Report of Waste Discharge

National Pollutant Discharge Elimination System
Municipal Separate Storm Sewer System
Order No. R7-2013-0011, NPDES No. CAS617002

Whitewater River Watershed
Riverside County

Submitted To
Colorado River Regional Water Quality Control Board
and
United States Environmental Protection Agency – Region IX

Submitted By
Riverside County Flood Control and Water Conservation District, County of Riverside, Coachella Valley Water District, and the cities of Banning, Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, and Rancho Mirage

December 21, 2017

CERTIFICATION STATEMENT

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"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Edwin Quinonez

EDWIN E. QUINONEZ
Chief of Watershed Protection Division
Riverside County Flood Control and Water Conservation District

TABLE OF CONTENTS

List of Tables

List of Figures

List of Appendices

1 INTRODUCTION

1.1 OVERVIEW

Established in 1990, the Whitewater River Watershed Stormwater Management Program (Program) is a cooperative regulatory partnership among the cities of Riverside County's Coachella Valley, the County of Riverside, Riverside County Flood Control and Water Conservation District and Coachella Valley Water District, who operate an interconnected municipal storm drain system which discharges stormwater and urban runoff pursuant to a National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System Permit (MS4 Permit). In accordance with Clean Water Act (CWA) Section 402(p), this MS4 Permit requires the Permittees to:

- Effectively prohibit non-stormwater discharges to the storm drain system, and
- Implement controls to reduce the discharge of pollutants in stormwater to the Maximum Extent practicable (MEP).

This Report of Waste Discharge (ROWD) is an application to renew Order No. R7-2013-0011 (Order), an area-wide NPDES MS4 Permit, issued by the Colorado River Regional Water Quality Control Board (Regional Board) for the Whitewater River Watershed within Riverside County. This MS4 Permit identifies the MS4 Permit Region (Permit region) as the urbanized area of the watershed served by MS4 facilities owned, operated, and/or maintained by the Permittees. The MS4 Permit identifies the County of Riverside (County) and the Riverside County Flood Control and Water Conservation District (District) as "Principal Permittees", and the Coachella Valley Water District (CVWD) and incorporated cities as "Co-Permittees". Collectively, the Permittees consists of the following members:

- Riverside County Flood Control and Water Conservation District (District)
- County of Riverside (County)
- Coachella Valley Water District (CVWD)
- City of Banning
- City of Cathedral City
- City of Coachella
- City of Desert Hot Springs
- City of Indian Wells
- City of Indio
- City of La Quinta
- City of Palm Desert
- City of Palm Springs
- City of Rancho Mirage

The Order was adopted on June 20, 2013 and requires the submittal of an ROWD, no later than 180 days in advance of the June 19, 2018 expiration date, containing the following information:

- Changes in land use and/or population including map updates (Section 2);
- Significant changes to the MS4s, outfalls, detention or retention basins or dams, and other controls, including map updates of the MS4s (Section 2);
- Proposed revisions to the Stormwater Management Plan (SWMP), based on program data gathered throughout the MS4 Permit term and its analysis (Section 5); and
- New or revised program elements and compliance schedule(s) necessary to comply with Section D, Receiving Water Limitations, and Section G, Implementation of Total Maximum Daily Loads (TMDLs) of this MS4 Permit (Section 5).

1.2 BACKGROUND

The Program is focused on maintenance of regional water quality and healthy, sustainable communities by preventing potential adverse impacts to creeks and streams that could arise from the imprint of urban development on the landscape. Urbanization creates rooftops, driveways, roads and parking lots which can: (1) increase the flow rate and volume of rainfall runoff (compared to predevelopment conditions), and (2) provide a source of pollutants that could potentially be flushed by rainfall runoff into surface water systems. These pollutants can include pathogens (disease causing bacteria, viruses and protozoan cysts from fecal sources), nutrients (bio-stimulatory substances such as nitrogen and phosphorus from fertilizers and organic wastes), sediments (sands and silts eroded from construction sites) and toxic organic and inorganic constituents (metals from automotive wear surfaces and pesticides applied to structures and landscapes).

1.3 STORMWATER MANAGEMENT PLAN

The Stormwater Management Plan (SWMP) is the principal policy and program guidance document for the Program. The SWMP describes the agreements, management framework, and programs that:

- Identify urban impacts on receiving waters; produce environmental quality information to direct management activities and determine if aquatic resources are being protected;
- Improve existing municipal pollution prevention and removal Best Management Practices (BMPs) to reduce the amount of pollutants entering the MS4;
- Educate the public about the issues of urban stormwater and nonstormwater pollution and obtain their support in implementing pollution prevention BMPs;
- Implement requirements such that New Developments and Redevelopment incorporate appropriate BMPs to address specific water quality issues;
- Implement construction site BMPs to address construction related pollutants and discharges including an effective combination of erosion and sediment controls and on-site hazardous materials and waste management;
- Implement requirements to addresses discharges from industrial facilities and selected commercial businesses;
- Detect and eliminate illegal discharges/illicit connections (ICIDs) to the MS4;
- Assess constituents of concern and manage urban runoff on a watershed basis;
- Provide the framework for the program management activities and plan development, and
- Provide the legal authority for prohibiting unpermitted discharges into the storm drain system and for requiring BMPs in new development and redevelopment.

2 CHARACTERISTICS OF THE WHITEWATER RIVER WATERSHED

2.1 OVERVIEW

The Whitewater River Watershed (Watershed) is located in an arid desert portion of Riverside County, encompassing an area of approximately 1,645 square miles (MS4 Permit Finding No. 6), between the San Gorgonio Pass (to the northwest) and the Salton Sea (to the southeast). The San Jacinto and Santa Rosa Mountains bound the centralized region of the watershed (known as the Coachella Valley) to the southwest, while the San Gorgonio Mountains, Indio Hills, and Mecca Hills bound Coachella Valley to the northeast. This watershed is unique relative to other watersheds regulated under NPDES MS4 permits in California. The following describes the unique characteristics:

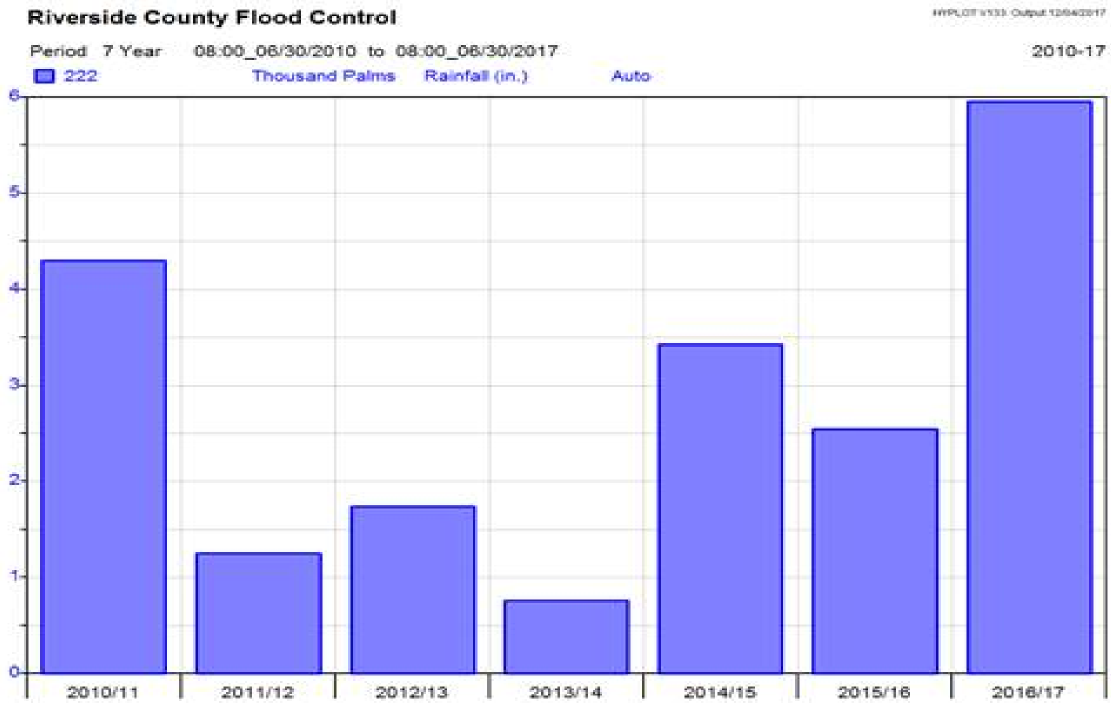
- The Watershed adjoins the Mojave Desert, where annual rainfall can dip to 0.26" and temperatures can reach 127° Fahrenheit (https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca4297, Western Regional Climate Center, Iron Mountain Station 044297). These conditions make this region the driest in North America;
- This Watershed is the only Phase I MS4 Permit area located in the California desert. High temperatures, low rainfall, gusty winds, and high evapotranspiration rates make this area the driest permitted region in California;
- Approximately 92 percent of the Watershed consists of land uses that are not under the jurisdiction of the Permittees. These land uses consist of agricultural, rural, undeveloped, State, Federal, tribal, utilities, special districts, open space, and preserves;
- The primary drainage course through the Watershed is the Whitewater River. It ties into a 25-mile constructed extension known as the Coachella Valley Stormwater Channel (CVSC) that connects to the Salton Sea. The drainage course is unique in that the 2006 Colorado River Basin Water Quality Control Plan (Basin Plan, updated 2017) identifies the Whitewater River and the CVSC as two distinct receiving waters, consisting of three distinct reaches, and each reach with its own set of Beneficial Uses;
- Within the Permit region itself, the Whitewater River is typically dry except for localized areas during and immediately following significant storm events. However, the CVSC contains perennial flow consisting of regulated effluent from CVWD (Water Reclamation Plant No. 4 [WRP #4]), Valley Sanitary District, and Coachella Sanitary District, as well as from rising groundwater and agricultural return flows. These contributions are not under the jurisdiction of the Permittees, with the exception of CVWD who hold discharge permits for WRP #4;
- Under CWA Section 303(d), States must submit a list to EPA identifying waters not meeting water quality standards (303(d) lists). In Coachella Valley, the 2012 303(d) list is the most current and does not list the Whitewater River, nor its tributaries, as impaired;
- In January 2017, the population of Riverside County was estimated to be 2,384,783, with most of its growth occurring on its west side. In contrast, the cumulative population of the Permittee group was only 487,736 which is the smallest Permittee group regulated under a single Phase I MS4 Permit in Southern California;
- The soils consist primarily of thick alluvial fans of highly pervious sands that promote rapid natural infiltration of runoff. This characteristic is unique to this region. Prior to introducing Water Quality Management Plan (WQMP) requirements into the Permit

region, this characteristic provided Permittees with ample opportunities that were utilized to require new developments to retain and infiltrate runoff.

2.2 Climate

The Permit region is extremely arid, averaging less than 3 inches of annual rainfall over the past seven years. Figure 2-1 'Annual Precipitation (2010/11–2016/17, Thousand Palms Rain Gauge)' shows annual precipitation between 2010 and 2017.

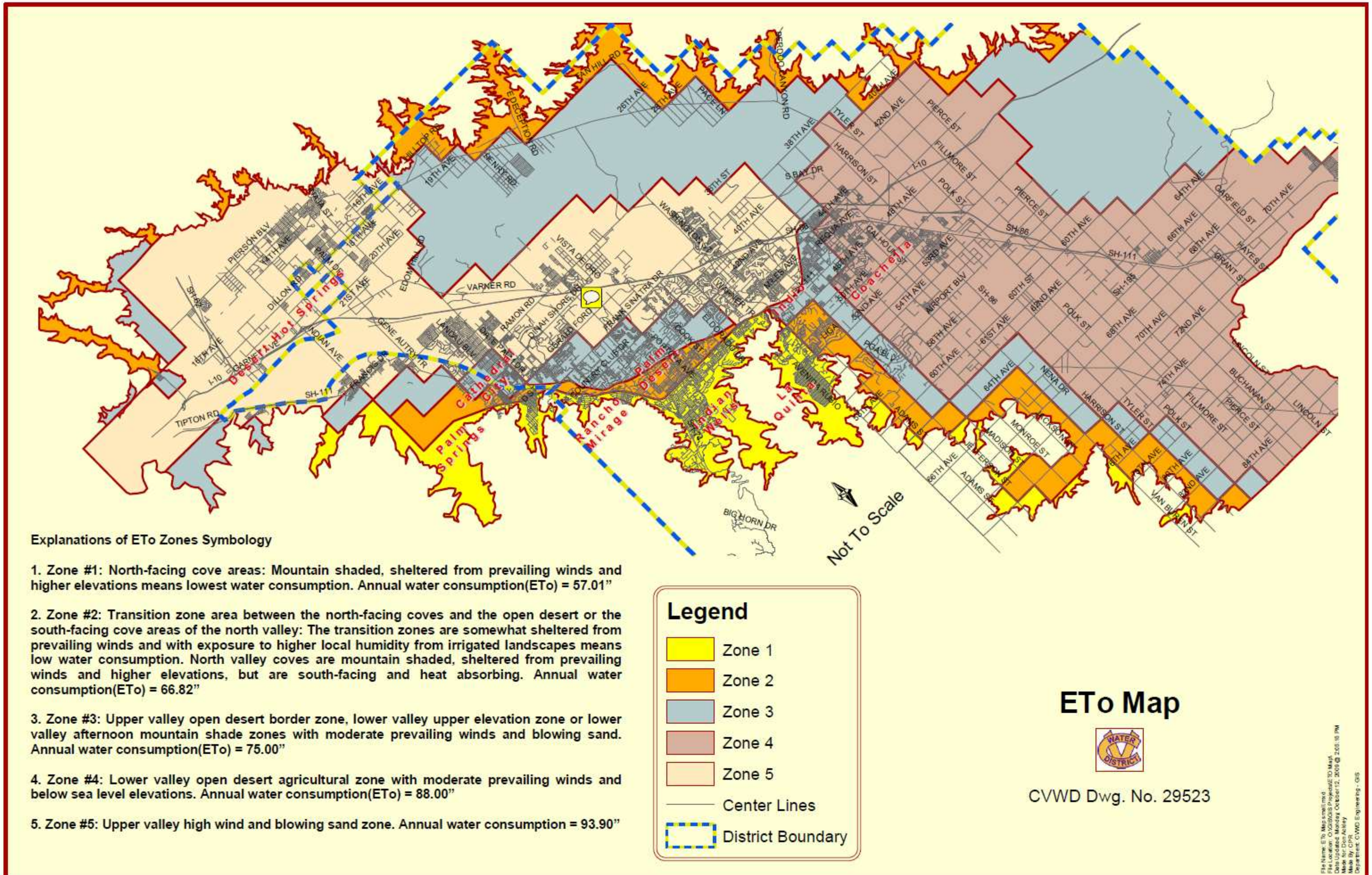
Figure 2-1 Annual Precipitation (2010/11–2016/17, Thousand Palms Rain Gauge)



Winters are mild and summers are hot, with temperatures reaching 122° Fahrenheit (https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6635, Western Regional Climate Center, Palm Springs station 046635). These conditions account for significantly high evapotranspiration (ET) rates. Figure 2-2, 'Evapotranspiration Map, 2009, CVWD, Coachella Valley', shows the annual ET rates currently used by CVWD to calculate water budgets. On average, the ET rate across Coachella Valley is 76.15 inches, which is greater than the ET rate of 71.6 inches reported in 1999 (http://www.cimis.water.ca.gov/App_Themes/images/etozonemap.jpg, California Irrigation Management Information System, 1999). This shows that ET rates have been increasing in the Permit region and that a successful stormwater management program must be designed to be compatible with these extremes.

Based on the 2014 Coachella Valley Integrated Regional Water Management Plan (www.cvrwmg.org/docs/2014_02_25_CVRWMG_2014CoachellaValleyIRWMPlanChapters_090247.pdf, Coachella Valley Regional Water Management Group, 2014), alluvial-fan flash flooding events originating from the surrounding mountain ranges have been recorded as early as 1825. Historic records also document periods where several years or more have passed between significant storm events. A unique characteristic of this region's climate pattern is that, unlike the well-defined October-to-March wet season in coastal Southern California, there is no defined rainy season within the Watershed. During the summer months, localized monsoonal moisture will form into discrete convective cells that then cause short and intense downpours. These individual storms rarely affect the drainage network on a region-wide basis.

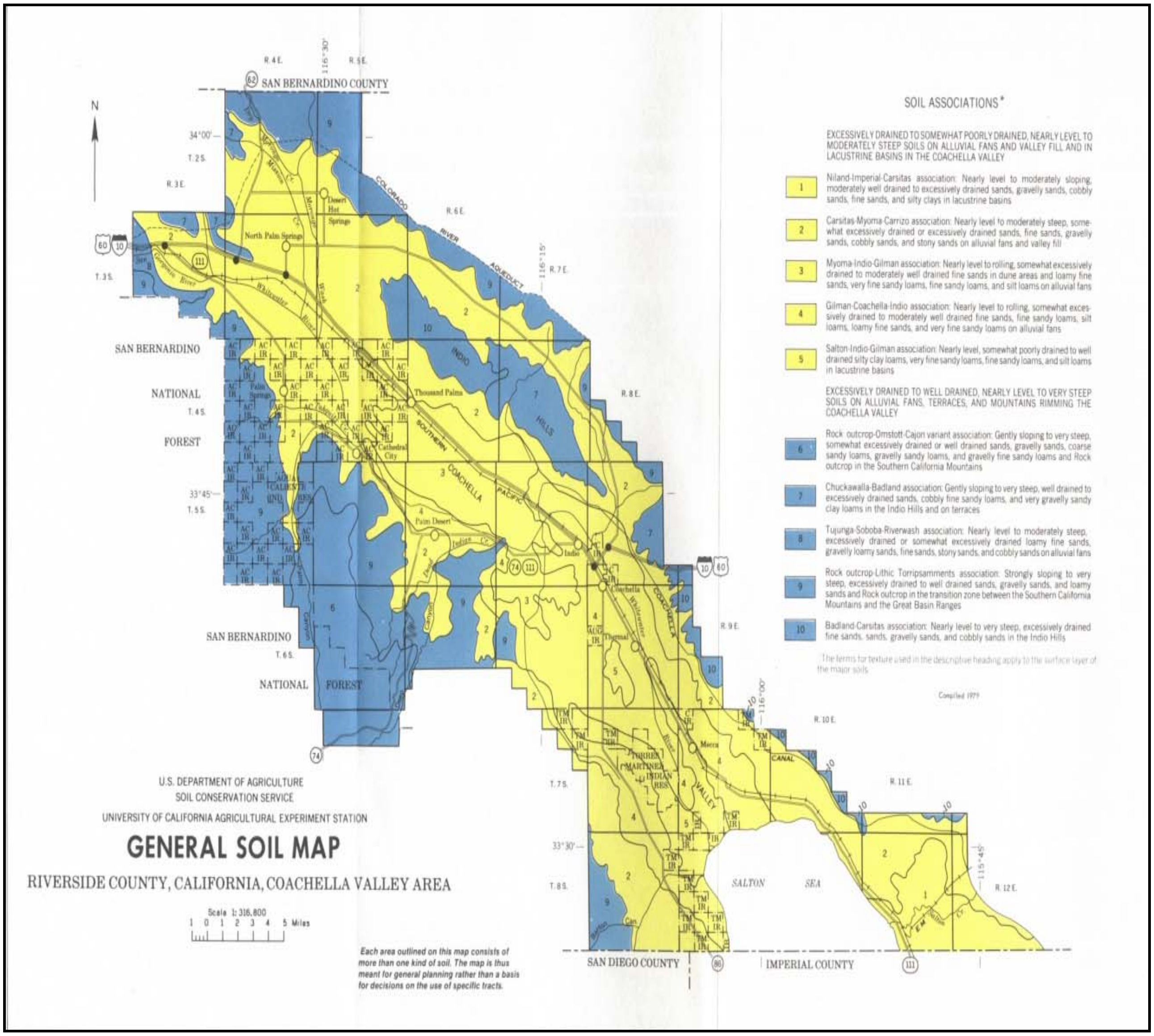
Figure 2-2 Evapotranspiration Map, 2009, CVWD, Coachella Valley



2.3 SOILS AND GEOLOGY

The watershed is located in a valley where concentrated flows from surrounding mountains have historically deposited thick alluvial fans of highly pervious soils on the valley floor. Much of the urbanized development in the watershed has occurred on or near these alluvial fans. As illustrated in Figure 2-3 'Coachella Valley Area General Soils Map', the predominant soil in the watershed is classified as Carsitas and Myoma. This type of soil is extremely pervious and provides high rates of infiltration. As a result of these conditions, most of the Permittees have been able to require on-site retention and infiltration of runoff in order to take advantage of the high infiltration rates and minimize the need for, and dependence on, MS4 facilities.

Figure 2-3 Coachella Valley Area General Soils Map



2.4 HYDROLOGY

The primary drainage course through the Permit region consists of the Whitewater River and its 25-mile CVSC extension. This drainage course begins in the San Gorgonio Mountains and ends at the Salton Sea. It consists of three reaches. The first reach originates at Mt. San Gorgonio, where snowmelt from the surrounding area turns into the headwaters of the Whitewater River that flow southeasterly to regional recharge basins in Palm Springs. Storm flows typically infiltrate prior to and within these basins. However, overflow from significant and sustained storm events may occasionally spill into the second reach, or ephemeral portion of the Whitewater River. This reach consists of a stabilized and predominantly ephemeral dry wash (Permit Finding No. 30) that travels through Coachella Valley and eventually ties into the third reach, the CVSC, in Indio. The CVSC is a 25-mile engineered segment that was constructed in 1948 and extends to the Salton Sea. It is operated and maintained by CVWD and is the only surface waterbody that contains perennial flows due to effluent contributions from three Publicly Owned Treatment Works (POTWs) (Coachella Valley Water District [WRP #4], Valley Sanitary District, and Coachella Sanitary District) as well as from rising groundwater and agricultural return flows. As part of the implementation of the CVSC Bacterial Indicators TMDL, three Permittee-owned MS4 outfalls that previously discharged into the CVSC were modified during this Permit term to capture and divert dry-weather runoff from tributary urban areas into dry wells (Permit Finding No. 30). As a result, there are no MS4 dry-weather flows entering the CVSC.

Flows within the Whitewater River typically evaporate and/or infiltrate prior to reaching the urbanized areas of the valley. For example, USGS flow data collected from the upper and lower portions of Palm Canyon Creek, which serves as a tributary to the Whitewater River in Palm Springs, showed that Palm Canyon Creek sustained minimal flows, within the urban areas, of less than 1 percent of the days per year between 1989 and 2012 (Permit Finding No. 30).

The City of Banning is located in the northwest corner of the Watershed and does not share an interconnected MS4 with the remainder of the Permittees. The MS4 operated by the City of Banning discharges into local tributaries of the Whitewater River. In the absence of significant and sustained storm events, these discharges predominantly infiltrate locally. During significant and sustained storm events, storm drainage may flow as far as the regional recharge basins; however, this is not typical. The City of Banning is included in the MS4 Permit as a Permittee to facilitate coordination with the regional programs implemented by the Permittees and to reduce the administrative duties on the Regional Board (Permit Finding No. 30).

The City of Desert Hot Springs, located north of the City of Palm Springs, also does not share an interconnected MS4 with the remainder of the Permittees. The MS4 operated by the City of Desert Hot Springs discharges to several local washes tributary to Little and Big Morongo Creeks, which are the primary Receiving Waters in this area. Discharges from the City of Desert Hot Springs predominantly infiltrate. Rarely, and only during significant and sustained storm events, would storm drainage from this city flow into the Whitewater River beyond the regional recharge basins. The City of Desert Hot Springs is also included in the MS4 Permit as a Permittee to facilitate coordination with the regional programs implemented by the Permittees and to reduce the administrative duties on the Regional Board (Permit Finding No. 30).

