEI, MO-OXN, and MO-SPA). MO-CAM and MO-OJA showed significant effects for survival and growth, however since survival rates were above 50%, a Toxicity Identification Evaluation (TIE) was not required³¹ at these sites. Sample salinity at MO-HUE (due to ocean influence) was well over the tolerance range for *C. dubia*, and therefore is the likely cause of the observed toxicity in this sample. Toxicity was not observed in the concurrent *A. affinis* test. Pathogen related mortalities (PRM) were observed at MO-SPA but not in the control, which indicates that the source of the pathogens (microorganisms) was the water from the site.

Table 9-36. Major Outfall Stations Toxicity Summary - Toxicity Present Relative to Lab Control

			Green alga (<i>Selenastrum capricornutum</i>)	Daphnid (<i>Ceriodaphnia dubia</i>)		Fathead minnow (<i>Pimephales promelas</i>)	
Site	Event	Event Date	Growth	Survival	Reproduction	Survival	Growth
MO-CAM	Event 1 (Wet)	11/21/2018				YES	YES
MO-OJA	Event 1 (Wet)	11/21/2018				YES	YES
MO-MEI	Event 1 (Wet)	11/22/2018				no	YES
MO-OXN	Event 1 (Wet)	11/21/2018				no	YES
MO-SPA	Event 2 (Wet)	11/29/2018				no ^a	YES ^a
MO-VEN	Event 1 (Wet)	11/21/2018		no	YES		
MO-FIL	Event 1 (Wet)	11/22/2018		no	YES		
MO-HUE	Event 1 (Wet)	11/22/2018		YES ^b	YES ^b		
MO-SIM	Event 1 (Wet)	11/22/2018		no	no		
MO-THO	Event 2 (Wet)	11/29/2018		no	no		
MO-MPK	Event 1 (Wet)	11/22/2018	no				

* As per EPA guidance, samples with a significant reduction in survival are not evaluated for growth toxicity.

^a Pathogen-related mortality (PRM) was observed in this treatment.

^b Sample conductivity was ~8500 µS/cm, which is well above the tolerance range for this species, and therefore is the likely cause of the observed toxicity in this sample. Toxicity was not observed in the concurrent *A. affinis* test.

³¹ Triggered by 50% mortality (i.e. the undiluted sample killed half the organisms in the test).

Table 9-37. Effects of Major Outfall Station Stormwater on Most Sensitive (Freshwater) Species

Most Sensitive Species	Treatment/Sample ID	Endpoints	
		Mean % Survival	Mean Biomass Value (mg)
Fathead minnow (<i>Pimephales promelas</i>)	Lab Control-01	100	1.00
	MO-CAM	77.5*	0.38* ^a
	MO-OJA	57.5*	0.23* ^a
	MO-MEI	85.0	0.46*
	MO-OXN	90.0	0.53*
	Lab Control-02	95.0	0.79
	MO-SPA	82.5	0.45* ^b
Daphnid (<i>Ceriodaphnia dubia</i>)		Mean % Survival	Mean Reproduction (# neonates/female)
	Lab Control-01	100	28.3
	MO-VEN	100	18.9*
	MO-FIL	100	15.6*
	MO-HUE	0* ^c	0* ^{a,c}
	MO-SIM	100	30.9
	Lab Control-02	100	34.9
MO-THO	100	32.9	
Green alga (<i>Selenastrum capricornutum</i>)		Mean Algal Cell Density (cells/mLx10 ⁶)	NA
	Lab Control	3.03	
	MO-MPK	7.34	

* The response at this test treatment was significantly less than the Lab Control treatment response (p < 0.05).

^a The EPA manual indicates that "concentrations that had a significant toxic effect on one of the observed responses would not be subsequently tested for an effect on some other response as only applying to dilution series testing." The Surface Water Ambient Monitoring Program (SWAMP) Roundtable has ruled that this does not apply to testing of 100% solution testing, and that hypothesis test results for both the survival and sub-lethal endpoints must be reported for SWAMP compliant programs. We have complied with this requirement by indicating that this treatment is toxic to survival and reproduction.

^b Pathogen related mortalities (PRM) were observed in this treatment. PRM is considered an artifact of the test methodology. PRM is well documented in the EPA guidelines (EPA-821-R-02-013) as caused by microorganisms, and it is acknowledged that PRM interferes with the toxicity evaluation. PRM was not observed in the Lab Control treatment, indicating that the source of pathogens was the stormwater sample.

^c Sample conductivity was ~8500 µS/cm, which is well above the tolerance range for this species, and therefore is the likely cause of the observed toxicity in this sample. Toxicity was not observed in the concurrent *A. affinis* test.

There does not appear to be the same correlation between toxicity and the fires (Thomas, Hill, and Woolsey) as was seen for the Thomas Fire in the 2017/18 monitoring year. The runoff in the heavily impacted areas could have contributed to the difficulty in maintaining DO levels due to the solids and organic material present in the runoff at these sites.

More detailed results are available in Appendix I in Attachment D. All tests were performed as required.

9.11 DRY-SEASON, DRY-WEATHER ANALYTICAL MONITORING

As described in the NPDES Permit, dry weather monitoring is required once during each dry season (May 1 – September 30) at sites selected to be representative of runoff from each of the Permittees jurisdictions (each city and the county unincorporated area) in Ventura County.

9.11.1 2019 Dry Season Monitoring (DRY-2019)

For four jurisdictions, monitoring occurred at the associated major outfall monitoring station; however, as anticipated, inadequate flow was encountered at seven of the major outfall stations prompting the sampling of alternate locations for these sites. Receiving water monitoring is not part of this Permit requirement. The four jurisdictions with sampleable dry-season, dry-weather major outfall stations were: Camarillo, Fillmore, Simi Valley, and Thousand Oaks. For the remaining jurisdictions, the list of alternate sites was used to select a location with suitable flow. The Port Hueneme site was moved upstream to Bubbling Springs Park (Port Hueneme-3) to reduce ocean influence from the tidal/sand berm affected tšumaš (chumash) creek. Dry conditions at the remaining sites triggered the use of the alternate list, with sampling focused on sites that had previously been sampled. The County Unincorporated site was moved from Happy Valley Drain in Meiners Oaks to the Arroyo Santa Rosa in the Santa Rosa Valley (Unincorporated-4). The Santa Paula site on 11th Street Drain was moved to Peck Road Drain (Santa-Paula-3) as the usual back up sites (Fagan Canyon and Richmond Road Drain) were too dry to sample. Ojai was sampled at Fox Canyon Tributary at Montgomery St., southeast of the Libbey Park tennis courts (Ojai-6), the additional site added in 2014. For the fourth time this permit cycle, Oxnard and Ventura were unable to be sampled at their major outfall stations and had to be sampled at a site from their alternate list. The Oxnard site was moved from El Rio Drain to Stroube Drain (Oxnard-2). The Ventura site was moved from Moon Ditch to Dent Drain (Ventura-5).

Sampling took place on two days. Fillmore-1 (MO-FIL), Santa Paula-3 (DRY-SPA3), Ojai-6 (DRY-OJA6), Oxnard-2 (DRY-OXN2), Ventura-5 (DRY-VEN5), and Port Hueneme-3 (DRY-HUE3) were sampled on August 20, 2019.

Camarillo-1 (MO-CAM), Moorpark-2 (DRY-MPK2), Simi Valley-1 (MO-SIM), Thousand Oaks-1 (MO-THO), and Unincorporated-4 (DRY-UNI4), were sampled on August 21, 2019. There was at least 72 hours of dry weather preceding each sampling event.

Grab samples for total coliform, *E. coli*, total hardness, total organic carbon, and three dissolved metals (copper, lead, and zinc) were collected and analyzed. Field observations and measurements were also taken. The results are presented in Appendix J and laboratory QA/QC is included in Appendix F in Attachment D. Constituents outside of water quality standards are in Table 9-38.