2.5 BENEFICIAL USES

Section 2 of the Basin Plan (specifically, Table 2-3, "Beneficial Uses of Surface Waters in the West Colorado Basin"), identifies the Whitewater River and the Coachella Valley Stormwater Channel as two distinct receiving waters, with three distinct reaches, each with a specific set of Beneficial Uses. The following describes each reach and associated beneficial uses.

According to the Basin Plan, the Whitewater River "Includes the section of flow from the headwaters in the San Gorgonio Mountains to (and including) the Whitewater Recharge Basins near Indian Avenue crossing in Palm Springs". The Basin Plan categorizes this reach (upper reach) as a Stream in which the designated Beneficial Uses consist of Municipal/Domestic Supply, Agricultural Supply, Groundwater Recharge, REC-1 Contact Recreation, REC-2 Non-Contact Recreation, Intermittent Warm Freshwater Habitat, Cold Freshwater Habitat, Wildlife Habitat, and Hydropower Generation.

Beyond the Recharge Basins, the Basin Plan characterizes the reach through the Permit region as "Including the section of ephemeral flow in the Whitewater River Storm Water Channel and Coachella Valley Stormwater Channel from Indian Avenue to approximately ¼ mile west of Monroe Street crossing" (in Indio). The Basin Plan categorizes this reach (middle reach) as an Ephemeral Wash with intermittent uses. The intermittent uses consist of Freshwater Replenishment, Groundwater Recharge, REC-2 Non-Contact Recreation, Warm Freshwater Habitat ("use, if any, is determined on a case-by-case basis"), and Wildlife Habitat.

The third and final reach is identified as the Coachella Valley Stormwater Channel. The Basin Plan refers to it as the "Section of perennial flow from approximately Indio to the Salton Sea". This reach is categorized as a Drain in which the Beneficial Uses consist of Freshwater Replenishment, REC-1 Contact Recreation ("Unauthorized use"), REC-2 Non-Contact Water Recreation ("Unauthorized use"), Warm Freshwater Habitat, Wildlife Habitat, and Preservation of Rare, Threatened, or Endangered Species ("Rare, endangered or threatened wildlife exists in or utilizes some of these waterways."). Table 2-1 'Summary of Beneficial Uses' summarizes the beneficial uses within each reach.

Table 2-1 Summary of Beneficial Uses

Whitewater River		
Whitewater River		CVSC
Upper Reach (Stream)	Middle Reach (Ephemeral Wash)	Lower Reach (Drain)
• Agricultural Supply, • Cold Freshwater Habitat, • Groundwater Recharge, • Hydropower Generation, • Intermittent Warm Freshwater Habitat, • Municipal/Domestic Supply, • REC-1 Contact Recreation, • REC-2 Non-Contact Recreation, • Wildlife Habitat.	• Freshwater Replenishment, • Groundwater Recharge, • REC-2 Non-Contact Recreation, • Warm Freshwater Habitat ("use, if any, is determined on a case-by-case basis"), • Wildlife Habitat.	• Freshwater Replenishment, • Preservation of Rare, Threatened, or Endangered Species ("Rare, endangered or threatened wildlife exists in or utilizes some of these waterways"), • REC-1 Contact Recreation ("Unauthorized use"), • REC-2 Non-Contact Water Recreation ("Unauthorized use"), • Warm Freshwater Habitat, • Wildlife Habitat.

It is important to note that these reaches do not contain water recreation areas authorized by the Permittees. Within the Permit region, and especially during dry-weather conditions, the absence of water prevents most of these Beneficial Uses from being achieved. During wet-weather conditions, the short, intense, and intermittent nature of discrete storm cells creates local flash flooding conditions that cannot support habitat nor recreational uses.

2.6 Population

As of January 1, 2017, the California Department of Finance estimates that the total population of Riverside County was approximately 2,384,783. This figure reflects an increase of only 157,206 people during the current permit term throughout the County. Of the 2.38 million county residents, only 487,736 (20.5 percent) reside in the watershed, of which 409,075 reside in the incorporated cities and 78,661 reside in the surrounding unincorporated county area. The Permittees continue recovering from the previous economic downturn, experiencing limited development with limited population growth. Since 2013, Riverside County's population grew by only 5.2 percent as compared to a 5.9 percent growth during the 2008 permit term.

Table 2-2, 'State and County Populations (2013–2017)', shows population data compiled by the California Department of Finance between January 1, 2013 and January 1, 2017 for the State of California and the counties of Los Angeles, San Diego, Orange, Riverside, San Bernardino, and Imperial, (http://www.dof.ca.gov/Forecasting/Demographics/Estimates/, Report E-4, Table 1, Population Estimates for Cities, Counties, and the State, 2011-2017 with 2010 Census

Benchmark). This table shows that although the population of Riverside County increased by 5.2 percent between January 2013 and January 2017, the County's population remained below half of these six counties. Additionally, Riverside County witnessed an overall decrease in its population growth of 5.9 percent during the 2008 Permit term (2012 ROWD). In turn, Los Angeles, San Diego, Orange, and San Bernardino counties witnessed increases in their population growths compared to that of during the 2008 Permit term (2012 ROWD).

Table 2-3, 'Permittee Populations within the Permit Region (2013–2017)', shows population data compiled by the California Department of Finance between January 1, 2013 and January 1, 2017 for the incorporated cities in the Permit region and for the surrounding unincorporated county area (http://www.dof.ca.gov/Forecasting/Demographics/Estimates/, Report E-4, Table 2, Population Estimates for Cities, Counties, and the State, 2011-2017 with 2010 Census Benchmark). By January 1, 2017, the cumulative population of the Permittee group within the Permit region only reached 487,736, which is the smallest Permittee group regulated under a single Phase I MS4 Permit in Southern California.

Table 2-4, 'Projected Permittee Populations within the Permit Region (2017–2035)' presents the Department of Finance's long-range growth forecasts. These figures represent projected population growths in the Permit region by 2020 and 2035. Although this table presents the best available information at this time, it also may overstate the actual growth rate since these rates were modeled on the basis of increases that may not accurately reflect economic slumps. Table 2-3 also shows that by 2035, most of the Permittees will not yet reach a 50%-increase from their current populations.

Table 2-2 State and County Populations (2013–2017)

Geographic Area	Year					% Change 2013-2017
	Jan 2013	Jan 2014	Jan 2015	Jan 2016	Jan 2017	
State of California	38,239,207	38,567,459	38,907,642	39,189,035	39,523,613	3.4
So Cal Counties:						
Los Angeles	10,021,318	10,089,847	10,150,617	10,182,961	10,241,278	2.2
San Diego	3,195,215	3,231,651	3,266,192	3,286,717	3,316,192	3.8
Orange	3,102,606	3,127,083	3,152,376	3,172,152	3,194,024	2.9
Riverside	2,266,290	2,291,699	2,318,762	2,348,213	2,384,783	5.2
San Bernardino	2,086,576	2,101,525	2,122,015	2,135,724	2,160,256	3.5
Imperial County	180,224	181,989	184,624	186,080	188,334	4.5

(http://www.dof.ca.gov/Forecasting/Demographics/Estimates/, Report E-4, Table 1, Population Estimates for Cities, Counties, and the State, 2011-2017 with 2010 Census Benchmark)

Table 2-3 Permittee Populations within the Permit Region (2013–2017)

Permittee	Year					% Change 2013-2017
	Jan 2013	Jan 2014	Jan 2015	Jan 2016	Jan 2017	
Banning (includes City's population outside of the Permit region)	30,327	30,489	30,668	30,836	31,068	2.4
Cathedral City	53,002	53,321	53,687	54,040	54,557	2.9
Coachella	43,485	44,415	44,784	45,135	45,551	4.8
Desert Hot Springs	28,268	28,485	28,664	28,885	29,111	3.0
Indian Wells	5,172	5,237	5,306	5,375	5,450	5.4
Indio	82,986	84,167	86,142	87,382	88,718	6.9
La Quinta	38,278	38,873	39,485	40,176	40,677	6.3
Palm Desert	48,817	49,113	49,526	50,154	50,740	3.9
Palm Springs	45,596	45,983	46,391	46,866	47,379	3.9
Rancho Mirage	17,697	17,803	17,943	18,093	18,295	3.4
County area in Permit region (*)	ND	76,795	ND	78,033	78,661	ND

(http://www.dof.ca.gov/Forecasting/Demographics/Estimates/, Report E-4, Table 2, Population Estimates for Cities, Counties, and the State, 2011-2017 with 2010 Census Benchmark)
Note: The District and CVWD do not sustain populations. ND – Insufficient Data. (*) - Estimated values.

Table 2-4 Projected Permittee Populations within the Permit Region (2017–2035)

Permittee	Year			% Change 2017-2020	% Change 2017-2035
	2017	2020	2035		
Banning (includes City residents outside of the Permit region)	31,068	32,400	36,500	4.3	17.5
Cathedral City	54,557	54,800	65,700	0.5	20.4
Coachella	45,551	73,600	124,900	61.6	174.2
Desert Hot Springs	29,111	39,200	53,100	34.7	82.4
Indian Wells	5,450	5,500	7,000	0.9	28.4
Indio	88,718	87,000	118,100	- 2.0	33.1
La Quinta	40,677	40,800	47,000	0.3	15.5
Palm Desert	50,740	53,400	60,200	5.2	18.6
Palm Springs	47,379	49,000	56,200	3.4	18.6
Rancho Mirage	18,295	18,600	24,200	1.7	32.3
County area in Permit region (*)	78,661	80,549	89,988	2.4	14.4

(http://www.scag.ca.gov/DataAndTools/Pages/GrowthForecasting.aspx, SCAG, 2016-2040 RTP/SCS Final Growth Forecast by Jurisdiction).
Note: The District and CVWD do not sustain populations.
(*) - Extrapolated values.

2.7 LAND USE

As of August 2016, the County Assessor's Office parcel data showed that the Permit region only occupies 22 percent of the Watershed. Within the Permit region itself, 65 percent remains non-urbanized (agriculture, rural, undeveloped, preserves, open space) or is beyond the regulatory authority of the Permittees (federal, state, tribal, utilities, special districts, agriculture). If the urbanized area within the Permit region increases throughout the next permit term similarly as it did during the current permit term, then 63 percent of the Permit region will still remain non-urbanized or beyond the regulatory authority of the Permittees by 2023.

Table 2-4, 'Land Uses in the Permit Region (2017)', provides a list of land uses in the Permit region. These figures show that the Permit region is predominantly non-urbanized or beyond the regulatory authority of the Permittees. Urban residential (<1 acre) accounts for only 13.8 percent of the 367 square mile Permit region, and the combination of commercial and industrial uses accounts for only 4.8 percent.

Table 2-5 Land Uses in the Permit Region (2017)

Land Use	Acreage	% of Permit Region
Commercial	7,760	3.4
Industrial	3,070	1.4
Parks & Recreation Facilities	15,052	6.6
Streets & Roads	21,585	9.5
Urban Residential (<1 acre)	31,435	13.8
Subtotal – Urban Land Use	**78,902**	**34.7**
Agriculture	16,914	7.4
Federal/State/Tribal Lands/Non-County Jurisdiction	43,200	19.0
Preserves & Open Space	68,360	30.1
Rural Residential (parcel size > 1 acre)	19,883	8.8
Subtotal – Not Urbanized and/or Beyond Permittee Regulatory Authority	**148,357**	**65.3**
Total Acreage for Permit Region	**227,259**	**100**

Note: Acreages derived from the District's GIS database.

2.8 PROPOSED NEW DEVELOPMENT PROJECTS

The Permittees have identified new Priority Development Projects (PDPs) that have been proposed for construction within their respective jurisdictions during the next Permit term. These PDPs are listed below. It should be noted that this list represents a snapshot of projects that may be constructed during the next permit term, or over multiple permit terms. In like manner, these projects could potentially be delayed, downsized, or cancelled.

City of Banning

- **Specific Plan – Pardee Butterfield**
  Location: NE corner of Highland Springs Avenue and Wilson Street.
  Details: 4,900 single family residential (SFR) homes, 2 public schools, open space, neighborhood parks, commercial centers, infrastructure. Currently in design.
- **Commercial – Parcel 33326 Banning 47 LLC**
  Location: Northeast corner of Sun Lakes Village and Sun Lakes Boulevard.
  Details: 47 acres. 14 commercial parcels ranging in size from 1.3 acres to 5.5 acres. Currently in design.
- **Industrial - Tract 36056 Banning Business Park**
  Location: East of the intersection of Hathaway Street and Nicolet Street.
  Details: 64 acres. Industrial/commercial. Currently on hold.
- **Industrial – Near Banning Municipal Airport**
  Location: Immediately south of Banning Municipal Airport.
  Details: 59 acres. Industrial. Currently no applicants.
- **Residential– Tract (St. Boniface)**
  Location: Gilman Street approximately 1,500 feet west of 8th Street.
  Details: 47 acres. 143 SFR homes. Currently in design.
- **Residential - Tract 36939**
  Location: North of Wilson Street between Sunrise and Sunset avenues.
  Details: 35 acres. 98 SFR homes. Currently in design.

City of Cathedral City

- **Commercial - The Crossings at Bob Hope**
  Location: Southeast corner of Bob Hope Drive and Varner Road.
  Details: 9.13 acres. Multi-building commercial center.
- **Commercial – Pest Control Building**
  Location: Southeast corner of Aliso Road and Avenida Del Yermo.
  Details: 0.28 acres. Commercial building.
- **Industrial – Sunniva (Ramon 19)**
  Location: Ramon Road east of Date Palm Drive.
  Details: 19.14 acres. Medical cannabus facility consisting of two buildings totaling 489,099 square feet.
- **Residential– Rio Vista Village (Verano)**
  Location: Northeast corner of Verona Road and Avenida Quintana.
  Details: 57 acres. 58 SFR homes.
- **Residential - The District East**
  Location: North of East Palm Canyon Drive between Carey and Jones Road.
  Details: 7.46 acres. 48 SFR homes.

- **Residential - Desert Bloom Villas**
  Location: East of Landau Boulevard on 30th Avenue.
  Details: 13.65 acres. 96 SFR homes.
- **Downtown District Park - Commons Heritage Park and Amphitheater**
  Location: Corner of Cathedral Canyon Drive and Avenida Lalo Guerrero in the Downtown District.
  Details: 2.51 acres. An outdoor multi-purpose facility and theater for concerts, stage productions, cultural and civic events; includes playground, walking trails, restrooms, shade structures, and landscaping.

City of Coachella

- **Specific Plan - La Entrada Project**
  Location: South of Interstate 10 and north of the Coachella Branch of the All American Canal.
  Details: 2,200 acres. 1,612 acres are in the City of Coachella and 588 acres are in the adjacent unincorporated County. 7,800 SFR homes. Commercial, community facilities, four elementary schools, infrastructure, neighborhood parks, open space. Currently Pending.
- **Sports Park - Rancho Las Flores**
  Location: Van Buren and Avenue 48.
  Details: 29 acres. Soccer/football fields, basketball courts, concession, restrooms, storage, sidewalks, landscaping, parking lot, playground, picnic structures, walking paths, trails). In Progress.
- **Commercial - The Vineyards (Phase II)**
  Location: 44-790 Dillon Road.
  Details: 3.84 acres. 46 R.V. lots. 512 square-feet garage/utility structures. Currently Pending.
- **Residential - Rancho Coachella Vineyards**
  Location: North of Avenue 52 and West of Van Buren.
  Details: 19.66 acres. 79 SFR homes. Currently Pending.
- **Residential - Los Suenos**
  Location: Southeast Corner of Avenue 49 and Calhoun.
  Details: 37 acres. 143 SFR homes. Currently Pending.
- **Residential – Coachella Nickel Creek LLC**
  Location: Avenue 44 and West of Dillon.
  Details: 64.64 acres. 322 SFR homes. Currently Pending.
- **Residential - Eagle Falls**
  Location: North of Interstate 10 and West of Harrison.
  Details: 90(+) acres. 295 SFR homes. Currently Pending.
- **Residential - Villa Palmeras**
  Location: South side of Avenue 50 between Jackson Street and Calhoun Street.
  Details: 11.58 acres. 111 SFR homes. Currently Pending.

City of Desert Hot Springs

- **Commercial - Dollar General**
  Location: West side of Palm Drive approximately 1,000 feet of Ironwood Drive.

Details: 1.73 acres including 12,480 square feet of retail space.

- **Commercial - Pierson Professional Plaza**
  Location: Southwest corner of Cholla Drive and Pierson Boulevard.
  Details: 9.4 acres including 80,000 square feet of medical/retail/restaurant space.
- **Commercial - WalMart**
  Location: Southwest corner of Palm Drive and Camino Aventura.
  Details: 19 acres including 156,000 square feet of building and garden center, 25,616 square feet of retail and restaurants, and 717 parking spaces.
- **Commercial - Village at Mission Lakes**
  Location: Southwest corner of Little Morongo Road and Mission Lakes Boulevard.
  Details: 68,000 square feet of retail space.
- **Commercial - Y.K. Spa**
  Location: Southeast corner of Hacienda Avenue and La Salle Road.
  Details: 0.80 acres including 12,503 square feet of resort spa space.

City of Indio

- **Residential - Virada**
  Location: East of Adams Street and Coyote Song Way.
  Details: 656 acres. 289 SFR and duplex homes.
- **Residential - Trilogy Phase 8**
  Location: Avenue 52 and Jackson Street.
  Details: 124 SFR homes.
- **Residential - Las Plumas**
  Location: North Jefferson Street south of Avenue 38.
  Details: 78.5 acres. 124 SFR homes.

City of La Quinta

- **Commercial - Parcel 31876 SDP 2006-875 Mayer Villa Capri**
  Location: Northeast Corner of Fred Waring Drive and Washington Street approximately.
  Details: 25 acres. Retail and medical offices.
- **Commercial - Parcel 36883 Washington Park**
  Location: Northeast Corner of Washington Street and Avenue 47.
  Details: Commercial Restaurant.
- **Commercial - Madison Square**
  Location: Northeast Corner of Highway 111 and Dune Palms Road.
  Details: Commercial development.
- **Residential - Tract 36537 Signature at PGA West**
  Location: 56140 PGA Boulevard.
  Details: 40 acres. 264 SFR homes.
- **Residential – Tracts 31732/31733 Palizada**
  Location: Southeast Corner of Monroe and Avenue 60.
  Details: 418 SFR homes.
- **Residential - Tract 34243 Alta Verde at Coral Mountain**
  Location: Near the Northwest Corner of Avenue 58 and Madison Street.
  Details: 67 SFR homes.

- **Residential - Tract 32879 Griffin Ranch**
  Location: Southeast Corner of Madison Street and Avenue 54.
  Details: 303 SFR homes.
- **Residential - Tract 34642 Castilla Griffin Ranch**
  Location: Southwest Corner of Monroe Street and Avenue 54.
  Details: 90 SFR homes.
- **Residential - Tract 36744 Griffin Estate Lakes**
  Location: Avenue 54 between Madison Street and Monroe Street.
  Details: 78 SFR homes.
- **Residential - Tract 33085 South Orchards**
  Location: Madison Street between Avenue 51 and 52.
  Details: 7 SFR homes.
- **Residential: Tract 36875 Villas at Indian Springs**
  Location: Southeast Corner of Jefferson Street and Palm Circle.
  Details: 15 SFR homes.
- **Residential - Tract 36403**
  Location: Southwest Corner of Madison Street and Calle Conchita.
  Details: 11 SFR homes.
- **Residential - Tract 36403**
  Location: Southwest Corner of Calle Conchita and Madison Street.
  Details: 11 SFR homes.
- **Residential - Tract 33597 Malaga**
  Location: Southwest Corner of Avenue 60 and Madison Street.
  Details: 57 SFR homes.
- **Residential - Tract 31852 Polo Estates**
  Location: Northwest Corner of Avenue 52 and Madison Street.
  Details: 14 SFR homes.

City of Palm Desert

- **Specific Plan - Parcel 36792 Millennium.**
  Location: Northeast corner of Portola Avenue and Gerald Ford Drive.
  Details: 109 acres. Commercial, light industrial, a City park, and multi-family homes.
- **Commercial - Parcel 37157 Monterey Crossings**
  Location: Northeast corner of Monterey Avenue and Dinah Shore Drive.
  Details: 18 acres. New regional shopping center including 137,000 sq. ft. of new building space.
- **Commercial – Carmax**
  Location: North side of Dinah Shore Drive and east of Monterey Drive.
  Details: 5 acres. Automotive dealership.
- **Commercial - The Living Desert Expansion**
  Location: East side of Portola Avenue.
  Details: Multi-phase expansion of the Living Desert Reserve. The addition includes a new ticketing and retail building and six new animal exhibits.
- **Commercial - Tower Energy Market**
  Location: Southwest corner of Highway 111 and San Luis Rey.

Details: Demo of an existing fuel station and construction of a new 5,400 sq. ft. market and fueling station.

- **Commercial – Graftons**
  Location: 73-330 El Paseo between Sage Lane and Lupine Lane.
  Details: Demo of an existing retail building and the construction of a new 10,852 sq. ft. restaurant.
- **Residential - Tract 36351 Ponderosa II**
  Location: South side of Dick Kelly Drive between Cortesia Way and Dinah Shore Drive.
  Details: 30 acres. 111 SFR homes.
- **Residential - Cantera II (The Sands Apartments)**
  Location: South side of Hovley Lane East and east of Portola Avenue.
  Details: 18 acres. 412 apartment units.
- **Residential - Tract 37292 Frontage Road Homes**
  Location: Highway 74 Frontage Road north of Verba Santa Drive.
  Details: 5 acres. 6 SFR homes.
- **Residential - Tract 36404 Villa Portofino**
  Location: South side of Country Club Drive and west of Portola Avenue.
  Details: 211 SFR homes.
- **Residential - Tract 36874 The Retreat**
  Location: East side of Portola Avenue and south of Frank Sinatra Drive.
  Details: 15.52 acres. 112 condominiums.

City of Palm Springs

- **Specific Plan – Tract 32732 Oceo**
  Location: 801 E. Palm Canyon Drive.
  Details: 5.5 acres. 25 townhomes, 9 SFR homes, two retail stores. The infrastructure and 6 townhomes, 3 SFR homes, and the retail stores have been constructed.
- **Residential – Tract 30046 Monte Sereno**
  Location: Northwest corner of Bogert Trail and the Palm Canyon Wash.
  Details: 40 acres. 89 SFR homes. Infrastructure and 27 SFR homes are currently constructed.
- **Residential – Tract 30050 Alta**
  Location: 3200 S. Palm Canyon Drive.
  Details: 30 acres. 67 SFR homes. The infrastructure and 23 SFR homes have been constructed.
- **Residential - 4-Plex Apartment Building**
  Location: 549 El Placer.
  Details: 4-unit apartment building.
- **Residential - 750 Lofts**
  Location: 750 N. Palm Canyon Drive.
  Details: 39-unit hotel.
- **Residential - 2150 Zanjaro Apartments**
  Location: 2155 N. Indian Canyon Drive.
  Details: 16-unit apartment building.
- **Commercial - Architectural Blue Garden Center**
  Location: 710 E. Research Drive.

Details: Garden center and warehouse.

- **Commercial – Blackhaus**
  Location: 424 Calle Encilla.
  Details: Villa hotel.
- **Residential – Boulders**
  Location: W. Chino Canyon.
  Details: 45 SFR homes.
- **Commercial - Cannabis Cultivation Facility**
  Location: West of Melissa Lane.
  Details: Warehouse.
- **Residential - Canyon View**
  Location: Mathew Drive.
  Details: 80 SFR homes.
- **Residential – Crescendo**
  Location: 1000 W. Racquet Club Drive.
  Details: 79 SFR homes.
- **Commercial - Dream Hotel**
  Location: Amado Road at Calle Alvarado.
  Details: 171 rooms. 34 condo units.
- **Residential - Enclave at Baristo**
  Location: NW corner of Hermosa Drive and Baristo Road.
  Details: 30 condo units.
- **Commercial - Epic Hotel**
  Location: 275 E. Tamarisk Road.
  Details: 8 unit hotel with kitchens.
- **Commercial - Freeway Development**
  Location: Garnet Road at Interstate 10
  Details: 64-unit hotel.
- **Residential - Las Palmas Estates**
  Location: 555 Via Monte Vista.
  Details: 17 SFR homes.
- **Commercial - Orchid Tree Resort/Church**
  Location: 222-284 S. Cahuilla Road.
  Details: Hotel and spa.
- **Residential – Pedregal**
  Location: 621 Tramway Road.
  Details: 132 condo units.
- **Public - Serena Park**
  Location: 2500 Whitewater Club Drive.
  Details: 386 SFR homes.
- **Residential - The Palm Canyon**
  Location: 777 S. Palm Canyon Drive.
  Details: 25 condo units. 56 SFR homes.
- **Commercial - The Scene**
  Location: 777 E. Tahquitz Canyon Way.
  Details: Building demo. New office.

- **Residential - Vibe (formally JUL)**
  Location: Tahquitz Canyon Way and Farrell Drive.
  Details: 93 condo units. 72 SFR homes.
- **Commercial - Virgin Hotel**
  Location: NE corner of Belardo and Main Street.
  Details: 142-unit hotel.

City of Rancho Mirage

- **Mixed-use Commercial/Residential – Tract 34640 GenLB-Rancho LLC**
  Location: 68900 Frank Sinatra Drive encompassing the existing Ritz Carlton Hotel.
  Details: 38.3 acres. Hotel remodeling and new condominiums.
- **Residential – Tract 31004Foxx**
  Location: Cypress Lane, 450 feet east of Los Alamos.
  Details: 6.86 acres. 11 SFR homes.
- **Residential – Tract 31800 Tangerine Court**
  Location: Northwest corner of Sunny Lane and Palm View Drive.
  Details: 7.06 acres. 13 SFR homes.
- **Residential – Tract 35684 Monte Vista Rancho Mirage, LLC "5 Peaks"**
  Location: Highway 111 and west of Mirage Road.
  Details: 60.7 acres. 4 commercial lots, 1 open space lot for eventual business construction.

Unincorporated Riverside County within the Permit region

- **Specific Plan - La Entrada Project (See City of Coachella Projects)**
  Location: South of Interstate 10 and north of the Coachella Branch of the All American Canal.
  Details: 2,200 acres. 1,612 acres are in the City of Coachella and 588 acres are in unincorporated County. 7,800 homes. Commercial, community facilities, four elementary schools, infrastructure, neighborhood parks, open space. Currently Pending.
- **TR36410 – Cameron Ranch**
  Location: North of Poppet Flats Road and West of Highway 243, East of Mt. Etna Rd.
  Details: 120 1-acre residential lots and 34 10-acre lots.
- **TR36919 – Vista Rosa**
  Location: South of Pierson Boulevard and East of Highway 62
  Details: 28-acre subdivision into 1 lot with 246 condominiums.
- **TR36917 – Vista Rosa**
  Location: South of Pierson Blvd and East of Hwy. 62
  Details: Subdivide 283 acres into 1105 Single-family residential lots.
- **TR36809 – Pulte Homes Subdivision**
  Location: North of Ramon Road, south of Dinah Shore, east of Bob Hope, west Los Alamos Road
  Details: A development of 309 acres for 1025 single family residences.
- **SP00355**
  Location: North of Avenue 64, south of Avenue 62, and east of Highway 86, west of Tyler
  Details: Plan for single-family residential lots.

- **PM36918 – Vista Rosa**
  Location: South of Pierson Blvd, east of Hwy. 62 and west of Karen Avenue
  Details: Subdivision of 311 acres into six 20-acre Sch. I parcels.
- **SP00391**
  Location: North of Ramon Road, south of Dinah Shore Drive, east of Bob Hope Drive
  Details: Development of 321 acres with a residential community (up to 1200 dwelling units) recreation and open space.
- **SP00392**
  Location: North of Varner Rd., south of Valle Tosca/ Ramon Rd, east of Bell Rd, west of Jack Ivey Details: Specific plan with residential, mixed-use and recreation.
- **SP00378 – Oasis Date Gardens**
  Location: North of Avenue 60, south of Avenue 58, east of Fillmore and west of State Hwy. 11
  Details: Mixed-use within specific plan.
- **PM36804**
  Location: North of Ramon Rd., east of Desert Moon
  Details: 3 residential parcels on 108 acres.
- **TR33559**
  Location: North of Avenue 54, south of Avenue 53, east of Monroe, west of Jackson
  Details: 152 residential lots with 7 open space lots on 97 acres.
- **SP00385- Vista Soleada**
  Location: North of Avenue 61, south of Avenue 60, east of Monroe, west of Jackson
  Details: A Master-planned community of 80.9 acres.
- **TR37192 – Vista Soleada**
  Location: North of Avenue 61, south of Avenue 60, east of Monroe
  Details: 198 lot subdivision on 80 acres.
- **CUP03641**
  Location: North of Avenue 69, east of Fillmore, west of Pierce
  Details: 92-space mobile home park.
- **TR36902- Monroe Street Subdivision**
  Location: North of Airport Blvd, south of Avenue 55, west of Oasis
  Details: 80 single family residences on 40 acres.
- **TR30199**
  Location: East of Desert Moon Drive, north of Ramon, west of Vista del Sol
  Details: 144 residential and commercial lots.
- **TR33697**
  Location: North of Avenue 54, east of Monroe and west of Jackson Street
  Details: 46 single family residences on 38 acres.
- **TR35758**
  Location: North of Avenue 54, east of Jackson, west of Calhoun Street
  Details: 20 single family residences on 40 acres.
- **PM35385**
  Location: North of Avenue 57, south of Airport Blvd, east of Fillmore
  Details: 4 residential and 1 bonus lot on 25.7 acres.
- **TR34934**
  Location: North of Dillon Rd., east of Avenida Manzana

Details: 148 residential lots on 36 acres.

- **SP00336A1**
  Location: North of 20th Avenue, south of 18th Avenue, west of Bubbling Wells Rd.
  Details: Amended plan for increased dwelling units to 2250 of resort land use.
- **PP25308**
  Location: North of Vista Chino, south of Dillon, east of Date Palm, west of Rio Del Sol
  Details: Contractors Storage yard on 42 acres.

- **TR36234**
  Location: North of Avenue 60 and west of Jackson Street
  Details: Planned development with 90 residential lots, open space to include community center, park and water feature on 41 acres.

2.9 MUNICIPAL SEPARATE STORM SEWER SYSTEM FACILITIES

2.9.1 New MS4 Facilities

Each year, the Permittees report additions to their MS4 facilities to the District. These new facilities are then added to the MS4 facility maps that are included in the Annual Report to the Regional Board. Appendix A contains maps showing the Permittee MS4 networks throughout the Permit region. Table 2-5 "Permittee MS4 Facilities Constructed During the Current Permit Term" provides a list of MS4 facilities that were completed by the Permittees during the current Permit term.

Table 2-6 Permittee MS4 Facilities Constructed During the Current Permit Term

Project Name	Project Description
District (includes County)	
Gilman Home Channel Line A	1000' RCP. 4th Street between Williams Street to Nicolet Street. Banning.
Gilman Home Channel Lateral A	2056' of 7'x7' to 10'x8' RCB. George Street between 10th and 12th Street. Banning.
Gilman Home Channel Lateral A-6	97' of 7' x 6' RCB. Banning.
Gilman Home Channel - Stage 90	698' of 12' x 10' RCB. Banning.
Smith Creek Prison Farm Channel - Stage 2	1190' Rock, Concrete, and Earthen Channel. Banning.
Palm Springs MDP Line 43	Connects Eagle Canyon Dam outlet to West Cathedral Canyon Channel. 3532' of 14'x5' RCB to 66" RCP. Palm Springs.
Palm Springs MDP Line 43A	Connects Eagle Canyon Dam outlet to West Cathedral Canyon Channel. 934' of 42" RCP. Palm Springs.
Indio	
Avenue 41	18" to 60" RCP. 4,600 L.F.

Project Name	Project Description
Avenue 43	18" to 60" RCP. 1,300 L.F.
La Quinta	
La Quinta Library Parking Lot Improvements	Temporary retention basin and 185 feet of 18" HDPE.
Carranza Drainage Improvements	Double headwall, trash rack, overside drain, and rip rap at pipe outlet.
Coral Mountain Apartments	54" outfall at the La Quinta Evacuation Channel.

Note: RCP - Reinforced Concrete Pipe; RCB - Reinforced Concrete Box
This table lists MS4 facilities that were completed or are currently under construction, including those constructed as part of land development.

2.9.2 Planned MS4 Facilities

Table 2-6 "Permittee MS4 Facilities Planned for the Next Permit Term" provides a list of MS4 facilities that are planned for construction by the Permittees during the next Permit term. Similarly to the list of new development, this list represents a snapshot of projects that may be constructed during the next permit term, or over multiple permit terms, or as recent experience has shown, may be delayed, downsized, or cancelled.

Table 2-7 Permittee MS4 Facilities Planned for the Next Permit Term

Project Name	Project Description
Banning	
Montgomery Court Channel	1,340' of 18" to 48" RCP. NW corner of Wilson Street and Sunrise Avenue.
Banning MDP Line D-2	5,654' of 30" to 60" RCP on Hargrave Avenue from Ramsey Street to Indian School Lane.
District (includes County)	
Banning MDP Line H	Hathaway Street between Barbour Street and Wesley Street; then on Wesley Street to Smith Creek.
Banning MDP Line K	Upgrade culvert under Ramsey Street to a 9'X6' RCB between Highland Home Road and Omar Street to convey runoff from Pershing Channel.
Banning MDP Line 1	Upgrade culvert under Ramsey Street to a 9'X7' RCB between Highland Home Road and Omar Street to convey runoff from Smith Creek.
Desert Hot Springs MDP Line E-5 Stage 1	3,700 LF on 8th Street between Mesquite Avenue and West Drive.
Palm Springs MDP Line 41	Conveyance between San Jacinto mountains and the existing Palm Springs Line 41 Stage 2.
Indio	
Arabia Street	48" RCP. 3,200 L.F.
La Quinta	
Citywide Drainage Enhancements	Upgrade drainage facilities along Eisenhower Drive and Washington Street corridors for

Project Name	Project Description
	minimum 150-year storm protection.
Trash Amendment	Install trash capture devices in designated catch basins.
Villas at Indian Springs	Outfall in the CVSC.
Travertine Specific Plan	Install drainage for master planned development of 2,300 housing units, hotel and commercial uses, and golf courses.

Note: RCP - Reinforced Concrete Pipe
This table lists MS4 facilities that were completed or are currently under construction, including those constructed as part of land development.

3 STORM WATER MANAGEMENT PROGRAM

The goal of the storm water management program continued to be that of maintaining existing water quality within the receiving waters of the Permit region by adhering to, and implementing, the current MS4 Permit components. Implementation of these components is methodically detailed in a programmatic set of uniform policies and procedures known as the Whitewater River Region Storm Water Management Plan (SWMP). The SWMP was designed to promote MS4 Permit compliance by addressing all of the elements required by 40 CFR 122.26(d)(2)(iv).

3.1 PROGRAM MANAGEMENT

Riverside County Flood Control and Water Conservation District and County of Riverside are the Principal Permittees, and the cities and Coachella Valley Water District are Co-Permittees. Principal Permittee and Co-Permittee responsibilities are specified in the MS4 Permit and reiterated in the Program's Implementation Agreement, which additionally provides a funding mechanism for the shared costs of the Program. To enable the development and implementation of a coordinated countywide program, a management framework was created during the First Term Permit. The principal element of this management framework is the Desert Task Force.

Implementation Agreement (IA)

Since March 1998, the Permittees have participated in an Implementation Agreement that facilitates the MS4 Permit's implementation and provides a funding mechanism to implement regional-level compliance activities by leveraging economies of scale that couldn't otherwise be achieved independently. The IA has been amended from time to time to account for new compliance requirements added to each new MS4 Permit. On a local level, each Permittee is responsible for complying with its jurisdictional program components. On a regional level, compliance requirements were addressed by the District. Under the current version of the IA, the District agreed to:

- Coordinate and participate in regional-level public education activities, outreach events, and Permittee staff training that focus on the NPDES regulations, MS4 Permit compliance, and, overall, reducing and preventing pollution throughout the Whitewater River Permit Region.
- Contract and coordinate with laboratories and consultants.
- Collect, submit, and assess Receiving Water samples in accordance with the MS4 Permit's Monitoring and Reporting Program.
- Chair the Desert Task Force meetings and coordinate with the Permittees to facilitate implementation of the MS4 Permit components.
- Serve as liaison between the Regional Board and Permittees to facilitate a consistent flow of information between all parties.
- Coordinate, prepare, and submit Consolidated Annual Reports, Annual Monitoring Reports, Reports of Waste Discharge, Special Studies, manuals, work plans, etc., including revisions to the existing WQMP, Low Impact Development (LID) BMP Design Handbook, and SWMP.
- Coordinate with Permittees to comply with Discharge Prohibitions, Receiving Water Limitations, and BMP implementation requirements.
- Maintain readily-accessible documentation and data supporting program development and implementation.

In like manner, each Permittee, in their respective roles as legal land-use authorities, agreed to:

- Adopt and enforce local ordinances, policies, and procedures to facilitate compliance with the MS4 Permit. It is important to note that all of the Permittees with legal land-use authority have adopted local ordinances, policies, and procedures to enforce the MS4 Permit requirements. It must also be noted that the District and CVWD do not govern as municipal authorities and, as such, do not retain legal land-use authority to adopt or enforce these ordinances. Violations within District or CVWD easements are, therefore, based on local ordinances.
- Survey their MS4 facilities and maintain documentation necessary to support the survey results.
- Supply information upon request to the Regional Board or Principal Permittees.
- Implement each of the program components required by the MS4 Permit.
- Share costs to support regional compliance.

Interagency Agreements
With cost-share contributions by the Permittees, the District administered various interagency cooperative agreements with County agencies that allow various regional components of the MS4 Permit program to be carried out. These cooperative agreements were administered for the following activities:

- Hazardous Materials Emergency Response
- Household Hazardous Waste Collection (HHW)
- Antifreeze, Battery, Oil and Latex Paint (ABOP) Collection
- Waste collection from Conditionally Exempt Small Quantity Generators (CESQG)

Desert Task Force (DTF)
The Desert Task Force (DTF) is a committee consisting of representatives from each Permittee which, as a group, directs the implementation of the program components through the SWMP. As required by the MS4 Permit, the DTF met and directed the development of the WQMP, LID BMP Design Handbook, SWMP, Annual Report format, Enforcement Compliance Strategy, database templates, inspection forms, and the ROWD. Currently, the DTF continues directing the necessary revisions to these compliance documents.

Coachella Valley Integrated Regional Water Management Group (CVRWMG)
The Permittees are stakeholders in the Coachella Valley Regional Water Management Group (CVRWMG). This collaborative group is led by CVWD, Coachella Water Authority, Desert Water Agency, Indio Water Authority, Mission Springs Water District, and Valley Sanitary District. The Permittees and CVRWMG agencies share common water supplies, wastewater systems, and flood control infrastructure making it easier to coordinate and establish regional goals and objectives such as protecting regional water quality. To this end, the group developed an Integrated Regional Water Management Plan (IRWMP) in December 2010 to address the water resources planning needs of the Valley. This plan was updated in 2014. The IRWMP also enables the stakeholders to apply for grants led by the California Department of Water Resources and generally covers the same management area as the Permit region, except for the area west of Cabazon which has its own IRWMP.

California Association of Stormwater Quality Agencies (CASQA)

The District is an active member and participant with CASQA. CASQA is composed of stormwater quality management organizations and individuals, including cities, counties, special districts, private-sector industries, and consulting firms throughout the state, and was formed in 1989 to recommend approaches to the SWRCB for stormwater quality management in California. In this capacity, CASQA has assisted and continues to assist the SWRCB with the development and implementation of stormwater permitting programs.

Legal Authority

Legal authority is a prerequisite for Permittees to effectively implement storm water compliance programs. The primary authority is provided through their local storm water ordinances. The Permittees with land-use authority adopted comprehensive storm water ordinances that were vetted by their respective legal teams. In general, these ordinances include the following:

- The disposal of pollutants onto public and private land is prohibited;
- Illicit connections and discharges to the MS4 are prohibited;
- Active construction sites must implement year-round erosion, sediment, and pollution prevention BMPs;
- Priority Development Projects must implement region-appropriate permanent post-construction BMPs;
- Non-storm water discharges are prohibited, with the exception of discharges allowed by the MS4 Permit or by the State or Regional Boards through other NPDES Permits.

Although the Permittees maintain legal authority to prohibit the contribution of pollutants to the MS4, it is important to note that the Permittees do not have legal authority over discharges from agricultural activities, State and Federal facilities, utilities, special districts, tribal lands, wastewater agencies, and other point and non-point source discharges permitted under separate waste discharge orders by the State or Regional Boards.

Enforcement and Compliance Strategy

An Enforcement and Compliance Strategy was incorporated into the SWMP and was implemented by the Permittees. The goal of the Enforcement and Compliance Strategy is to provide a uniform and consistent enforcement approach for storm water violations throughout the Permit Region. The implementation is based on each Permittee's professional judgment to guide the appropriate level of response. Features of the Enforcement and Compliance Strategy include training, procedures for prioritizing violations, coordination with other agencies, record keeping, and reporting.

Funding Sources

- **Shared Costs.** Shared costs were funded by the Permittee group through the IA for regional activities conducted by the District on behalf of the Permittees. These activities include the administration of the regional components of the MS4 Permit, administration of the IA and interagency agreements, participation with, and representation on, the California Stormwater Quality Association, representation at meetings with the Colorado Regional Board, SWRCB, or other public forums, preparation of compliance documents common to the Permittees, responding to Water Code Section 13267 and 13383 requests, coordination with, and management of, consultants, preparation of special studies, semi-annual training of Permittee staff, etc.

- **Whitewater Benefit Assessment Area (BAA).** In May 1991 the District established the Whitewater River Watershed Benefit Assessment Area (BAA) to fund its MS4 NPDES Permit compliance activities and portions of the area-wide MS4 Permit program activities conducted or performed on behalf of the Permittee group.
- **County Service Area 152 (CSA 152).** County Service Area (CSA) 152 was formed in December 1991 in attempts to provide Permittees with an additional funding source for MS4 Permit compliance activities. Initially, CVWD, the County, and the Cities of Banning, Cathedral City, Coachella, Desert Hot Springs, Indio, La Quinta, Palm Desert, Palm Springs, and Rancho Mirage received CSA 152 funding. However, with the passage of Proposition 218 in 1996, CVWD, the County, and the Cities of Banning, Cathedral City, Coachella, Indio, and Palm Desert had to discontinue these assessments within their respective jurisdictions.

3.2 PROGRAM COMPONENTS

This section presents a review of the status of program implementation and compliance with the schedules contained in the MS4 Permit with respect to the SWMP's principal components. The metrics cited cover the program's activities over the period between FY 13/14 and FY 15/16.

3.2.1 Illicit Connections and Illegal Discharges – MS4 Permit Section F.1.a.

Mapping

The Permittees continued reviewing their jurisdiction-specific MS4 maps and inventories to identify their respective MS4 networks, major outfalls, and local receiving waters. These maps have also served to verify that the Permit region boundaries encompass the urbanized areas within the Permittee jurisdiction.

Source Control

The District and Permittees continued partnering in several area-wide source control programs. These programs included public education, outreach, and waste collection. Waste collection programs included the implementation of collection centers for household hazardous wastes (HHW), used antifreeze/batteries/oils/paints (ABOP), and wastes associated with conditionally exempt small quantity generators (CESQG). The HHW/ABOP/CESQG programs continued offering the region's residents and small businesses with opportunities to properly dispose of their hazardous waste. As of June 30, 2017, these programs collected approximately 430 tons of hazardous waste throughout the current Permit term which may have been otherwise improperly disposed. In addition, the Coachella Valley Integrated Regional Water Management Group (CVIRWMG), of which the Permittees are stakeholders, continued focusing efforts on how to address the needs of the region's water resources, with one of its critical objectives being that of protecting water quality on a regional scale.

Detection

The Principal and Co-Permittees continued expending considerable resources to identify, detect, and eliminate illegal connections and discharges. These resources were used to conduct field inspections, survey dry-weather outfalls, maintain a toll-free 24-hour hotline, provide NPDES information on websites, train municipal staff, etc. To assist with detecting IC/IDs, inspections and surveys were conducted by trained Permittee staff from various divisions including Maintenance, Code Enforcement, Building and Safety, and Engineering.

Response
The District and Permittees continued responding to incidental spills, leaks, and discharges. A reported 625 IC/ID incidences were investigated during this current Permit term.

In addition, the District and Permittees provided significant financial support to the Riverside County Fire Department Hazardous Materials Emergency Response Team (currently $1,825,000 for the period covering FY17/18 through FY21/22) for on-call services to address discharges requiring responses beyond the abilities of the Permittees to safely and legally address them.

Reporting
There were no incidents which Permittees responded to during this Permit term requiring 24-hour reporting to the Regional Board and the California Office of Emergency Services (OES).

Enforcement
Permittees enforced this component through their storm water ordinances in accordance with the Enforcement and Compliance Strategy in the SWMP. Although education and outreach continue to be the Permittees' preferred method of compliance, higher-level enforcement responses (i.e. referrals to the RB, administrative citations, stop work orders) were implemented at times and were documented in the respective annual reports. Across all components of the Program, more than 500 enforcement actions were noted for the reporting period.

Specific metrics associated with this component are included in each Permittee's Annual Report.

3.2.2 Commercial and Industrial facilities – MS4 Permit Section F.1.b.

Database
Due to budget constraints, the cities and county eliminated the Compliance Assistance Program (CAP) on December 31, 2014. With the elimination of this program, Permittees began developing their own jurisdiction-specific databases, entering and assessing data, and identifying restaurants and industrial facilities with hazardous materials permits. Elimination of the CAP was a significant change during the current Permit term and will continue requiring adjustments throughout the next Permit term.

Industrial General Permit
Pursuant to Sections 3.1 and 3.2 of the SWMP, during compliance surveys of facilities with hazardous materials permits, Permittees continued conducting compliance surveys of retail food facilities and facilities with hazardous materials permits, and attempting to identify facilities lacking coverage under the Industrial General Permit (IGP). Pursuant to section F.1.b.vi of the MS4 Permit, "Upon referral of an industrial facility to Regional Water Board staff for failure to obtain coverage under the General Industrial Permit, failure to keep a SWPPP at the industrial facility, or an observed act or omission that suggests failure to comply with either…", Permittees did not identify new facilities that required notification to the Regional Board.

Surveys

During the current Permit term, Permittees collectively conducted over 2,550 compliance surveys. Beginning January 1, 2015, Permittees took over direct responsibility for conducting Stormwater compliance surveys at targeted commercial facilities (retail food facilities) and industrial facilities (facilities with hazardous materials permits regulated under the Unified Program, Title 27 of the California Code of Regulations) within their respective jurisdictions. Some Permittees were able to tie into other existing municipal inspection programs (e.g. pretreatment/source control inspection, public works inspection, code enforcement, etc.) to carry out these surveys.

Enforcement

Permittees enforced this component in accordance with the Enforcement and Compliance Strategy in the SWMP and by verifying that businesses complied with storm water ordinances in order to prevent incidental spills, leaks, or discharges from occurring at these facilities.

Specific metrics associated with this component are included in each Permittee's Annual Report.

3.2.3 New Development/Redevelopment – Permit Section F.1.c.

Planning

The Permittees have effectively integrated this component into their development approval and permitting processes, as demonstrated by the cumulative number of WQMPs conditioned in their annual reports (178 WQMPs conditioned). WQMP requirements applied to private and Permittee projects alike. Projects meeting the criteria under section F.1.c.ii, "Other Development Projects" of the Permit's New Development/Redevelopment component were required to incorporate site design concepts and source controls, while those under section F.1.c.iii, "Priority Development Projects" (PDPs), were further required to add structural treatment BMPs.