Table 9-38. Dry Season Constituents Detected above Water Quality Standards

Dry Season 2019 Elevated Levels								
Calleguas Creek Watershed								
Constituent	MO-CAM	DRY-MPK2	MO-SIM	MO-THO	DRY-UNI4	Units	BPO	CTRO
<i>E. coli</i>	12,997	644			473	MPN/100 mL	235	
pH					8.71	pH Units	8.5	
Santa Clara River Watershed								
Constituent	DRY-SPA3	DRY-OXN2	MO-FIL			Units	BPO	CTRO
<i>E. coli</i>	379					MPN/100 mL	235	
pH	8.77		8.82			pH Units	8.5	
Ventura River Watershed								
Constituent	DRY-OJA6	DRY-VEN5				Units	BPO	CTRO
<i>E. coli</i>						MPN/100 mL	235	
Dissolved Oxygen						mg/L	5	
Pacific Ocean								
Constituent	DRY-HUE3					Units	BPO	CTRO
<i>E. coli</i>	15,531					MPN/100 mL	235	
Dissolved Oxygen						mg/L	5	

9.12 BIOASSESSMENT MONITORING

As written in the Permit, the Principal Permittee continued to participate in the Southern California Stormwater Monitoring Coalition (SMC) Southern California Regional Bioassessment Program (RBP). The RBP is run by the Southern California Coastal Waters Research Project (SCCWRP) with the participation and assistance of multiple agencies and organizations. The first five-year study was conducted from 2009-2013 and looked at the trend and condition of perennial waterbodies in southern California. In 2014, while the 2009-2013 data was being reviewed and analyzed, an interim one-year study was performed to 1) validate and refine assessment tools for use in nonperennial streams by conducting repeat assessments at nonperennial reference sites during the monitoring season, and 2) see if changes in condition could be detected by revisiting perennial sites sampled early in the first RBP study cycle. The second five-year study (2015-2019) builds on the preceding work by looking at both trend and condition components of perennial and nonperennial streams in Southern California. New components include measurements of hydromodification, bioanalytical screens for chemicals of emerging concern (2015 & 2016), and flow tracking for nonperennial trend sites. Sediment sampling for grain size, nutrients, pyrethroid pesticides and fipronils, and total organic carbon, was added in 2017 for Ventura County sites with sufficient sediment for analysis as a pilot study to check the feasibility and outcomes of including these requirements in the RBP. The addition of sediment analysis was expanded to include all RBP participants in 2018.

For 2015-2019, the study participants were assigned a number of “trend” and “condition” sites. The number and type (split by land use) of trend sites were allocated to each participating agency by the RBP. The trend sites were

originally sampled early in the RBP and are visited annually during this five-year cycle. The Principal Permittee was allocated three “developed” and two “open space” trend sites. Condition sites are probabilistically generated and include both perennial and nonperennial sites. A targeted number of sites was assigned to each participating agency based on Watershed. For the Principal Permittee, this means three in each of the Ventura River, Calleguas Creek, and Santa Clara River watersheds, and one in the Santa Monica Bay watershed.

For the trend and condition sites, the Principal Permittee received a list of potential sites for each category and then evaluated the potential sites to ensure they met the requirements of the RBP (e.g. accessible, water present, landowner permission etc.). The original trend assessments were not all performed by the Principal Permittee, therefore reconnaissance was performed on those sites as if they were new to the RBP. For 2019, one of the developed (land use category) trend sites was undergoing construction during the monitoring period so an alternative developed trend site was selected from the list and sampled. By the end of the sampling period, the Principal Permittee successfully sampled sites in accordance with the RBP allocation.

With help from Aquatic Bioassay & Consulting Laboratories, Inc. (ABC), sampling was conducted May 9 – July 31, 2019. The reconnaissance, water and sediment chemistry, California Rapid Assessment Method (CRAM), physical habitat (P-HAB), flow, and other field data were submitted to the SMC in 2019. Taxonomy data is currently due to SCCWRP by February 28, 2020.