Water Quality Management Plans (WQMPs)

Pursuant to the project-specific WQMP requirements, developers and Permittees integrated site design concepts, source controls, and structural BMPs into their respective project plans. The Permittees continued implementing the Whitewater Region LID BMP Design Handbook as their uniform set of structural BMP design standards to assist WQMP preparers with selecting, sizing, and approving structural treatment BMPs. Collectively, the WQMP and LID BMP Design Handbook include comprehensive guidance, checklists, design calculation sheets, a report template, a long-term maintenance agreement template, and various design templates for structural treatment BMPs. Prior to processing development applications, developers and Permittees had to assess whether their respective projects qualified as a PDP or 'Other Development Project'. Those that did not qualify, but still met criteria as an 'Other Development Project', were nonetheless required to incorporate non-structural source controls onto the project plans in lieu of submitting a WQMP. It is important to note that prior to introducing Water Quality Management Plan (WQMP) requirements into the region, most of the Permittees were already requiring new developments to retain runoff as a means of controlling floods and nuisance flows. Appendix A contains maps delineating the Permit region, the Permittee's MS4 networks, and facilities that capture stormwater runoff prior to overflowing into the nearest receiving waters.

Conditions of Approval (COAs)
Depending on their respective project conditioning process, Permittees added the New Development/Redevelopment requirements to their Conditions of Approval, and/or to their grading/building permit conditions. It should be noted that eight of the eleven Permittees with land-use authority currently require on-site retention of the 100-year storm event runoff, which is significantly greater than the 85^{th} percentile, 24-hour requirement required by the Permit. In fact, in many cases, 100-year retention requirements pre-date the 1987 Clean Water Act amendments that apply to MS4 discharges.

Specific metrics associated with this component are included in each Permittee's Annual Report.

3.2.4 Private Construction Activities – Permit Section F.1.d.

Plan Review
The Permittees effectively implemented and enforced this component on private and Permittee construction projects, as demonstrated by the number of inspections and enforcement responses reported in their annual reports. Permittees reviewed project plans to verify that projects implemented erosion, sediment, and pollution prevention controls, and verified if eligible projects obtained coverage under California's Construction General Permit (CGP).

Inspections
The Permittees conducted 2846 site inspections during the current Permit term. Inspections, inspection frequencies, and site prioritization were carried out pursuant to the SWMP and assisted developers in complying with local storm water ordinances.

PM-10 Ordinance
The Coachella Valley falls within a "serious" air-non-attainment area, as determined by the South Coast Air Quality Management District (SCAQMD). During the previous Permit term, the Permittees joined with the Coachella Valley Association of Governments (CVAG) to create and implement the Coachella Valley Dust Control Ordinance (PM-10 Ordinance). Prior to issuing grading/building permits, the PM-10 ordinance requires projects disturbing more than 5,000 square feet of soil, or importing/exporting more than 100 cubic yards of soil per day, to maintain an on-site Fugitive Dust Control Plan approved by the Permittee. A site's Fugitive Dust Control Plan requires sites to implement BMPs for each fugitive dust source listed in the plan. PM-10 BMPs tend to be the same as storm water BMPs, and include protecting site accesses, stockpiles, slopes, and disturbed areas, watering wind-erodible surfaces, monitoring weather conditions, etc. As a result, the Permittees required PM-10 Plans to accompany project plans in order to comply with the PM-10 ordinance. PM-10 Plans served as an extra layer of protection for construction sites in the desert and could typically be combined with erosion and sediment control plans due to the overlapping nature of BMPs, implementation, and compliance goals.

Enforcement
Permittees enforced the elements of this component in accordance with the Enforcement and Compliance Strategy in the SWMP, serving as another extra layer of protection for construction sites in the desert, and by verifying that construction sites complied with their storm water ordinance in order to prevent pollutants from discharging from these sites. This was accomplished by conducting repeated inspections, talking with superintendents and

subcontractors, providing on-the-spot education and training, and providing relevant brochures. Lower-level enforcement responses (i.e. education and verbal warnings) were used to address lesser threats (non-discharges, minor house-keeping issues) while higher-level enforcement responses (i.e. referrals to the RB, administrative citations, stop work orders) were reserved for violations involving actual discharges.

Specific metrics associated with this component are included in each Permittee's Annual Report.

3.2.5 Permittee Activities – MS4 Permit Section F.1.e.

Facility Inventories

Throughout this Permit term, Permittees continued reviewing their inventories of municipal facilities for those requiring facility pollution prevention plans (FPPPPs). These inventories allowed Permittees to determine pollutants that may potentially be generated at these facilities. This information is then used to pair these pollutants with sets of Source Control BMPs. To facilitate this effort, Permittees continued referencing the 2003 California Stormwater Best Management Practice Handbooks for Municipal Facilities and Activities (Errata 2004, https://www.casqa.org/resources/bmp-handbooks/municipal-bmp-handbook).

Facility Pollution Prevention Plan (FPPP)

In addition to these inventories, Permittees maintained facility pollution prevention plans (FPPPs) for the facilities that had outdoor maintenance/storage areas of pollutant-generating equipment, materials, or waste. These facilities were typically occupied by staff who had attended NPDES training. As such, these facilities were maintained on a daily basis in terms of general house-keeping, material inventories, proper material storage, waste disposal, spill response, etc.

Facility Activities

Pursuant to the MS4 Permit, Permittees also integrated source control BMPs as part of their municipal activities. These BMPs included street sweeping, catch basin cleaning, proper landscape maintenance, designating dedicated vehicle and equipment maintenance areas, to name just a few.

Inspections

Municipal facilities and activities were staffed with trained personnel during business hours. This allowed Permittees to maintain a consistent level of house-keeping that assisted in in maintaining compliance that supported over 4,660 inspections.

Specific metrics associated with this component are included in each Permittee's Annual Report.

3.2.6 Public Education and Outreach – MS4 Permit Section F.1.f.

The District and Permittees collaborated to address Public Education and Outreach requirements on a jurisdictional level and on a region-wide scale. In order to accomplish this, the District and Permittees individually and collectively conducted, sponsored, hosted, and/or partnered with various organizations on, Public Education and Outreach events. These annual events included the Date Festival, Stage Coach Days Festival, Earth Day, Southwest Arts Festival, Tamale Festival, Indio Block Party, Fire Department safety fairs, Neighborhood Cleanups, Water

Awareness Month, Recycle Month, Disaster Survival Expo, etc. In addition, the District and Permittees set up collections centers for HHW, EWaste, bulky items, used batteries, etc. During these events, promotional materials and brochures were distributed to promote pollution prevention and to heighten environmental awareness.

Promotional materials included pens, pencils, rulers, shop rags, dog-waste bags, dust pans, etc. while brochures addressed pollution prevention, recycling, disposal of household hazardous waste, construction site discharges, pet care, swimming pool discharges, jacuzzi and garden fountain maintenance, septic tank upkeep, discharges from mobile services, landscape and gardening activities, the "Do's-and-Dont's" of outdoor cleaning, proper housekeeping practices for automotive facilities, restaurants, and commercial/industrial facilities, etc.

Other significant efforts included conducting classroom and school-assembly presentations at elementary schools, maintaining the District's NPDES website, updating its education and outreach web page to be more effective at providing usable and interactive data, and ensuring continued operation of the region-wide public reporting hotline.

In total, over 269 reported outreach events were completed by the Permittees during the reporting period. Specific metrics associated with this component are included in each Permittee's Annual Report.

4 WATER QUALITY MONITORING PROGRAM

4.1 INTRODUCTION

The District, with assistance from CVWD, conducts WWR receiving water and IC/ID MS4 outfall monitoring required under the Permit. The current sampling protocols focus on monitoring representative outfalls and a receiving water site during wet and dry weather. The monitoring program is intended to assist the Permittees with characterizing of urban runoff, assessing effectiveness of implemented BMPs, and determining the impact of urban runoff on the Beneficial Uses of receiving waters in the Whitewater River Region. The Permittees are also required to participate in Special Studies. The Permittees' monitoring program is described in the Consolidated Monitoring Program (CMP).

4.1.1 Consolidated Monitoring Program (CMP)

The CMP establishes five objectives, specifically:

- Develop and support an effective urban-runoff management program;
- Collect monitoring data from designated outfall stations in order to characterize pollutants associated with urban runoff in the region;
- Determine the impact of urban runoff on the beneficial uses of regional receiving waters;
- Collect monitoring data from the only perennially-flowing receiving water in the region (i.e., the lower 17-mile reach of the CVSC) during wet and dry weather to evaluate the health of the CVSC; and
- Analyze and interpret the collected data to identify long-term trends, if any, to maintain existing receiving water quality through the implementation of BMPs, and to track water quality improvements which may be observed as a result of the MS4 management program.

Based on these objectives, the Permittee monitoring program comprises:

- Quarterly monitoring of Field Parameters, Visual Observations and sampling for *E. coli* (if flowing) at outfalls to determine the presence of IC/IDs;
- Monitoring of wet- and dry-weather samples from the selected outfall stations for Constituents of Concern and Field Parameters to characterize urban runoff, and
- Monitoring of wet- and dry-weather samples from a receiving water station for Constituents of Concern and Field Parameters to determine impact of urban runoff on receiving waters.

Table 4-1 'Monitoring Stations' lists the receiving water and outfall stations monitored during the current Permit term. Tables 4-2 'Constituents of Concern' and 4-3 'Field Parameters' list the Constituents of Concern and Field Parameters referenced in Table 4-1.

Table 4-1 Monitoring Stations (2013-2018)

Station Location	Station Type and Monitoring Season	Sample Type and Frequency	Analytical Requirements	Sampling Agency
Outfalls				
Ramsey Street City of Banning	Outfall IC/ID and Dry Weather	Grab Quarterly	Visual Observations, Field Parameters (*in-situ*) and *E. coli*	District
	Outfall Wet Weather	Grab Biannually	Field Parameters (*in-situ*) and Constituents of Concern	District
Portola Avenue City of Palm Desert	Outfall IC/ID and Dry Weather	Grab Quarterly	Visual Observations, Field Parameters (*in-situ*) and *E. coli*	CVWD
	Outfall Wet Weather	Grab Biannually	Field Parameters (*in-situ*) and Constituents of Concern	CVWD
Receiving Waters				
CVSC Avenue 52 City of Coachella	Receiving Water Dry Weather	Grab Biannually	Field Parameters (*in-situ*) and Constituents of Concern	CVWD
	Receiving Water Wet Weather	Grab Annually	Field Parameters (*in-situ*) and Constituents of Concern	CVWD

Table 4-2 Constituents of Concern

Metals (Total)			
Antimony	Cadmium	Lead	Silver
Arsenic	Chromium	Mercury	Thallium
Barium	$Chromium^{6+}$	Nickel	Zinc
Beryllium	Copper	Selenium	

Bacterial Indicators
E. coli

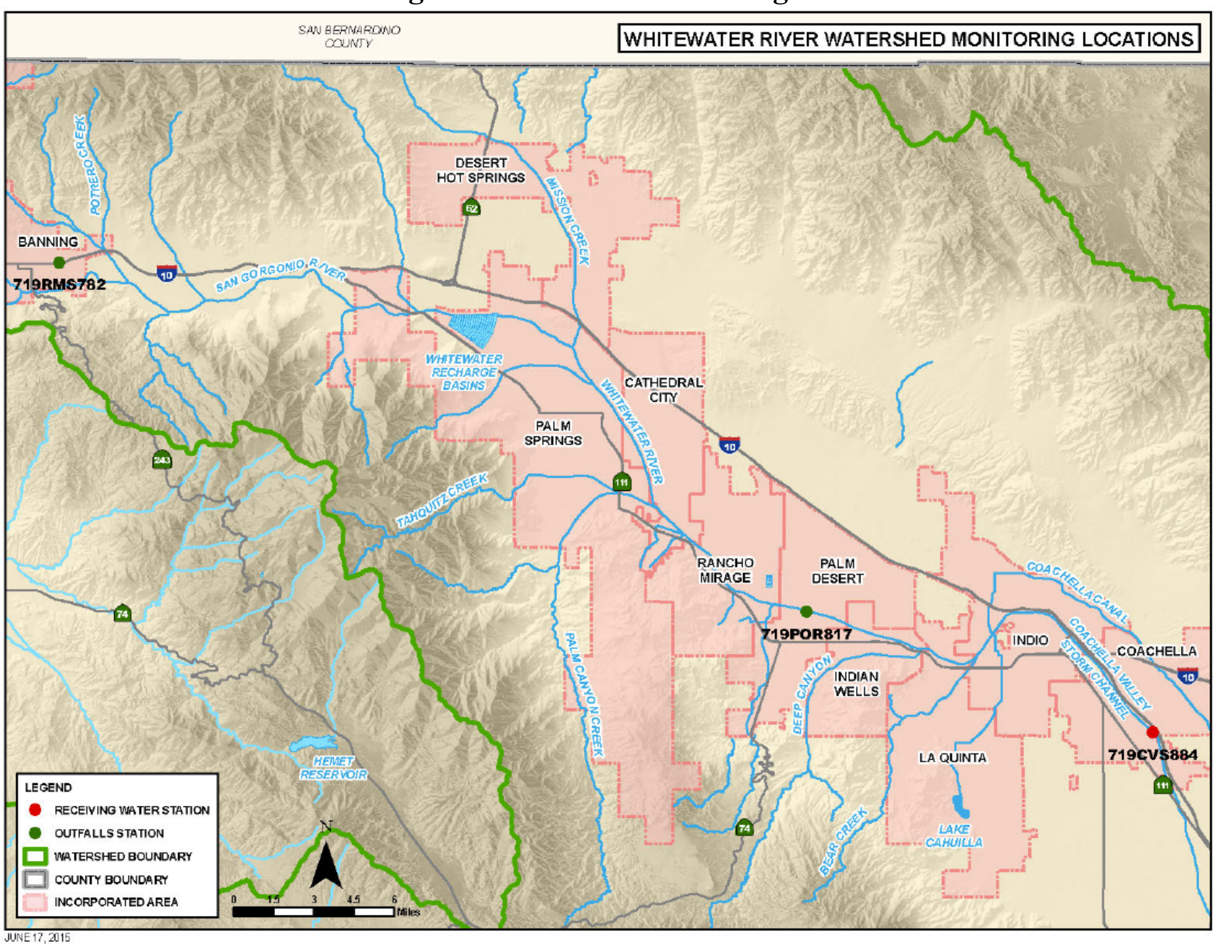
Nutrients and Others		
Nitrite as Nitrogen	Total Suspended Solids (TSS)	Total Petroleum Hydrocarbons (TPH)
Nitrate as Nitrogen	Total Dissolved Solids (TDS)	Methylene-blue activated substances (MBAS)
Total Kjeldahl Nitrogen		
Total Nitrogen	Total Phosphorus	Ethylene-glycol
Ammonia as Nitrogen	Ortho Phosphorus	Oil and Grease

Table 4-3 Field Parameters

In-Situ Monitoring		
Water Temperature	pH	Dissolved Oxygen (DO)
Turbidity	Electrical Conductivity (EC)	

Figure 4-1 'WWR Monitoring Sites' shows the locations of the outfalls and receiving water monitoring station.

Figure 4-1 WWR Monitoring Sites



In addition to the CMP, monitoring activities are also informed by a Quality Assurance Project Plan (QAPP) that establishes sample collection, handling and analysis protocols.

4.2 Natural Sources of Water Quality Constituents

It is important to note that many constituents occur naturally in soils and are not anthropogenic. For example, according to CASQA (Newsflash 2017-21), "Stormwater runoff also frequently exceeds the proposed objectives because iron and aluminum together constitute roughly 10% of natural surface soils and very low concentrations of soils in runoff result in potential non-compliance". Furthermore, "A unique problem for a subset of IGP permittees is magnesium which is naturally present in soils …" (CASQA Newsflash 2017-22). These constituents may subsequently appear in receiving waters and groundwater supplies. This finding is supported by

CVWD's 2017 Domestic Water Quality Report (covering the reporting period January-December 2016) that also identified various constituents originating (either by erosion or leaching) from natural deposits. These constituents are listed in Table 4-4 'Constituents Found in Natural Deposits' and include those that were identified during the previous Permit term.

Table 4-4 Constituents Found in Natural Deposits

Aluminum	Arsenic	Barium	Boron	Chloride	Chromium
Chromium^{6+}	Copper	Fluoride	Hardness (as $CaCO_3$)	Iron	Nitrate (as Nitrogen)
Selenium	Sodium	Sulfate	TDS	Turbidity	Uranium
Molybdenum	Strontium	Vanadium			

As a result of these naturally-occurring constituents, the Permittees have not been able to establish a clear nexus between the presence of these constituents in surface waters and in MS4 outfall runoff.

4.3 Monitoring Results

In March 2017, the Permittees completed a comprehensive review of the water quality data collected for the WWR that considered both historic data as well as more recent data collected pursuant to the CMP (Whitewater River Region Monitoring Annual Report Monitoring Year 2015-2016). This review involved both comparative and statistical data analyses. Statistical analysis consisted of "Normal Range Analysis" and long-term trend analysis. Data were also compared to the water quality objectives (WQOs) identified in the Water Quality Control Plan for the Colorado River Basin (Basin Plan) to evaluate whether observed conditions were protective of beneficial uses. The key findings from this report (see Appendix B) are the basis of this discussion. It should be noted that where MS4 outfall data are compared to WQOs, it is for comparison purposes only since WQOs are established for receiving waters only and not for MS4 discharges.

4.4 MS4 Outfall Results

The quarterly dry-weather illicit connection/illicit discharge (IC/ID) monitoring events have not yielded samples due to either dry conditions or there being insufficient flow. The Ramsey Street Storm Drain has been Visited Not Sampled (VNS) during dry-weather monitoring events in 2017 and in the prior seven years (See Appendix B – Permittee MS4 Facility Maps). The Portola Avenue Outfall was dry for all events in 2017 and during the prior two years, with frequent VNS events since 2009 (See Appendix B – Whitewater River Region Monitoring Annual Report, Monitoring Year 2015-2016).

For the last wet-weather events that were sampled (October 4, 2015 and January 5, 2016), Constituents of Concern that were not detected or detected not quantified (DNQ) at the Ramsey Street Storm Drain during wet weather included: diesel range hydrocarbons, gasoline range organics, and several metals (beryllium, cadmium, mercury, selenium, silver, and thallium) during both events and MBAS, ethylene glycol, and arsenic during one event. For Portola Avenue Storm Drain constituents that were not detected or DNQ included: MBAS, hydrocarbons, and several metals (antimony, arsenic, beryllium, cadmium, chromium, hexavalent chromium, mercury, nickel, selenium, silver, and thallium).

Constituents exceeding WQOs were *E. coli* and DO at the Ramsey Street Outfall. There were no exceedances of WQOs at the Portola Avenue Outfall. Constituents outside of normal ranges were *E. coli*, DO, temperature, TSS and ethylene glycol at the Ramsey Street Outfall and Nitrate, TKN and Total Nitrogen at the Portola Avenue Outfall.

4.5 Receiving Water Results

Constituents that were not detected or DNQ at the Coachella Valley Stormwater Channel (CVSC) at Avenue 52 Bridge receiving water station during wet weather included: MBAS, hydrocarbons, and several metals (antimony, arsenic, beryllium, cadmium, chromium, hexavalent chromium, lead, mercury, nickel, selenium, silver, and thallium). During dry weather, constituents that were not detected or DNQ included MBAS, hydrocarbons, and metals except barium during both events.

Constituents exceeding WQOs in dry weather were limited to DO. In wet weather, DO and *E. coli* exceeded WQOs (Table 4-5 'Chronic Water Quality Concerns'). Constituents outside of normal range were, in dry weather, temperature, oil & grease, ammonia, nitrate, nitrite, TKN, total nitrogen, and, in wet weather, specific conductance and TDS.

Table 4-5 Chronic Water Quality Concerns

Wet-Weather Stations			Dry-Weather Stations		
Ramsey Street SD Outfall	**Portola Avenue Outfall**	**CVSC at Avenue 52 Bridge**	**Ramsey Street SD Outfall**	**Portola Avenue Outfall**	**CVSC at Avenue 52 Bridge**
E. coli	*E. coli*	*E. coli*	*	*	*E. coli*
DO		DO	*	*	DO

* Typically dry or insufficient flow at these MS4 outfall stations during dry-weather IC/ID monitoring.

4.6 Long-Term Trend Analysis

The Mann Kendall test was used to determine the presence of statistically significant long-term trends in constituent concentrations at the Ramsey Street outfall, Portola Avenue outfall, and the CVSC receiving water station. Results of the analysis are summarized in Table 4-5. A statistically significant decreasing trend indicates that historical concentrations are lessening and water quality is improving (with the exception of DO which has an inverse relationship).

Table 4-6 Summary of Statistically Significant Trends

Monitoring Station	Increasing Trend	Decreasing Trend
Wet-Weather Outfall Stations		
Ramsey Street Outfall	Orthophosphate Phosphorus, Specific Conductance, Water Temperature	Barium (Total), Lead (Total), Zinc (Total), Dissolved Oxygen (DO); pH
Portola Avenue Outfall	Water Temperature; Turbidity	Dissolved Oxygen
Wet-Weather Receiving Water Station		
CVSC Avenue 52 Bridge	No trends identified	
Dry-Weather Outfall Stations		
Ramsey Street Outfall	VNS*	
Portola Avenue Outfall	VNS*	
Dry-Weather Receiving Water Station		
CVSC Avenue 52 Bridge	Ammonia as N; Nitrate as N; Nitrite as N; Total Nitrogen; Selenium, Total; Specific Conductance; Total Dissolved Solids (TDS)	Copper, Total; Zinc, Total

VNS* - Visited not sampled

At the Ramsey Street outfall during wet weather, significant trends indicated that total barium, total lead, and total zinc concentrations had decreased (decreasing trend) indicating improvements to water quality. However, pH and DO also decreased; indicating a decline in water quality. In like manner, orthophosphate phosphorus concentrations, specific conductance, and water temperature had increased (increasing trend); which can be interpreted as a decline in water quality. However, this cannot be verified if long-term benchmark values are not available. As of the 2009-2010 monitoring year, this outfall was visited during dry weather but, due to a lack of, or insufficient, dry-weather flows, were not sampleable. As such, dry-weather trends could not be assessed.

At the Portola Avenue outfall during wet weather, significant trends indicated that DO was decreasing, which indicted that water quality was declining. In like manner, trends toward a decline in water quality were observed for DO, water temperature, and turbidity. During the 2014-2015 and 2015-2016 monitoring years, this outfall was visited during dry weather but due to a lack of dry-weather flows could not be sampled. As such, dry-weather trends could not be assessed.

At the CVSC receiving water station during wet weather, no significant trends were identified. During dry weather, significant trends toward improving water quality were observed for total copper and total zinc, while significant trends toward declining water quality were observed for ammonia as N, nitrate as N, nitrite as N, total nitrogen, total selenium, specific conductance, and TDS.

4.7 Monitoring Program Findings

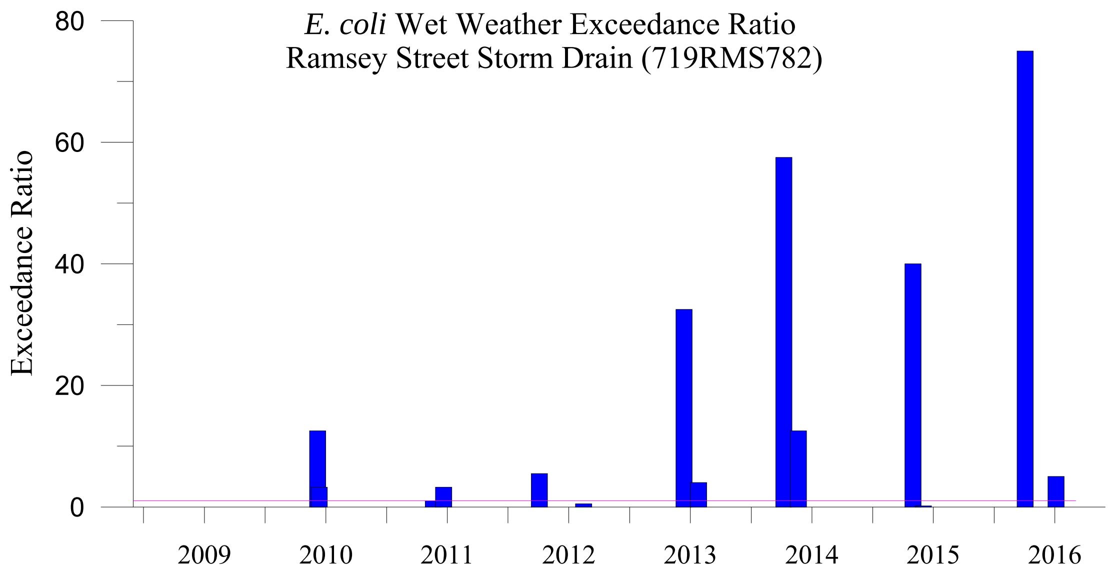
Dry-weather receiving water quality impacts arising from urban runoff from the MS4 have not been identified. Indeed, quarterly monitoring of the outfall monitoring locations has shown both outfall sites to be effectively dry during each site visit over the last 3 years. Given the uniquely dry and arid conditions of WWR watershed, it is likely that outfall flows during dry weather and, indeed, most wet-weather events evaporate and/or infiltrate without impacts to the receiving water. Significantly for the watershed, the site visits demonstrate that dry-weather flows typical of other urban MS4s outside of this watershed, and which are generally attributed to excess irrigation runoff, are not a feature of this watershed's urban landscape.

During exceptionally large and/or intense, wet-weather storm events, typically associated with flooding conditions, MS4 runoff likely connects to the receiving water. Under these highly infrequent conditions, wet-weather discharges from the MS4 will contain fecal indicator bacteria at concentrations exceeding WQOs. This finding is not unexpected since ASCE reports that *FIB concentrations in wet-weather urban discharges from separate storm sewer systems are typically orders of magnitude above primary contact recreation standards, regardless of the land use (*Pathogens In Urban Stormwater Systems, ASCE, August, 2014). This issue, and DO, are discussed in more detail below.

4.7.1 Bacteria

E. coli Exceedance Ratio Plots (plots showing the frequency of *E. coli* detection meeting or exceeding the water quality objective threshold in 100% of samples in the historical data set [as represented by the horizontal magenta line]) were included in the 2015-2016 Monitoring Annual Report (included in Appendix B) and are shown below in Figures 4-2 and 4-3 ('*E. coli* Exceedance Ratios'**)**. These plots apply to each of the outfall and receiving water stations that were monitored during dry- and wet-weather seasons between 2008 and 2016. These plots show that concentrations of the bacterial indicator *E. coli* were measured above Basin Plan WQOs in the receiving water and MS4 outfalls during wet-weather monitoring, and below Basin Plan WQOs in the receiving water during dry-weather monitoring. The CVSC is, however, subject to a TMDL for Bacterial Indicators and the CVSC's TMDL implementation program is currently addressing anthropogenic sources of bacterial indicators. It should also be noted that since the CVSC is owned and operated by the CVWD, public access to the stormwater channel is prohibited, therefore serving to prohibit recreational activities (REC-1 and REC-2 uses) within the channel.

**Figure 4-2 *E. coli* Exceedance Ratios
Ramsey Street/Portola Avenue Outfall Stations
(Wet Weather)**



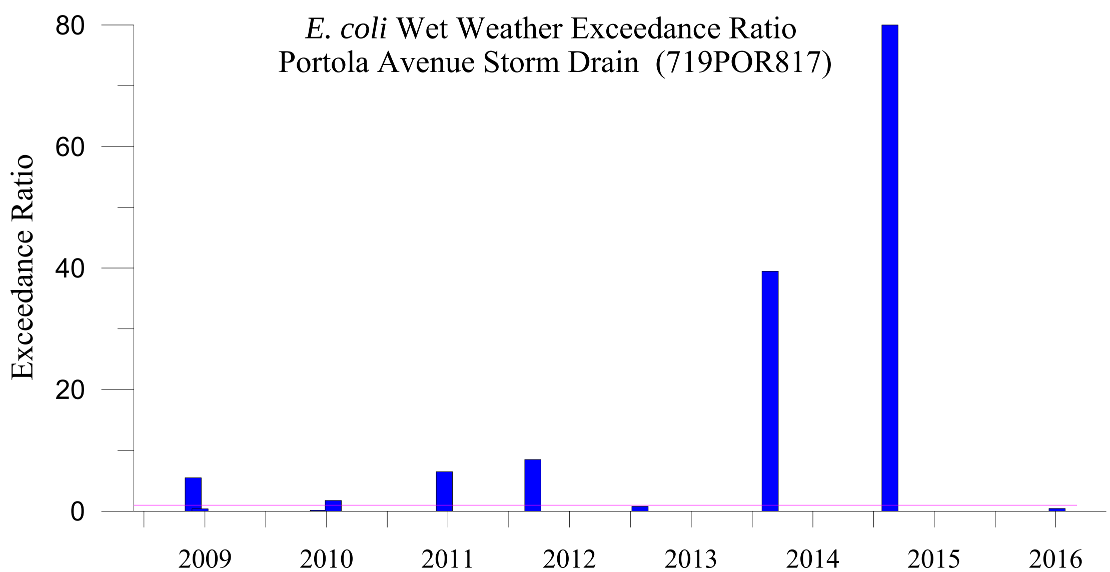
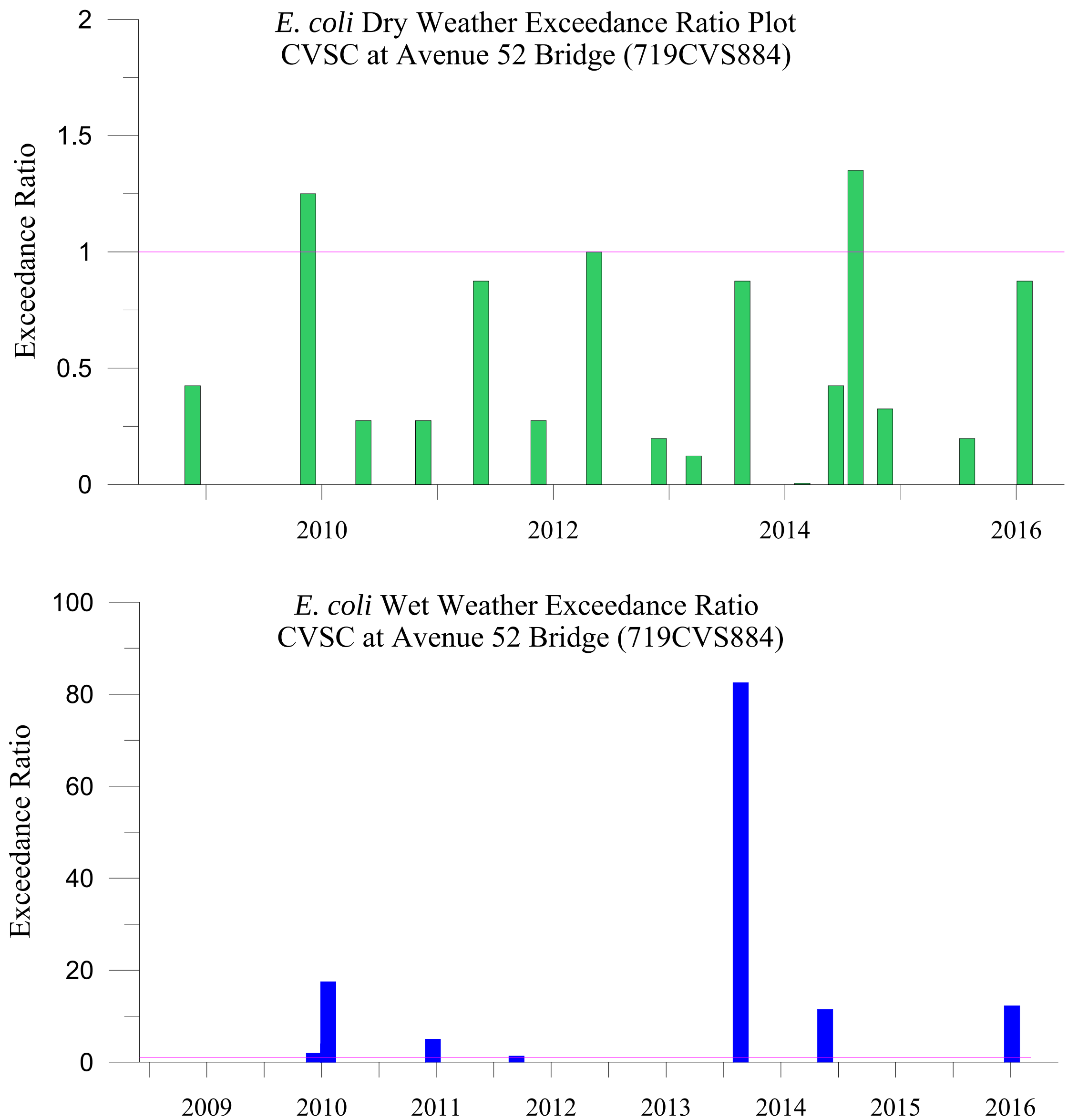


**Figure 4-3 *E. coli* Exceedance Ratios
CVSC Receiving Water Station
(Dry and Wet Weather)**



Research has shown that FIB has patchy distributions in space and are variable in time (Boehm, 2007), have poor correlation with pathogens (Harwood et al., 2005; Ortega et al., 2009; Bradshaw et al., 2016), are present in non-human fecal sources (e.g., birds, dogs, cattle, and horses) (US EPA, 2009; US EPA, 2011; US EPA, 2014b; Dubinsky et al., 2016), are present in non-fecal sources (e.g., soil, plants) (Mundt, 1963; Ishii and Sadowsky, 2008; Fujioka et al., 1988; Fujioka et al., 1999; Hardina and Fukuda, 1991; Brennan et al., 2010; O'Mullan et al., 2017), and persist or grow outside the human gut (Litton et al., 2010; Curtis and Michael Trapp, 2016).

Numeric guidelines for FIB are based on observed relationships between FIB and human illness for swimming in waters contaminated with human waste (US EPA, 2012). However, detection of FIB does not necessarily indicate the presence of human sewage. This circumstance arises because animal guts, contrary to fundamental assumptions, also carry FIB (e.g., birds, dogs, cattle, and horses) (Quesy and Messier, 1992; Ram et al., 2007; Kinzelman et al., 2008; Wright et al., 2009; Lévesque et al., 2012; Gerhold and Jessup, 2013; Fogarty et al., 2015). Many types of animal waste carry human pathogens, albeit at smaller loads compared to human waste. As a result, bird feces, for example, carry human pathogens but pose less risk than human feces at the same FIB concentration (Ashbolt et al., 2010; Soller et al., 2010; US EPA, 2014a; McBride et al., 2013). Cumulatively, however, bird populations have been shown to be sources of elevated FIB concentrations (McBride et al., 2002; Converse et al., 2012; Goodwin et al., 2016; Goodwin et al., 2017).

To further complicate matters, FIB can be found in non-fecal sources such as sand, sediment, and plants (Byappanahalli et al., 2012; Piggot et al., 2012; Nevers et al., 2016) and can grow in urban streams and storm drains (Litton et al., 2010; Griffith and Fergson, 2012). In streams, FIB has been found to be ubiquitous and independent of fecal contamination (Byappanahalli et al., 2003). A study conducted at a "reference beach" illustrated significant FIB loads even in creeks and estuaries within a watershed that was at least 93% undeveloped (Tiefenthaler et al., 2016). Elevated nutrient concentrations may help support environmental persistence and/or growth of FIB (Lee et al., 2006). One study (Surbeck et al., 2010) found dissolved organic carbon (DOC) to be strongly correlated with FIB concentrations in an urban stream, and microcosm studies showed FIB growth with DOC concentrations in runoff above 7 mg/L and with phosphorus concentrations above 0.07 mg/L. Another study found that smaller particle size and higher levels of organic matter and nutrients (nitrogen and phosphorus) were associated with increased persistence of *E. coli* and Enterococci in a Southern California watershed (Zimmer-Faust et al., 2017).

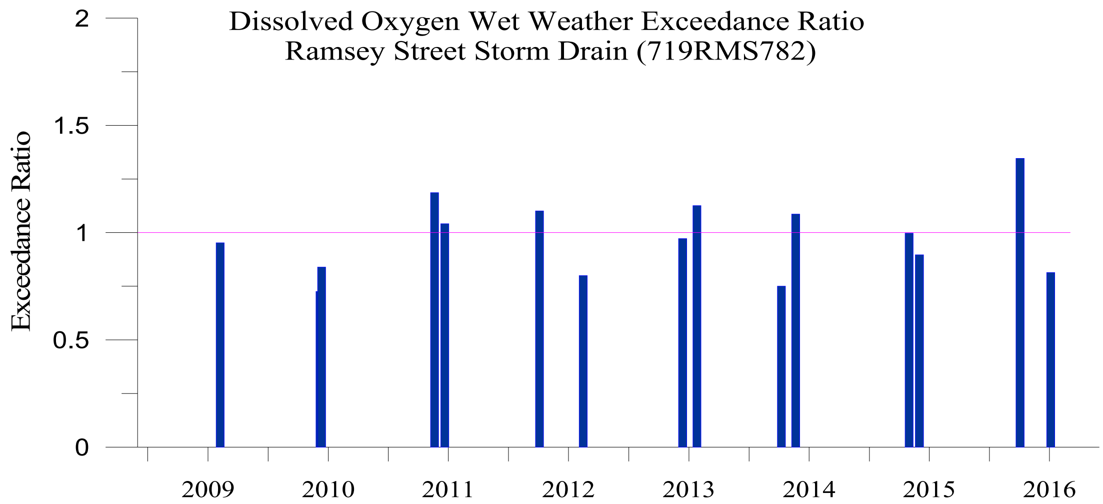
Environmental reservoirs of "naturalized bacteria" can confuse interpretation of water quality exceedances because the connection to human pathogens becomes disconnected (Whitman et al., 2003; Kinzelman et al., 2004; Ishii and Sadowsky, 2008; Hartz et al., 2008; Badgley et al., 2011; Phillips et al., 2011; Whitman et al., 2014; Zhang et al., 2016; Bradshaw et al., 2016; Ferguson et al., 2016). For example, certain species of Enterococci are thought to be primarily associated with plants (e.g., *E. casseliflavus*) (Bonilla et al., 2006) and may not have associated pathogen loads which may lead to an overestimation of risks compared to FIB criteria in guidance or regulation (Soller et al., 2014; Brown et al., 2017).

4.7.2 Dissolved Oxygen

The only long-term wet-weather trends identified for a chronic water quality concern was the DO trend toward declining water quality at the Ramsey Street outfall and the CVSC receiving water station. However, to date, MS4 discharges cannot be identified as a contributor to this condition. In addition, DO has never failed to meet the receiving water WQO during wet weather at the Portola Avenue outfall. DO concentrations are inversely related to temperature. Therefore, lower DO values may occur when environmental conditions lead to higher water temperatures, such as drought. Due to the unprecedented drought that Southern California experienced in recent years, it is quite probable that these environmental conditions could have affected DO results and thereby account for current trends. Warmer, low flow, or stagnant water will contain less DO than colder, rapidly flowing water.

During the 2015-2016 dry and wet-weather monitoring events, DO from the CVSC receiving water station was measured below the lower limit of the WQO range that is associated with the WARM beneficial use of the CVSC. During one wet-weather event at the Ramsey Street outfall station, DO was measured below the lower limit of the WQO range that is associated with the COLD beneficial use of the San Gorgonio River. It should be noted that wet-weather runoff from the Ramsey Street outfall initially discharges into Smith Creek, which is ephemeral and not listed in the Basin Plan. Smith Creek, in turn, is tributary to the San Gorgonio River, which is also ephemeral and rarely connects hydraulically to Smith Creek. As such, the COLD beneficial use designation from San Gorgonio River is being applied to evaluate DO levels from the Ramsey Street outfall, and may not be directly applicable to discharges from this outfall station. DO Exceedance Ratio Plots were included in the 2015-2016 Monitoring Annual Report and are shown below in Figures 4-4 and 4-5 (‘DO Exceedance Ratios’). These plots apply to each of the outfall and receiving water stations that were monitored during dry- and wet-weather seasons between 2008 and 2016, and are included in Appendix B.

**Figure 4-4 DO Exceedance Ratios
Ramsey Street/Portola Avenue Outfall Stations
(Wet Weather)**



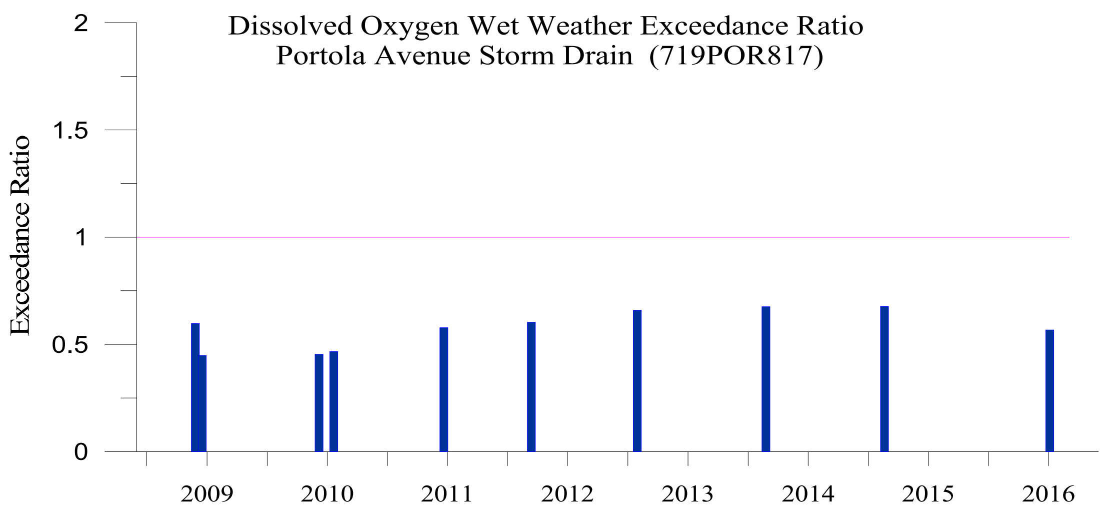
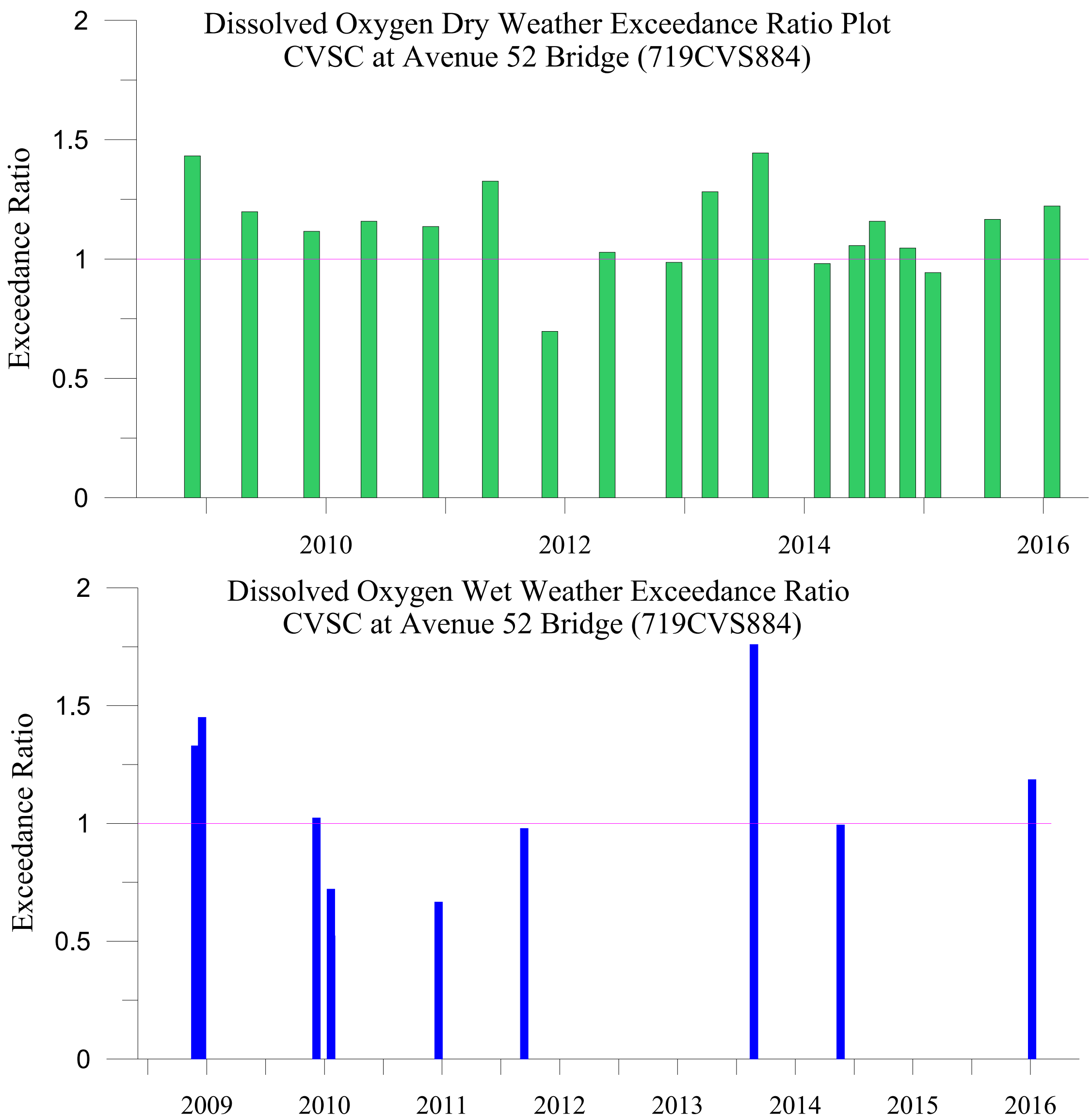


Figure 4-5 DO Exceedance Ratios
CVSC Receiving Water Station
(Dry and Wet Weather)



4.8 MONITORING CONCLUSIONS

Based on data gathered since 2008, dry-weather water quality impacts associated with urban runoff from the MS4 are considered negligible, given that the IC/ID program generally finds the outfall stations to be dry, or on occasion ponded, resulting in insufficient flow for sample collection (i.e., VNS results). In many cases, dry-weather flows are disconnected from reaching the Whitewater River by means of diversion facilities. For example, the City of Coachella maintains, three dry-weather diversions for its MS4 facilities that previously discharged into the CVSC, including a diversion upstream of the CVSC receiving water station.

The results of an analysis of constituents within the historical period-of-record for the three monitoring stations were reported in the 2015-2016 Monitoring Annual Report (included in

Appendix B). These results show that WQOs were exceeded by only 1% in dry weather (Figure 4-6 'Analysis of Historical Monitoring Constituents during Dry-Weather Events' below) and by only 2% in wet weather (Figure 4-7 'Analysis of Historical Monitoring Constituents during Wet-Weather Events' below). This analysis was based on current WQOs as defined within the Basin Plan. It is also important to note that, although the majority of consituents were below laboratory detection limits, many of the consituents have no associated WQOs for comparison.