Bioassessment reports are available at <http://www.vcstormwater.org/index.php/publications/reports/technical-reports> and include a 2017 stream survey report of the current study, a fact sheet and final report for the 2009-2013 study, and a technical and non-technical report on the first year of the previous study (2009). Topic-specific reports utilizing the study data are in development and links to relevant reports will be included in future Annual Water Quality Monitoring Reports, as they become available.

9.13 BEACH WATER QUALITY MONITORING

The Permit requires the Program to fund beach water quality monitoring in accordance with procedures and locations used in AB411 monitoring at ten sites if funding from state and federal sources is not available. Those funds were available during the reporting period so the County of Ventura Environmental Health Department (EHD) conducted ocean water quality monitoring at 40 sites along the Ventura County coast, including the ten sites listed in the Permit. The Program was not involved in the monitoring; however, the results of that monitoring is summarized in Table 9-39 below.

Heal the Bay’s 2018/19 Annual Beach Report Card (BRC) assigns beaches a grade on an A to F scale, with higher grades representing lower risk of illness for beachgoers. All Ventura County Beaches earned an A grade for summer dry weather for the 11th consecutive year and winter dry weather grades were “excellent and above average” with all sites also receiving A grades. Three Ventura County beaches made the honor roll (A+ for all seasons and weather conditions year-round): Silverstrand at Santa Paula Dr., Silverstrand at Sawtelle Ave., and Oil Piers Beach. However, wet weather grades were unusually low, with only 67% of beaches receiving A or B grades (which was still above the 2018/19 Southern Californian average of 50%). The wetter than average winter (38% higher than average in Ventura County according to BRC) may have contributed to the lower grades, since rain washes pollutants into the ocean, which affects water quality.

Compliance with limits set by the State of California for all parameters was achieved in over 97 % of samples.

Table 9-39. Beach Water Quality Monitoring Results July 1, 2018 through June 30, 2019

	Total Coliform (TC)	Fecal Coliform (FC*)	Enterococcus (Entero)	FC*:TC
Number of Samples	1,537	1,537	1,517**	1537
SS Limit (MPN/100mL)	10,000	400	104	N/A
SS Limit (Ratio)	N/A	N/A	N/A	Ratio > 0.1 and TC > 1,000
No. Samples > SS Limit	18	13	27	14
% Samples within limits	98.8	99.2	98.2	99.1

SS = Single Sample

* EHD substitutes *E. coli* results for fecal coliform results for reporting and calculations

** No Enterococcus results on 4/23/2019 due to laboratory error.

9.14 TMDL MONITORING

TMDL monitoring is conducted by following the L.A. Regional Board’s Executive Officer approved TMDL Monitoring and Reporting Plans prepared and implemented by the TMDL Responsible Parties. The Permit addresses the TMDL monitoring requirements by maintaining the responsibility of monitoring and reporting with the Responsible Parties of the TMDLs. Part 3 section A.5. of the Permit states:

“If TMDL requirements, including Implementation Plans and Reports, address substantially similar requirements as the MS4 permit, the Executive Officer may approve the applicable reports, plans, data or submittals under the applicable TMDL as fulfilling the requirements under the MS4”.

Monitoring for the TMDLs are performed under compliance monitoring plans approved by the L.A. Regional Board’s Executive Officer, and the Permit does not include any monitoring or reporting for TMDLs beyond the adopted TMDL requirements. These approved plans detail the monitoring effort involved, including how and when the results are to be reported to the Regional Board, and do not incorporate the Program’s Stormwater Monitoring Program.

TMDL monitoring requires significant coordination among multiple Responsible Parties, many of which do not operate MS4s. The District as Principal Permittee does not collect monitoring data for any TMDLs, but as an appropriate Responsible Party participates in the multi-stakeholder groups focusing on implementing TMDL requirements. Many of the Permittees operate under separate implementing legal instruments for common sharing of monitoring and reporting costs and collection of data and studies. Currently effective multi-stakeholder Memoranda of Agreements (MOAs) are listed in Table 2-1. In these cases, the TMDL monitoring programs are designed to meet the requirements of all of the Responsible Parties participating in the TMDL monitoring program. As such, monitoring data that is gathered by the TMDL monitoring programs are reviewed, evaluated, and owned by the TMDL monitoring programs. The data cannot be officially used by individual Permittees or the District for reporting or public release until the final reports have been submitted to the Regional Board.