Figure 4-6 Analysis of Historical Monitoring Constituents during Dry-Weather Events

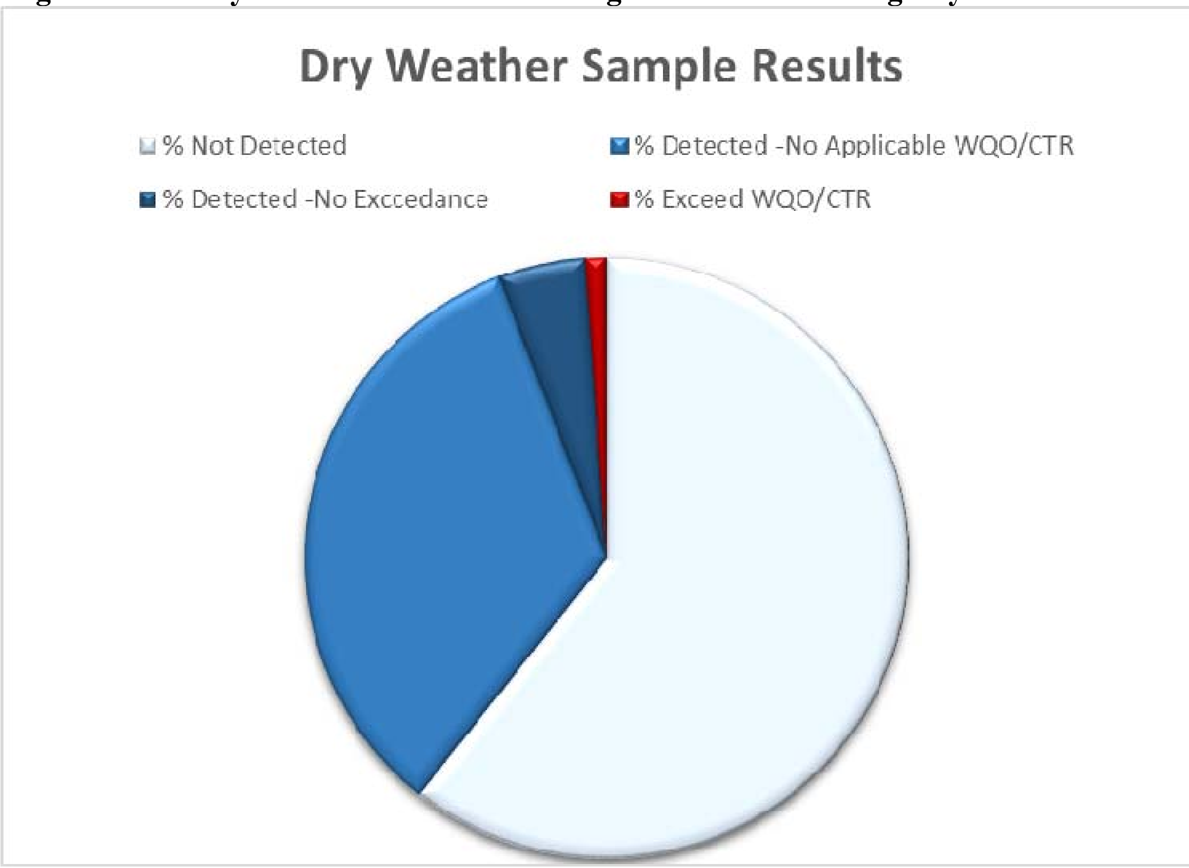
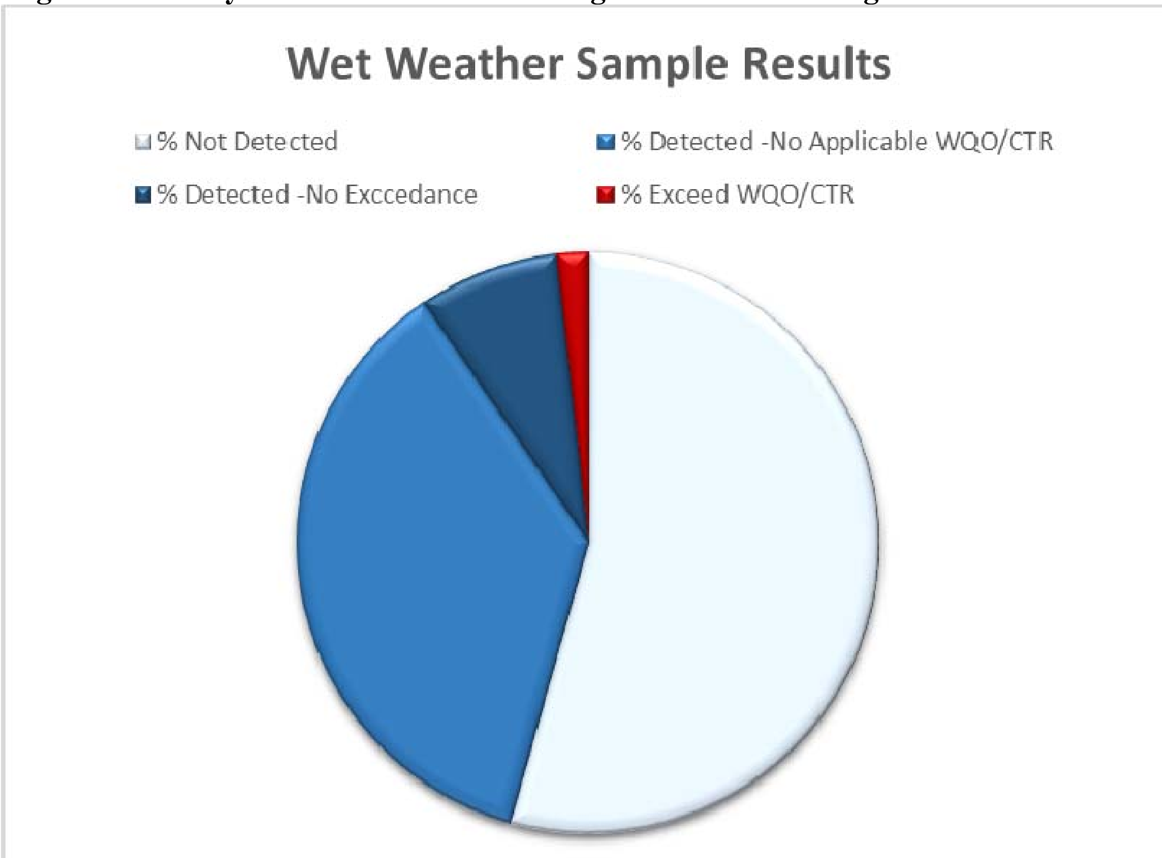


Figure 4-7 Analysis of Historical Monitoring Constituents during Wet-Weather Events



Based upon these results, the geography and climate of the watershed, and the actions being taken to protect water quality in the CVSC, the Permittees have not been able to identify an obvious region-wide water quality problem nor establish a nexus between urban runoff and the impairments listed for the CVSC in the 2012 or 2014/2016 303(d) lists. Nonetheless, the Permittees will continue to monitor bacterial indicators in accordance with the CVSC Bacterial Indicator TMDL, monitor DO and investigate depressed DO concentrations in the WWR.

4.9 RECOMMENDATIONS TO THE MONITORING PROGRAM

To improve the effectiveness of the monitoring program, the Permittees recommend the following:

- Evaluate phasing out dry-weather constituents that have successively showed non-detect results since 2008, or in cases of rare detections have never been observed exceeding applicable water quality objectives;
- Wet-weather runoff from the Ramsey Street outfall initially discharges into Smith Creek, which is ephemeral, and not listed in the Basin Plan nor on the 303(d) list. Smith Creek, in turn, is tributary to the San Gorgonio River, which is also ephemeral, rarely connects hydraulically to Smith Creek, and is also absent from the 303(d) list. A conflict lies in that the COLD beneficial use designation from San Gorgonio River is used, but not directly applicable, to evaluate DO levels in runoff from the Ramsey Street outfall. Based on current data, Permittees have determined that a nexus cannot be established

between DO levels at the Ramsey Street outfall and its effects on the health of the Whitewater River. Therefore, the applicability of the COLD beneficial use at this location should be reevaluated;

- Dry-weather monitoring at the Ramsey Street and Portola Avenue outfalls have successively yielded VNS results since 2008. VNS results cannot support conclusions regarding the health of the Whitewater River. As such, the Permittees recommend evaluating phasing out dry-weather monitoring at these two outfalls;
- Evaluate whether, in lieu of dry-weather monitoring, if mapping perennial extents during dry-weather conditions, and mapping the extent of connectivity in wet-weather (based on visual observations), will allow Permittees to verify MS4 contributions; and
- The CVSC receiving water station at the Avenue 52 bridge crossing primarily consists of effluent discharges from one POTW and from subsurface drainage consisting of rising groundwater and agricultural return flows. These contributions are not regulated under the Permittees' MS4 Permit. Wet-weather samples collected from the CVSC under the MS4 Permit have not identified impairments to be related to MS4 runoff. This is also true of dry-weather observations based on dry-weather monitoring findings. As such, these samples do not provide data that can support substantive conclusions regarding the health of the Whitewater River. Therefore, the Permittees recommend evaluating reductions in wet-weather monitoring from annually to biennially at this station and evaluating phasing out dry-weather monitoring as well.

5 PROGRAM ASSESSMENT

The Permittees assess program effectiveness using: (1) the recommendations and findings from regulatory audits; (2) metrics based on the CASQA Effectiveness Assessment Guidance document compiled for the current Permit term that help verify compliance and correlate program compliance activities with their potential to enhance water quality; and (3) findings from the analyses of dry and wet-weather monitoring data. In this instance the conclusions and resulting recommendations will provide information for further development of the Program and provide a basis for the development of the next MS4 Permit for the Whitewater River Region.

5.1 PROGRAM MANAGEMENT

Implementation Agreement

The Agreement has enabled the Permittees to effectively collaborate and share costs and has accommodated the expansion of the Program, as well as the significant escalation of shared costs with each new MS4 Permit.

In addition, with cost-share contributions by the Permittees, the District also administered various interagency cooperative agreements with County agencies that enable the following activities:

- ♦ Riverside County Fire Department Hazardous Materials Emergency Response ($1.8M over 5 years);
- ♦ Household Hazardous Waste Collection;
- ♦ Antifreeze, Battery, Oil and Latex Paint Collection; and
- ♦ Conditionally Exempt Small Quantity Generator.

Based on the significant program developments that have been enabled by the Implementation Agreement, and the ongoing financial support enabled by ancillary interagency agreements, these agreements are deemed robust and no amendments to them are planned.

Recommendation:

1. Continue implementing existing Implementation Agreement and ancillary interagency agreements.

Desert Task Force

The Desert Task Force is a technical committee consisting of representatives from each Permittee which, as a group, directs the implementation of the program components through the SWMP. The DTF has directed the development of the SWMP, WQMP, LID Handbook, Annual Report format, Enforcement Compliance Strategy, database templates, inspection forms, and this ROWD. As such, the current program management framework is considered effective and no re-structuring is planned.

Recommendation:

1. Maintain existing program management framework.

Coachella Valley Integrated Regional Water Management Group

The Permittees are stakeholders in the Coachella Valley Regional Water Management Group. This collaborative group is led by CVWD, Coachella Water Authority, Desert Water Agency, Indio Water Agency, and the Mission Springs Water District. Given the significance attached by the State Board to integrated water resource management, Permittees will continue to actively engage with the CVRWMG (California Water Action Plan, 2016 – http://resources. ca.gov/docs/california_water_ action_plan/Final_California_Water_ Action_Plan.pdf).

Recommendation:

1. Continue looking for opportunities to partner with local water agencies on multi-benefit water-conservation/water-quality projects.

California Association of Stormwater Quality Agencies

The District is an active member and participant with CASQA. Significant CASQA accomplishments that have contributed directly to surface water quality protection include its efforts supporting adoption of state legislation that is now significantly reducing brake pad copper content and its ongoing efforts to ensure that surface water quality is considered in federal pesticide registration. CASQA pollutant source control initiatives are significant to the Program and, consequently, the Program will be actively represented in CASQA in 2018 on its Board of Directors and Executive Program Committee.

Recommendation:

1. Continue participation in CASQA.

Legal Authority

Permittees with land-use authority have adopted comprehensive storm water ordinances that were vetted by their respective legal teams. These ordinances enable the Permittees to:

- ♦ Prohibit disposal of pollutants onto public and private land;
- ♦ Prohibit IDIC to the MS4;
- ♦ Require implementation of year-round erosion, sediment, and pollution prevention BMPs at constructions sites;
- ♦ Require implementation of region-appropriate permanent post-construction BMPs by development projects meeting Priority Development Project criteria;
- ♦ Require implementation of BMPS at industrial facilities and select commercial premises; Prohibit non-stormwater discharges.

Given the level of activity during the reporting period (i.e. 625 IC/ID investigations, 2,551 business inspections, 178 development projects conditioned for WQMPs, and 2,846 construction sites inspections) it is clear that the current legal authority is effectively supporting program implementation. Moreover, no Permittee has reported its legal authority as being subject to an appeal or legal challenge. Current legal authority is therefore considered effective and no revisions to legal authority are planned.

Recommendation:

1. Maintain existing legal authority.

Enforcement and Compliance Strategy

The goal of the Enforcement and Compliance Strategy is to provide Permittees with a uniform and consistent enforcement approach for storm water violations throughout the Permit region. Implementation of this strategy during the reporting period yielded the successful elimination of IC/IDs throughout areas of existing development and at construction sites. This strategy has therefore been effective and no revisions to the strategy are planned.

Recommendation:

1. Continue prohibiting illegal discharges into the MS4 networks pursuant to the model set of policies and procedures established in the Enforcement and Compliance Strategy of the SWMP.

5.2 PROGRAM COMPONENTS

This section presents a review of the status of program implementation and presents recommendations based on an assessment of each component using the evaluation criteria described previously.

5.2.1 Illicit Connections and Illegal Discharges – Permit Section F.1.a.

MS4 Mapping

The Permittees continued updating their jurisdiction-specific MS4 maps and inventories. The information on these maps is key in supporting effective investigations if IC/ID issues are encountered at outfalls.

Recommendation:

1. Continue updating MS4 maps when there are changes to the MS4 networks, or when urban areas extend beyond the current Permit boundaries, and/or when jurisdictional boundaries are modified (i.e. annexations, etc.).

Source Control

The Permittees continued administering area-wide source control programs and partnering with other agencies in collection events of household hazardous waste, antifreeze/batteries/oil/paints, and conditionally exempt small quantity generators.

Recommendation:

1. Continue providing funding for HHW, ABOP and CESQG programs.

Detection

The Permittees continued investing considerable staff resources to identify, detect, and eliminate IC/IDs, conduct field inspections, monitor dry-weather outfalls, maintain a toll-free 24-hour hotline, provide IC/ID information on websites, conduct training of municipal staff, etc.

Recommendation:

1. Evaluate IC/ID training to continue supporting consistent year-to-year reporting.

Response

The Permittees investigated 625 IC/ID incident reports during the reporting period and provided significant financial support to the Riverside County Fire Department's Hazardous Materials Emergency Response Team for on-call services. Currently, $1,825,000 has been allocated for FY17/18 to FY21/22.

Recommendation:

1. Continue providing funding to the Riverside County Fire Department Hazardous Materials Response Team.
2. Continue maintaining IC/ID tracking inventories and reviewing means by which these inventories can be accessed among the divisions tasked with NPDES inspection responsibilities.

Reporting

There were no incidents which Permittees responded to during this reporting period requiring 24-hour reporting to the Regional Board and California Office of Emergency Services (OES). As such, no changes are planned to this element.

Enforcement

Permittees conducted enforcement in accordance with the Enforcement and Compliance Strategy in the SWMP. Across all components of the Program (i.e. construction, existing development, and IC/ID), more than 500 enforcement actions were noted during the reporting period.

Recommendation:

1. Continue implementing the current IC/ID Program component elements.
2. Evaluate approaches in aligning this section of the SWMP as a jurisdiction-specific set of SOPs rather than a broad set of comprehensive guidelines.
3. Continue focusing annual Permittee training on pollution prevention, IC/ID detection, source identification, response, reporting, BMP implementation, etc.
4. Evaluate documentation processes to find opportunities in which to demonstrate compliance efforts with this Permit component.

Since sanitary sewer collections systems are separately regulated under State Board Water Quality Order No. 2006-0003 the Permittees will continue to address sanitary sewer overflows as described in the SWMP.

Recommendation:

1. Continue coordinating with the responsible sewer agency and implementing the guidance provided in the “Sanitary Sewer System Spill Response Procedures” provided in the SWMP.

5.2.2 Commercial and Industrial facilities – Permit Section F.1.b.

Database

With the elimination of the Compliance Assistance Program, Permittees had to generate their own business lists identifying restaurants and industrial facilities with hazardous materials permits. With monitoring data now suggesting that fecal indicator bacteria (FIB) is the priority water quality constituent of concern for the region, there is an opportunity to consider how jurisdictional business inventories might be re-prioritized to focus resources on those facilities that may be sources of FIB or contributing to conditions that sustain FIB within the MS4.

Recommendation:

1. Evaluate focusing inspection resources on addressing sources of FIB.
2. Evaluate the use of a GIS-based database to assess business inventories and to focus inspection resources on addressing sources of FIB.

Industrial General Permit

Pursuant to Section 3.2 of the SWMP, Permittees utilized their business surveys to identify non-filers and required proof of coverage prior to issuing business licenses to eligible industrial operators or certificates of occupancy for new industrial facilities. As such, no changes are planned to this element.

Inspections

With the elimination of the CAP, the Permittees now manage their own business inventories in accordance with the SWMP. During this reporting period, 2,551 inspections were conducted.

Recommendations:

1. Continue reviewing documentation processes to find opportunities in which to demonstrate compliance efforts with this Permit component.
2. Continue maintaining inspection inventories of retail food facilities and facilities requiring hazardous materials permits and verifying that these inventories can be accessed among the divisions tasked with NPDES inspection responsibilities.

Enforcement

Permittees conducted enforcement in accordance with the Enforcement and Compliance Strategy in the SWMP although there is considerable year-to-year variability in the number of enforcement actions taken.

Recommendations:

1. Continue enforcing ordinances, requiring new industrial facilities (subject to the IGP) to show proof of coverage, and notifying the Regional Board of eligible facilities that lack coverage.
2. Continue implementing current the current Industrial and Commercial Facilities Program component elements.
3. Evaluate approaches in aligning this section of the SWMP as a jurisdiction-specific set of SOPs rather than a broad set of comprehensive guidelines.
4. Continue focusing annual Permittee training on pollution prevention, source identification, response, reporting, BMP implementation, etc.

5.2.3 New Development/Redevelopment – Permit Section F.1.c.

Planning

The Permittees have effectively integrated this component into their development approval and permitting processes, as demonstrated by 178 WQMPs that were conditioned during the reporting period. As such, no changes are planned to this element.

Water Quality Management Plans (WQMPs)

Permittees continued reviewing eligible projects for site design concepts, source controls, and structural BMPs in accordance with the SWMP and Whitewater Region LID BMP Design Handbook.

Recommendations:

1. Review the current set of LID BMPs to consider proposing adjustments reflecting the unique conditions of the Whitewater River Region.
2. Continue requiring long-term maintenance of post-construction BMPs by requiring developers to submit maintenance covenants or agreements with WQMPs.
3. Continue conducting annual Permittee training focusing on New Development/Redevelopment, including guidance on the Water Quality Management Plan and the LID BMP Design Handbook.

Conditions of Approval (COAs)

Permittees added the New Development/Redevelopment requirements to their Conditions of Approval, and/or to their grading/building permit conditions. It should be noted that most of the Permittees with land-use authority currently require on-site retention.

Recommendations:

1. Continue implementing current New Development/Redevelopment Program component elements.
2. Evaluate approaches in aligning this section of the SWMP as a jurisdiction-specific set of SOPs rather than a broad set of comprehensive guidelines.
3. Continue requiring WQMPs for discretionary "Priority Development Projects" and "Other Development Projects".
4. Review documentation processes to find opportunities in which to demonstrate compliance efforts with this Permit component.

5.2.4 Private Construction Activities – Permit Section F.1.d.

Plan Review

Permittees continued reviewing project plans for erosion, sediment, and pollution prevention controls, and verified whether eligible projects required coverage under California's Construction General Permit (CGP). As such, no changes are planned to this element.

Inspections

Permittees conducted a reported 2,846 site inspections during the reporting period. Inspections, inspection frequencies, and site prioritization were carried out pursuant to the SWMP and assisted contractors in complying with local storm water ordinances.

Recommendations:

1. Continue verifying that eligible projects have obtained coverage under the Construction General Permit and ensuring that adequate BMP implementation, site prioritization criteria, and inspection frequencies match with those in the SWMP.
2. Review documentation processes to find opportunities in which to demonstrate compliance efforts with this Permit component.
3. Evaluate approaches in aligning this section of the SWMP as a jurisdiction-specific set of SOPs rather than a broad set of comprehensive guidelines.
4. Continue maintaining inspection tracking inventories and reviewing means by which these inventories can be accessed among the divisions tasked with NPDES inspection responsibilities.
5. Continue utilizing project-specific erosion control plans (or PM-10 Plans) and the SWMP to evaluate proper levels of site protection.

PM-10 Ordinance

Permittees required PM-10 Plans to comply with the PM-10 ordinance. PM-10 Plans and ESC Plans could typically be combined due to overlapping BMPs, implementation, and nature of their respective goals.

Recommendation:

1. Continue requiring PM-10 Plans (or equivalent erosion and sediment control plans) for eligible land development projects.

Enforcement

Permittees enforced their storm water ordinance pursuant to the Enforcement and Compliance Strategy in the SWMP. Lower-level enforcement responses (i.e. education and verbal warnings) were used to address lesser threats (non-discharges, minor house-keeping issues), while higher-level enforcement responses (i.e. referrals to the RB, administrative citations, stop work orders) were reserved for violations involving actual discharges.

1. Continue implementing the current Construction Activities Program component elements.
2. Continue conducting annual Permittee training focusing on construction activities, the Construction General Permit, SWPPP requirements, BMP implementation, violations, corrections, etc.

5.2.5 Permittee Activities – Permit Section F.1.e.

Facility Inventories

Permittees continued reviewing their inventories of municipal facilities for those requiring facility pollution prevention plans (FPPPPs). These inventories have been beneficial in allowing Permittees to determine facility-specific potential pollutants, potential sources, and corresponding sets of Source Control BMPs. As such, no changes are planned to this element.

Facility Pollution Prevention Plan (FPPP)

In addition to these inventories, Permittees focused on facility pollution prevention plans (FPPPs) for the facilities that had outdoor maintenance areas and/or outdoor storage areas. These facilities were typically occupied during business hours by staff who had previously attended NPDES training. As such, these facilities were maintained on a daily basis in terms of facility walk-throughs, general house-keeping, material inventories, waste disposal, spill response, and other activities required by the FPPPs. Since these practices were carried out daily and became routine, they were integrated as standard operating procedures.

Facility Activities

Pursuant to the Permit, Permittees also integrated source control BMPs as part of their municipal activities. These BMPs included street sweeping, catch basin cleaning, proper landscape maintenance, designating dedicated vehicle and equipment maintenance areas, to name just a few. To facilitate this effort, Permittees continued referencing the 2003 California Stormwater Best Management Practice Handbooks for Municipal Facilities and Activities (Errata 2004, https://www.casqa.org/resources/bmp-handbooks/municipal-bmp-handbook).

Inspections

Municipal facilities and activities were staffed with trained personnel during business hours. This staffing allowed Permittees to maintain a level of house-keeping that was protective of water quality.

Recommendations:

1. Continue implementing the current Permittee Activities Program component elements.
2. Review documentation processes to find opportunities in which to demonstrate compliance efforts with this Permit component.
3. Evaluate approaches in aligning this section of the SWMP as a jurisdiction-specific set of SOPs rather than a broad set of comprehensive guidelines.
4. Continue maintaining inspection tracking inventories and reviewing means by which these inventories can be accessed among the divisions tasked with NPDES inspection responsibilities.
5. Review and update as necessary the developed list of Source Control BMPs to address priority water quality constituents of concern as appropriate.
6. Continue conducting annual Permittee training focusing on permittee activities, fertilizer and pesticide management, water conservation, Permittee FPPPs, proper BMP implementation, violations, corrections, etc.

5.2.6 Public Education and Outreach – Permit Section F.1.f.

The District and Permittees collaborated to address Public Education and Outreach requirements on a jurisdictional level and on a region-wide scale. In order to accomplish this, the District and Permittees individually and collectively conducted, sponsored, hosted, and/or partnered with various organizations on, Public Education and Outreach events. These annual events included the Date Festival, Stage Coach Days Festival, Earth Day, Southwest Arts Festival, Tamale Festival, Indio Block Party, Fire Department safety fairs, Neighborhood Cleanups, Water Awareness Month, Recycle Month, Disaster Survival Expo, etc. In total, Permittees participated in over 269 reported outreach events during the current reporting period.

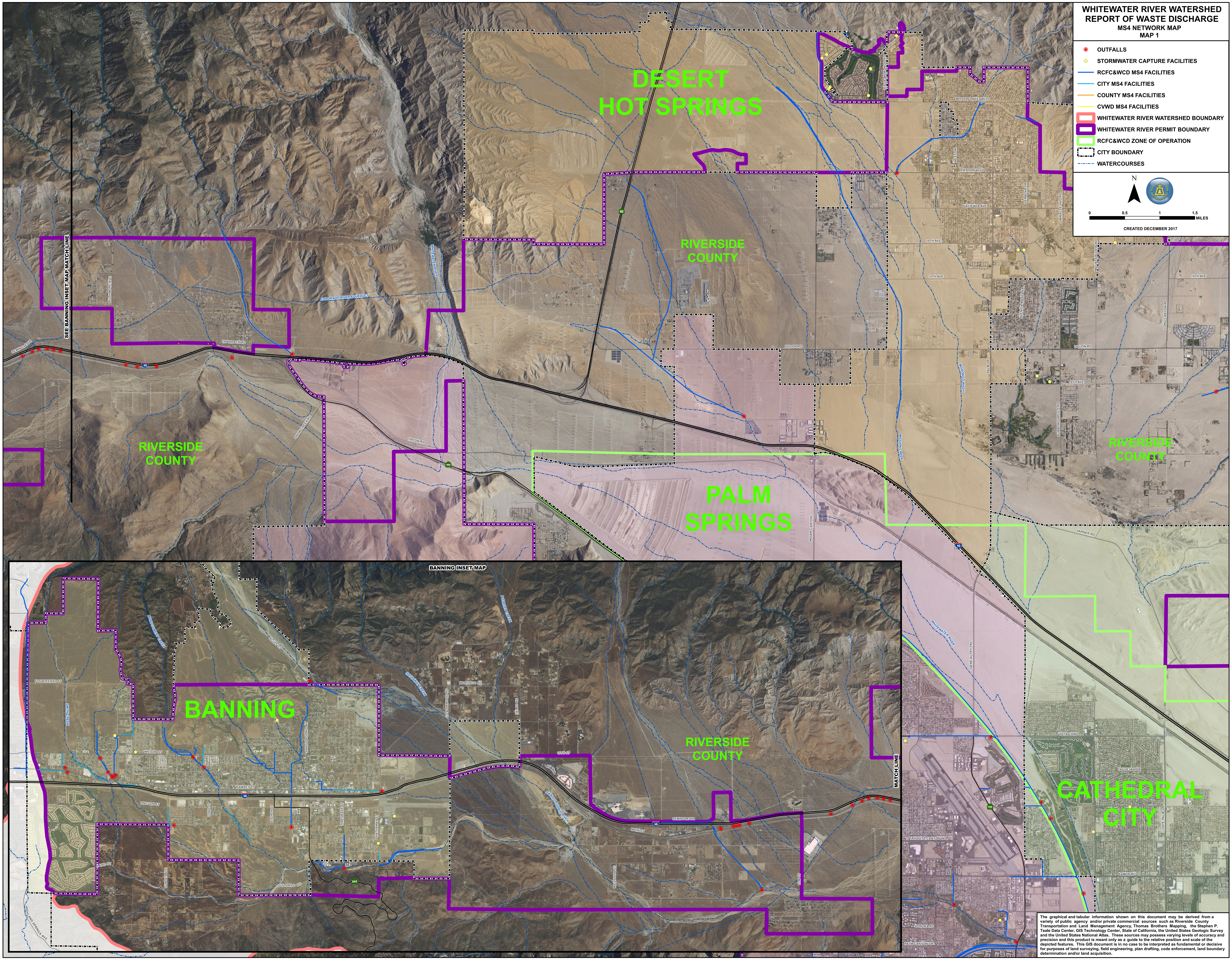
In addition, the District and Permittees partnered to promote the availability of collection centers for HHW, EWaste, bulky items, used batteries, etc. During these events, promotional materials and brochures were distributed to promote pollution prevention and to heighten environmental awareness. Promotional materials included pens, pencils, rulers, shop rags, dog-waste bags, dust pans, etc. while brochures addressed pollution prevention, recycling, disposal of household hazardous waste, construction site discharges, pet care, swimming pool discharges, jacuzzi and garden fountain maintenance, septic tank upkeep, discharges from mobile services, landscape and gardening activities, the "Do's-and-Dont's" of outdoor cleaning, proper housekeeping practices for automotive facilities, restaurants, and commercial/industrial facilities, etc.

Other significant efforts included conducting classroom and school-assembly presentations at elementary schools, maintaining the District's NPDES website, updating its education and outreach web page to be more effective at providing usable and interactive data, and ensuring continued operation of the region-wide public reporting hotline.

Recommendations:

1. Continue implementing current Public Education and Outreach Program component elements.
2. Review documentation processes to find opportunities in which to demonstrate compliance efforts with this Permit component.
3. Continue distributing promotional materials and informational brochures at Permittee public outreach events and school presentations.
4. Continue maintaining and updating NPDES related information on municipal websites.
5. Look for opportunities to partner with other agencies and stakeholders to promote pollution prevention and environmental awareness.

APPENDIX A
Permittee MS4 Facility Maps


WHITEWATER RIVER WATERSHED
REPORT OF WASTE DISCHARGE
MS4 NETWORK MAP
MAP 1
OUTFALLS
STORMWATER CAPTURE FACILITIES
RCFC&WCD MS4 FACILITIES
CITY MS4 FACILITIES
COUNTY MS4 FACILITIES
CVWD MS4 FACILITIES
WHITEWATER RIVER WATERSHED BOUNDARY
WHITEWATER RIVER PERMIT BOUNDARY
RCFC&WCD ZONE OF OPERATION
CITY BOUNDARY
WATERCOURSES
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0
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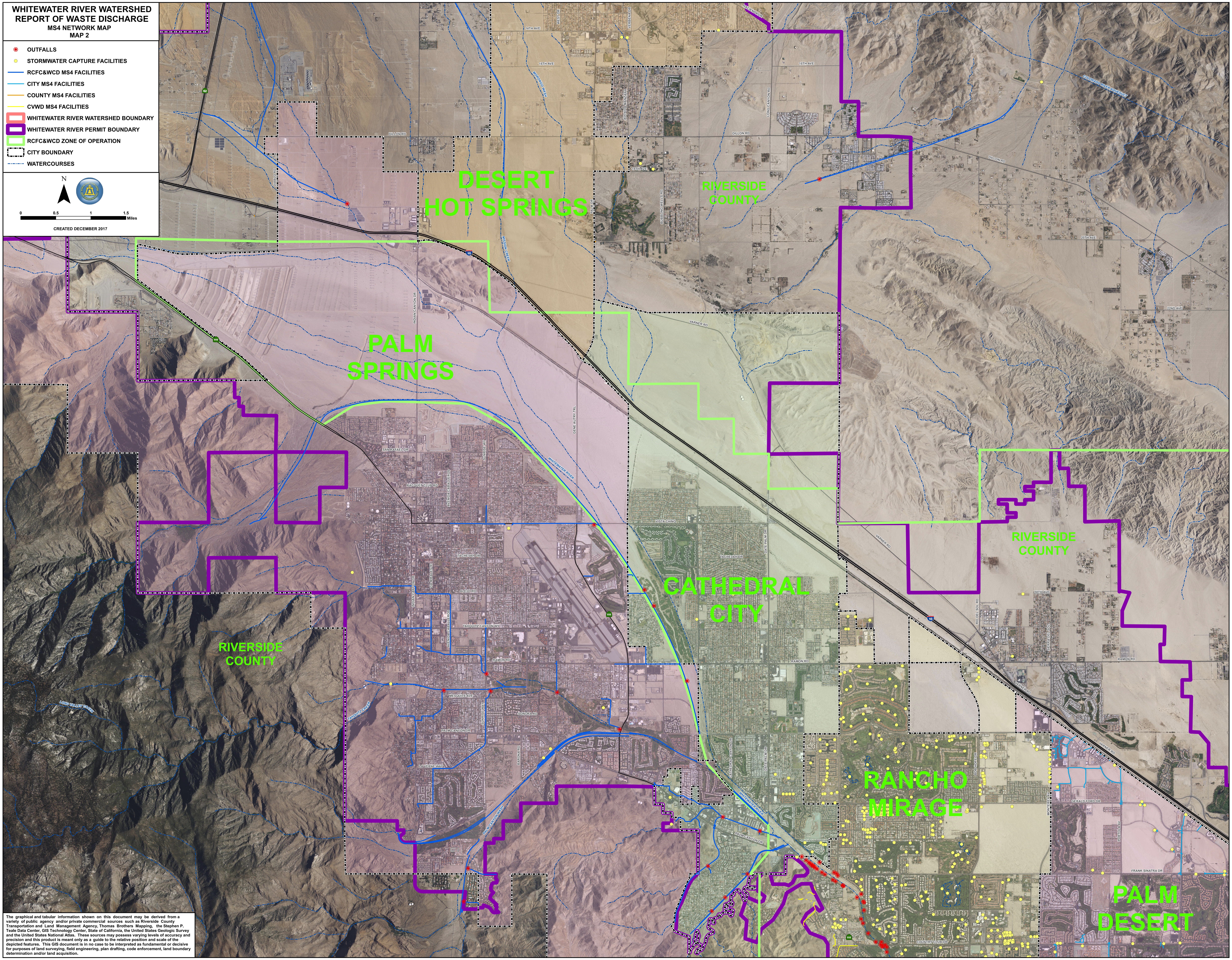
MILES
CREATED DECEMBER 2017
DESERT HOT SPRINGS
RIVERSIDE COUNTY
RIVERSIDE COUNTY
RIVERSIDE COUNTY
PALM SPRINGS
CATHEDRAL CITY
SEE BANNING INSET MAP MATCH LINE
BANNING INSET MAP
BANNING
RIVERSIDE COUNTY
MATCH LINE
RAMON RD
15TH AVE
The graphical and tabular information shown on this document may be derived from a variety of public agency and/or private commercial sources such as Riverside County Transportation and Land Management Agency, Thomas Brothers Mapping, the Stephen P. Teale Data Center, GIS Technology Center, State of California, the United States Geologic Survey and the United States National Atlas. These sources may possess varying levels of accuracy and precision and this product is meant only as a guide to the relative position and scale of the depicted features. This GIS document is in no case to be interpreted as fundamental or decisive for purposes of land surveying, field engineering, plan drafting, code enforcement, land boundary determination and/or land acquisition.



WHITEWATER RIVER WATERSHED
REPORT OF WASTE DISCHARGE
MS4 NETWORK MAP
MAP 2
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STORMWATER CAPTURE FACILITIES
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WHITEWATER RIVER WATERSHED BOUNDARY
WHITEWATER RIVER PERMIT BOUNDARY
RCFC&WCD ZONE OF OPERATION
CITY BOUNDARY
WATERCOURSES
N
0
0.5
1
1.5
Miles
CREATED DECEMBER 2017
DESERT HOT SPRINGS
RIVERSIDE COUNTY
PALM SPRINGS
CATHEDRAL CITY
RIVERSIDE COUNTY
RIVERSIDE COUNTY
RANCHO MIRAGE
PALM DESERT
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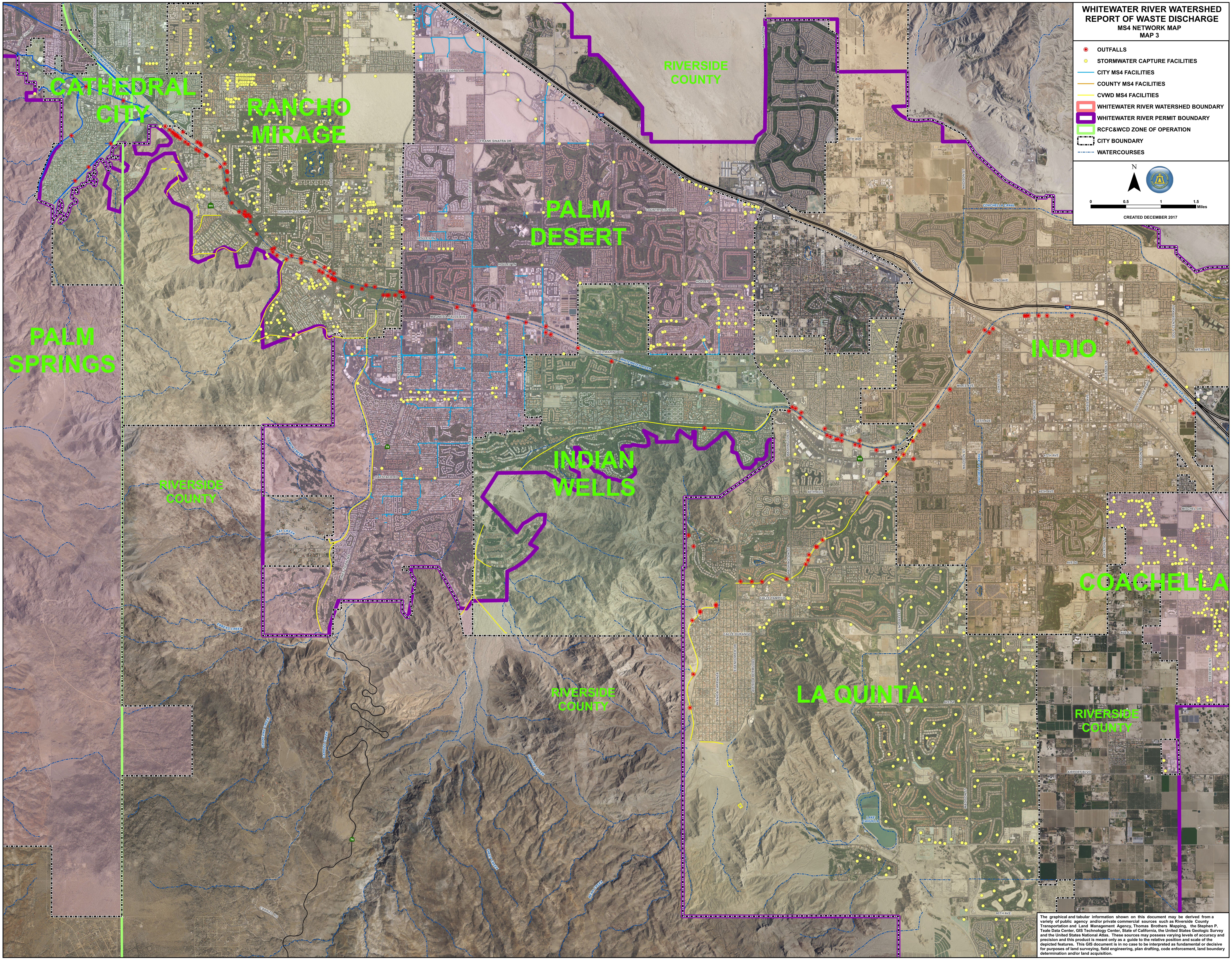
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CITY BOUNDARY
WATERCOURSES
N
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Miles
CREATED DECEMBER 2017
CATHEDRAL CITY
RANCHO MIRAGE
RIVERSIDE COUNTY
PALM DESERT
PALM SPRINGS
INDIO
INDIAN WELLS
RIVERSIDE COUNTY
COACHELLA
RIVERSIDE COUNTY
LA QUINTA
RIVERSIDE COUNTY
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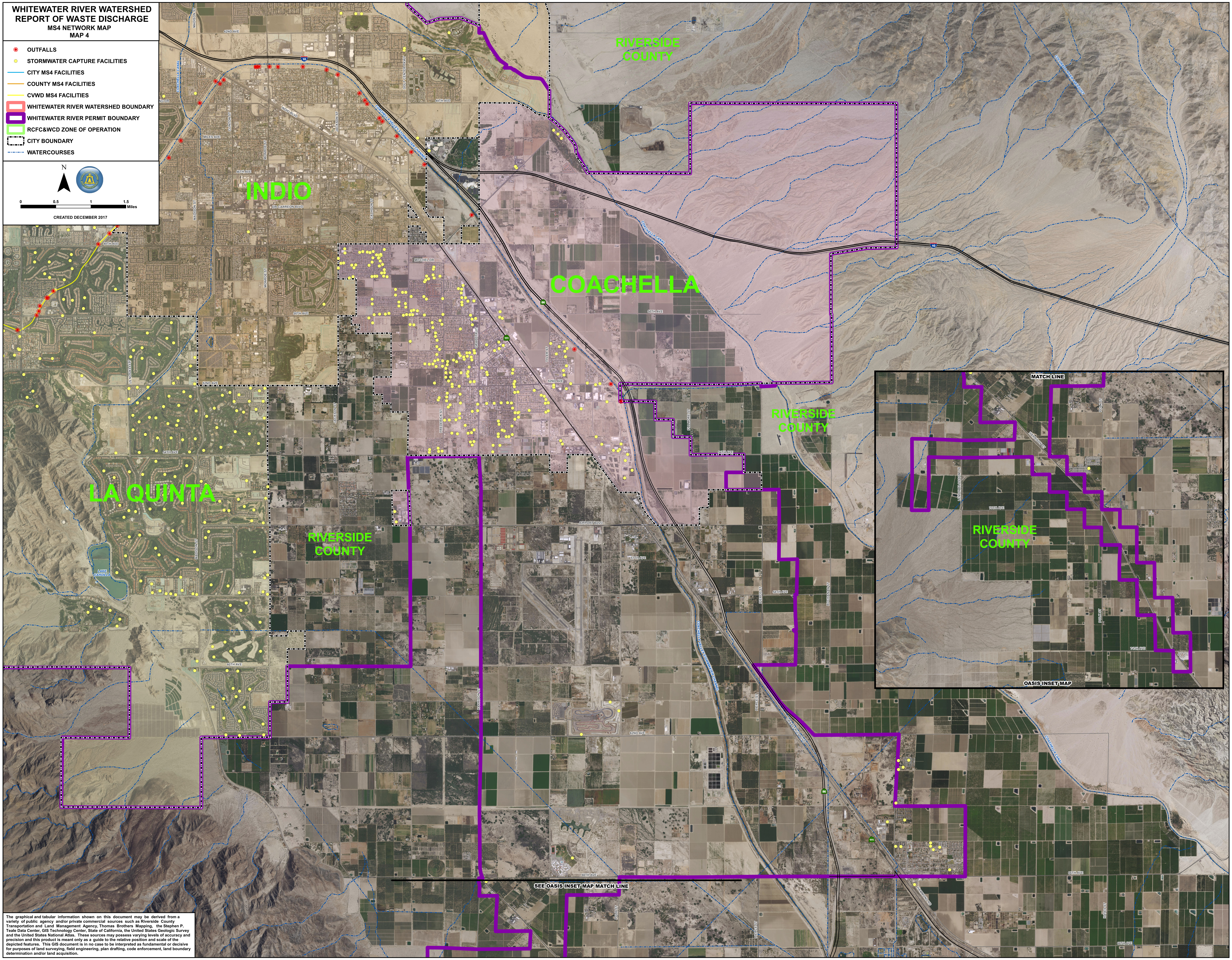
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COUNTY MS4 FACILITIES
CVWD MS4 FACILITIES
WHITEWATER RIVER WATERSHED BOUNDARY
WHITEWATER RIVER PERMIT BOUNDARY
RCFC&WCD ZONE OF OPERATION
CITY BOUNDARY
WATERCOURSES
N
0
0.5
1
1.5
Miles
CREATED DECEMBER 2017
INDIO
COACHELLA
LA QUINTA
RIVERSIDE COUNTY
RIVERSIDE COUNTY
RIVERSIDE COUNTY
RIVERSIDE COUNTY
MATCH LINE
OASIS INSET MAP
SEE OASIS INSET MAP MATCH LINE
The graphical and tabular information shown on this document may be derived from a variety of public agency and/or private commercial sources such as Riverside County Transportation and Land Management Agency, Thomas Brothers Mapping, the Stephen P. Teale Data Center, GIS Technology Center, State of California, the United States Geologic Survey and the United States National Atlas. These sources may possess varying levels of accuracy and precision and this product is meant only as a guide to the relative position and scale of the depicted features. This GIS document is in no case to be interpreted as fundamental or decisive for purposes of land surveying, field engineering, plan drafting, code enforcement, land boundary determination and/or land acquisition.

APPENDIX B
Whitewater River Region Monitoring Annual Report
Monitoring Year 2015-2016

CERTIFICATION

CERTIFICATION FOR ANNUAL MONITORING REPORT
FY 2015-16

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Stuart E McKibbin

STUART E. MCKIBBIN
Chief of Watershed Protection Division
Riverside County Flood Control and Water Conservation District

P8# 210839

WHITEWATER RIVER REGION MONITORING ANNUAL REPORT

MONITORING YEAR 2015-2016

March 2017

WESTON PROJECT NO.: 15039.116.001.0002.01

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TABLE OF CONTENTS

ATTACHMENTS

Figures

Tables

EXECUTIVE SUMMARY

ES.1 INTRODUCTION

This Monitoring Annual Report was developed in compliance with the California Regional Water Quality Control Board Colorado River Basin Region (Regional Board) issued Order No. R7-2013-0011, National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer System (MS4) within the Whitewater River Watershed (2013 Permit), effective June 20, 2013. This document presents the monitoring completed during the 2015-2016 monitoring year (July 1, 2015 to June 30, 2016) in the Whitewater Region (WWR) by the following Permittees:

- Riverside County Flood Control and Water Conservation District
- County of Riverside
- Coachella Valley Water District
- Incorporated Cities of Riverside County within the Whitewater River Watershed

The Monitoring and Reporting Program (MRP) requirements under the 2013 Permit are summarized in Table ES-1. The WWR is an arid desert area, and flows in the receiving waters are ephemeral. Samples were collected only when there was sufficient flow for sample collection, and when flow was insufficient for sample collection, the monitoring event was recorded as visited not sampled (VNS).

Table ES-1: 2015-2016 Monitoring Year Monitoring Program Requirements

Monitoring Program	Monitoring Type	Sampling Requirement	Frequency Required	Monitoring Accomplished
Receiving Water Monitoring at: CVSC at Avenue 52 Bridge (719CVS884)	Wet Weather	Field parameters, and Constituents of Concern (Permit Table L-1)	Once annually	1 event
	Dry Weather	Field parameters, and Constituents of Concern (Permit Table L-1)	Twice annually, if flowing	2 events
MS4 Outfall Monitoring at: • Ramsey Street Storm Drain (719RMS782) • Portola Avenue Storm Drain (719POR817)	Wet Weather	Field parameters and Constituents of Concern (Permit Table L-1)	Twice annually	2 events at Ramsey Street Storm Drain; 1 event at Portola Avenue Storm Drain. (No additional event that met mobilization and safety criteria.)
	Dry Weather / IC/ID	Visual observations, Field parameters, and *E. coli*, if flowing.	Quarterly (4 times per year)	4 VNS events

IC/ID – Illicit Connection/Illicit Discharge

In accordance with the 2013 Permit, the 2015-2016 monitoring results were compared to the normal range for each constituent by station for wet and dry weather monitoring based upon historical water quality data. Data were also compared to water quality objectives (WQOs) identified in the Water Quality Control Plan for the Colorado River Basin (Basin Plan) for the receiving waters of the monitoring locations. It should be noted that where sample results from the MS4 outfall stations were compared to WQOs it was for comparison purposes only, as WQOs are only applicable to the receiving waters. The differences between these different comparison tools are explained in Figure ES-1.