In the adoption of TMDLs by the Regional Board as Basin Plan Amendments, unique schedules for submittal of data and reports were established. TMDL monitoring is conducted in accordance with requirements and schedules outlined in Basin Plan Amendments and TMDL monitoring plans that are approved by the Regional Board Executive Officer independently of the Program requirements. Routinely, the reporting periods and dates for TMDL weekly, annual, or periodic reports and monitoring data submittals do not always correspond with the Countywide Stormwater Permit Annual Report due by December 15th each year.

Recognizing that reporting improvements could facilitate better understanding of watershed conditions, we have initiated discussions with the Calleguas Creek Watershed TMDL Parties in hopes of producing a better, more

integrated report for both programs. However, progress on integration will require more than communication between MS4 and TMDL Responsible Parties, as the Regional Board will also have to be willing to allow changes in the approved monitoring programs in Ventura County (e.g. stormwater, wastewater, and agriculture waiver). Regional Board staff assistance has been requested in facilitating this integrated approach for the TMDL and MS4 monitoring program and could be improved if POTW and Ventura County Irrigated Lands Program monitoring programs are also considered.

Nonetheless, all available final TMDL reports and data for the reporting period of July 1st through June 30th have been compiled in Attachment E.

9.15 SOCAL BIGHT 2018 (BIGHT '18) MONITORING

The Southern California Bight Regional Monitoring Program (Bight) is an ongoing regional marine monitoring collaboration that examines how human activities affect the health of Southern California coastal waters. Participating organizations pool their resources and expertise to investigate the condition of marine ecosystem across both time and space. The Bight Program began in 1994 and runs on a five-year cycle. The current Bight Program (Bight '18) includes five major study elements: sediment quality, ocean acidification, harmful algal blooms, trash, and microbiology. The Program is participating in the microbiology study element to research better methods of determining health risk to swimmers, which in turn could result in fewer unnecessary beach closings, and cost savings for compliance with bacteria total maximum daily loads (TMDLs).

The microbiology study will test the use of a new Environmental Protection Agency method (EPA Method 1642) for enumerating male-specific and somatic coliphages (bacterial virus) in recreational waters at Southern California beaches. Coliphage measured by EPA Method 1642 has been proposed by the EPA for use as a new beach water quality indicator. The Program is collaborating with the Southern California Coastal Waters Research Project (SCCWRP), California State University at Channel Islands (CSUCI), and the Ventura County Environmental Health Division (VCEHD) for sample collection, testing, and analysis.

The study proposes to answer the following questions: (1) Is Method 1642 performance consistent across Southern California beaches? (2) How do measurements of Enterococcus compare to those of somatic and male-specific coliphages in beach water? (3) Is there a seasonal difference in magnitude and frequency of somatic and male-specific coliphages in beach water between wet and dry weather?

The project consists of collection and analysis of 30 dry weather samples and 30 wet weather (defined as days with 0.1 inch of rain or greater following at least three dry days) samples collected by VCEHD at each of two existing beach water quality monitoring sites: Surfer's Point at Seaside and Surfer's Knoll Beach. CSUCI Chemistry and Biology departments will work together to perform EPA Method 1642 on the ocean water samples. Results of their weekly analysis will be compared to fecal indicator bacteria Enterococcus results from the same location, as Enterococcus is currently the fecal indicator bacteria enumerated for beach water quality monitoring.

Sample collection began on June 24, 2019 with the collection of samples for training CSUCI participants on Quality Assurance/Quality Control (QA/QC) methods that run parallel with sample processing and to look for potential matrix interference in the method. QA/QC testing continues in monitoring year 2019/20 and analysis of samples will begin once QA/QC protocols are in place and any matrix issues have been resolved.