Basin Plan WQO Comparisons:

- Used to evaluate whether observed conditions are protective of beneficial uses.
- Applicable to *E. coli*, dissolved oxygen (DO), pH.

Normal Range Analysis:

- A screening tool used to compare 2015-2016 data with historical data.
- A value outside of the normal range does not necessarily indicate a water quality issue.
- A value outside of the normal range is not necessarily statistically different than the normal range.

Figure ES-1. 2015-2016 Monitoring Comparison Criteria

ES.2 MS4 OUTFALL RESULTS SUMMARY

All four dry weather illicit connection/illicit discharge (IC/ID) monitoring events at both MS4 outfalls were VNS due to lack of or insufficient flow, with no samples collected or analyzed. The Ramsey Street Storm Drain has been VNS during dry weather monitoring events for the past seven years, with frequent VNS events since 2001 (Figure ES-2). The Portola Avenue Outfall was dry for all events during the last two years, with frequent VNS events since 2009 (Figure ES-3).

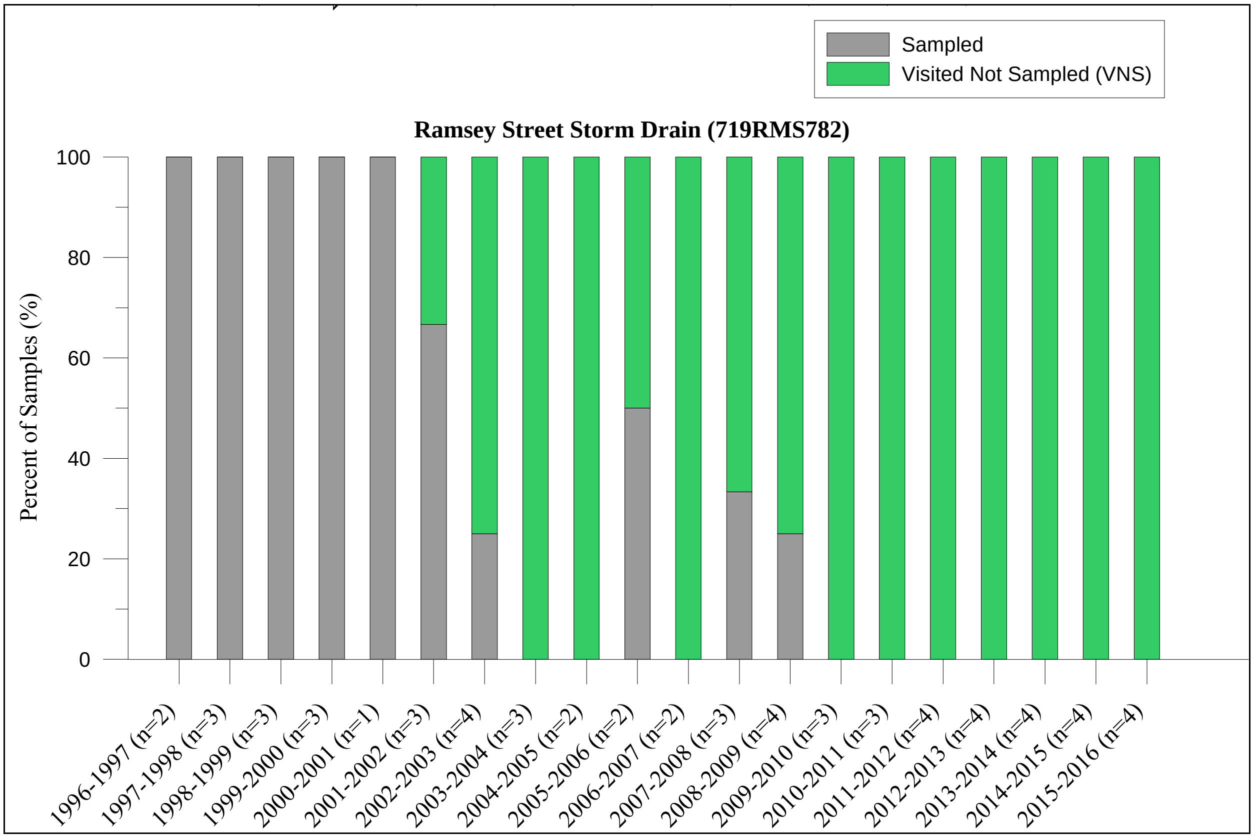

Figure ES-2. Events Sampled and VNS for Ramsey Street Outfall

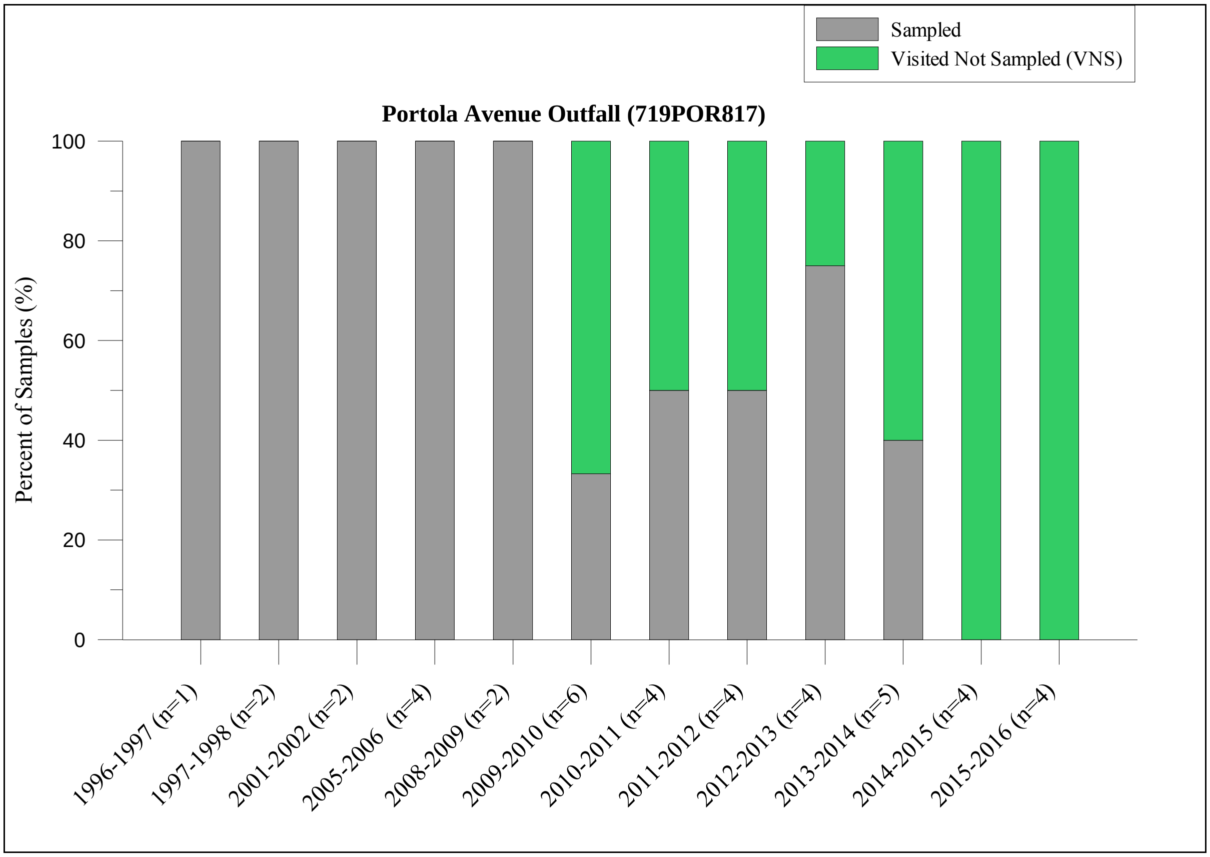

Figure ES-3. Events Sampled and VNS for Portola Avenue Outfall

Wet weather samples included the following:

- Ramsey Street Storm Drain MS4 outfall station: October 4, 2015 and January 5, 2016
- Portola Avenue Storm Drain MS4 outfall station: January 5, 2016

Ramsey Street Storm Drain MS4 Outfall during October 4, 2015 Wet Weather Event

No additional events met the criteria or provided safe conditions for sampling. Shown in Figure ES-4 is a summary of analytical results outside of the WQOs and/or historical normal range during at least one of the two events at Ramsey Street Storm Drain and during the single event at Portola Avenue Storm Drain. It should be noted that the applicable receiving water WQOs for *E. coli*, dissolved oxygen (DO), and pH are based on the beneficial uses (as given in the Basin Plan) associated with the eventual downstream receiving waters San Gorgonio River and the White Water River and are not directly applicable to MS4 outfall discharges. Constituents that were not detected or detected not quantified (DNQ) at the Ramsey Street Storm Drain during wet weather included: diesel range hydrocarbons, gasoline range organics, and several metals (beryllium, cadmium, mercury, selenium, silver, and thallium) during both events and MBAS, ethylene glycol, and arsenic during one event. For Portola Avenue Storm Drain constituents that were not detected or DNQ included: MBAS, hydrocarbons, and several metals (antimony, arsenic, beryllium, cadmium, chromium, hexavalent chromium, mercury, nickel, selenium, silver, and thallium).

Constituents Not Achieving Basin Plan WQOs:

- Ramsey Street Storm Drain
  - *E. coli*, DO
- Portola Avenue Storm Drain
  - None

Constituents Outside of Normal Range:

- Ramsey Street Storm Drain
  - *E. coli*, DO, temperature, TSS, ethylene glycol
- Portola Avenue Storm Drain
  - Nitrate, TKN, total nitrogen

Figure ES-4. 2015-2016 Wet Weather MS4 Analytical Results Summary

ES.3 RECEIVING WATER RESULTS SUMMARY

Sampling at the Coachella Valley Stormwater Channel (CVSC) at Avenue 52 Bridge receiving water station, shown in Figure ES-4included the following:

- Dry Weather: July 20, 2015 and January 28, 2016
- Wet Weather: January 6, 2016

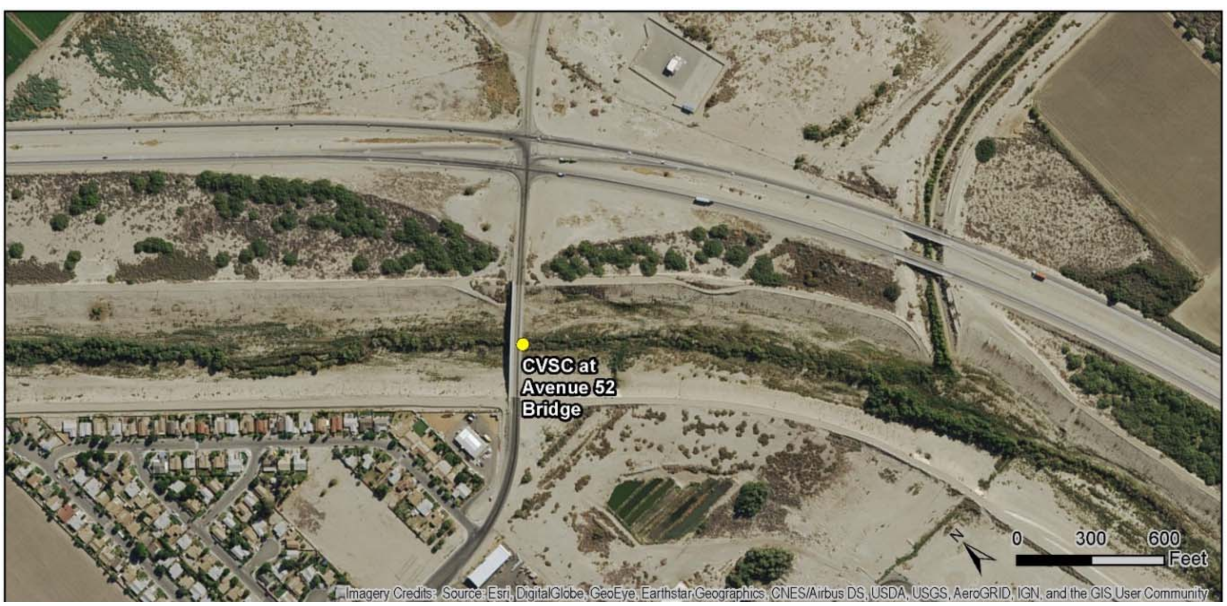

Figure ES-5. Arid Environment at the CVSC Receiving Water Monitoring Station

Figure ES-6 shows the constituents not achieving WQOs and/or outside of the historical normal range during at least one of two events for dry weather or during the single event for wet weather for the CVSC at Avenue 52 Bridge station. Of the analytes measured outside of normal ranges, five were nutrient-related, including ammonia, which is on the Section 303(d) list for the CVSC.

Constituents Not Achieving Basin Plan WQOs:

- Dry Weather
  - DO
- Wet Weather
  - *E. coli*, DO

Constituents Outside of Normal Range:

- Dry Weather
  - Water temperature, oil & grease, ammonia, nitrate, nitrite, TKN, total nitrogen
- Wet Weather
  - Specific conductance, TDS

Figure ES-6. 2015-2016 Receiving Water Analytical Results Summary

Constituents that were not detected or DNQ at the CVSC at Avenue 52 Bridge receiving water station during wet weather included: MBAS, hydrocarbons, and several metals (antimony, arsenic, beryllium, cadmium, chromium, hexavalent chromium, lead, mercury, nickel, selenium, silver, and thallium). During dry weather, constituents that were not detected or DNQ included: MBAS, hydrocarbons, and all analyzed metals except barium during both events.

ES.4 TREND ANALYSIS SUMMARY

A specific requirement of 2015-2016 annual monitoring report is identification and analysis of long-term trends in storm water and receiving water quality. Therefore, testing for statistical trends in the wet and dry weather sampling results was performed using the period of record data collected from the two outfalls and CVSC receiving water station. Results of the analysis included the following:

- Ramsey Street Storm Drain wet weather: Significant trends toward improving water quality were observed for total barium, total lead, and total zinc, and significant trends toward declining water quality were observed for orthophosphate phosphorus, DO, specific conductance, and water temperature.
- Portola Street Storm Drain wet weather: Significant trends toward a decline in water quality were observed for DO, water temperature, and turbidity.
- CVSC at Avenue 52 Bridge receiving water station wet weather: No significant trends.
- CVSC at Avenue 52 Bridge receiving water station dry weather: Significant trends toward improving water quality were observed for total copper and total zinc, and significant trends toward declining water quality were observed for ammonia as N, nitrate as N, nitrite as N, total nitrogen, total selenium, specific conductance, and TDS.

The only long-term trend identified for a chronic water quality concern was the DO trend toward declining water quality at Ramsey Street Storm Drain. This outfall discharges to Smith Creek, an ephemeral wash that is tributary (but not generally hydraulically connected) to San Gorgonio Creek, which is also ephemeral. Therefore, the Cold Freshwater Habitat (COLD) beneficial use designated for the distant downstream receiving water may not be appropriate for evaluating DO levels at Ramsey Street Storm Drain.

ES.5 WWR MONITORING PROGRAM FINDINGS

The frequency of VNS results during dry weather MS4 monitoring demonstrates program effectiveness through elimination of dry weather flows.

Dry weather water quality impacts associated with urban runoff from the MS4 are limited given that IC/ID program quarterly investigation results are generally VNS. Given the dry, arid conditions of the watershed, it is likely that outfall flows during dry weather and most wet weather events evaporate and/or infiltrate without impacts to the receiving water. During exceptionally large and/or intense, wet weather storm events, typically associated with flooding conditions, MS4 runoff likely connect to the receiving water. However, impacts to the receiving water cannot be safely determined since the intensities, durations, and volumes of the storm flows create flash flood conditions.

Water Quality Challenges

Bacteria

The CVSC is subject to a Total Maximum Daily Load (TMDL) for Bacterial Indicators. Concentrations of the bacterial indicator *E. coli* were measured above Basin Plan WQOs in the receiving water and MS4 outfalls during wet weather and below the WQO in the receiving water during dry weather. *E. coli* sample concentrations during the 2015-2016 monitoring year are displayed as points on log-scale box and whisker plots that show the historical data range for *E. coli* in dry weather (Figure ES-7) and wet weather (Figure ES-8), with the endpoint of the whiskers illustrating the minimum and maximum values (the "normal range") of the data. The boxes in the box and whisker plots represent the first through third quartiles, and the horizontal line within the box represents the median of the historical data set. The red line identifies the REC-1 (Water Contact Recreation Use) or REC-2 (Non-contact Water Recreation Use) WQO associated with each station's receiving water.

The Permittees' TMDL implementation program for the CVSC is currently addressing anthropogenic sources of bacterial indicators. It should be noted that since the CVSC is owned and operated by the CVWD, public access is prohibited and recreational activities (REC-1 and REC-2 uses) in the stormwater channel are highly unlikely, and often when there is flow during wet weather it is unsafe.

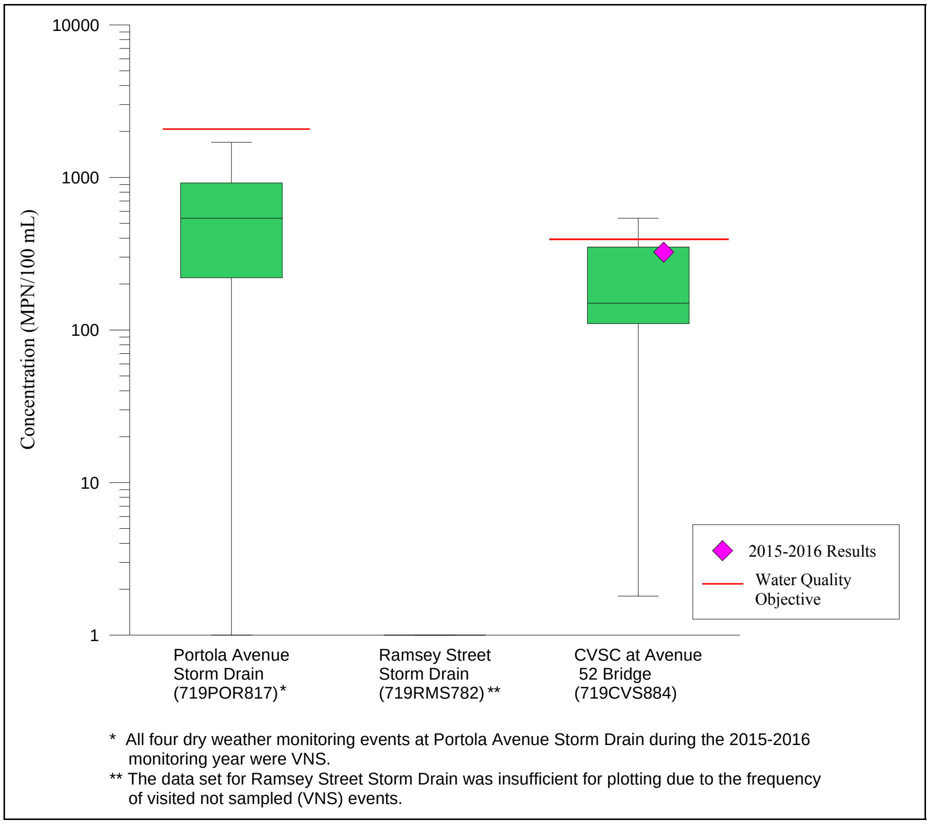

Figure ES-7: Dry Weather Monitoring *E. coli* Results

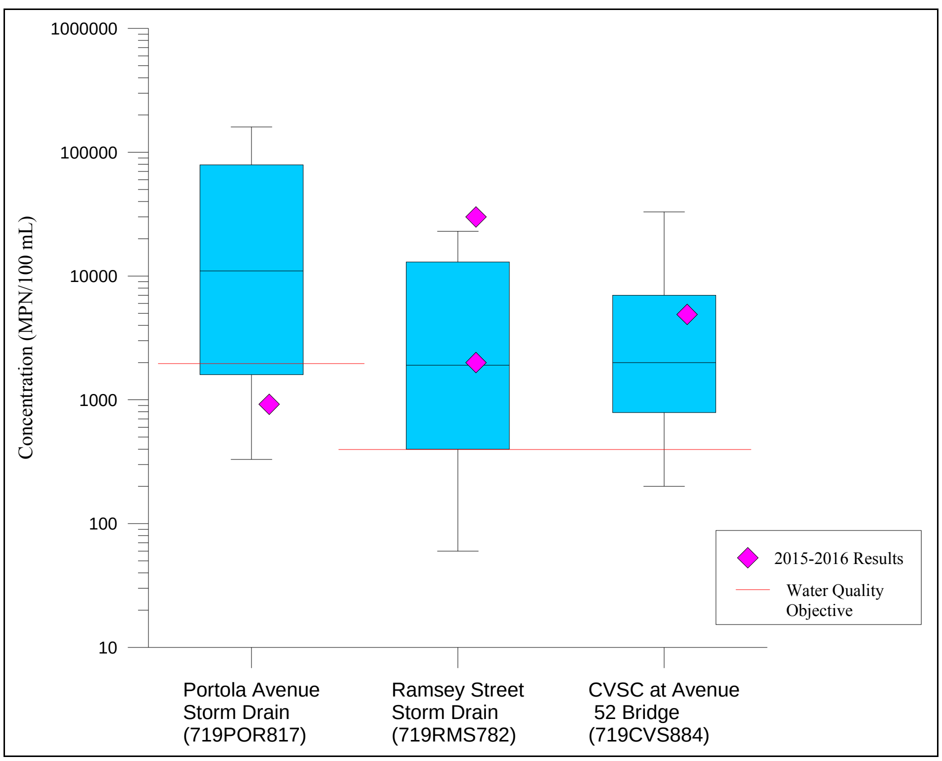

Figure ES-8: Wet Weather Monitoring *E. coli* Results

Dissolved Oxygen

Dissolved oxygen concentration is inversely related to temperature; therefore, lower DO values may be experienced when environmental conditions lead to higher water temperatures, such as drought. Due to the unprecedented drought, which Southern California has experienced in recent years, it is quite probable these environmental conditions have affected the DO results. DO was below the lower limit of the WQO range that is associated with the Warm Freshwater Habitat (WARM) beneficial use of the receiving water during dry and wet weather at the CVSC at Avenue 52 Bridge station. At the Ramsey Street Storm Drain during one wet weather event, DO was measured below the lower limit of the WQO range that is associated with the COLD beneficial use of the San Gorgonio River receiving water. Ramsey Street Storm Drain discharges to Smith Creek, an ephemeral wash that is tributary (but not generally hydraulically connected) to San Gorgonio Creek, which is also ephemeral. Therefore, the COLD beneficial use designated for the distant downstream receiving water may not be appropriate for evaluating DO levels at Ramsey Street Storm Drain.

Ammonia

Nitrogen-related nutrients met WQOs at MS4 outfalls and at the receiving water station. However, the CVSC is listed on the Section 303(d) for total ammonia, and dry weather trends indicated increasing concentrations of nitrogen-related nutrients at this receiving water station.

Provisions Implemented Under the CVSC Bacterial Indicator TMDL

The City of Coachella previously constructed three dry weather diversions for their MS4 facilities that discharge into the CVSC, including a diversion upstream of the Avenue 52 Storm Drain MS4 outfall station. The Permittees are not required to monitor at this MS4 outfall station under the 2013 Permit; however, the City performed monitoring here, at its other two outfalls, and in the CVSC receiving water during 2015-2016 pursuant to Phase I of the TMDL and 2013 Permit. Throughout Phase I implementation (May 2013 to June 2015), the City gathered monthly data, and submitted it quarterly to the Regional Board in accordance with its Quality Assurance Project Plan, with the final quarterly report submitted on June 30, 2015. The 2013 Permit requires that the City submit a final report to the Regional Board by January 31, 2016, and this will conclude the City's compliance requirements under the interim water quality-based effluent limitation (WQBEL) and Phase I.

Next Steps:

- Regional Board will assess data from all named point and non-point sources.
- Submittal to the Regional Board of a final written report, which will describe final monitoring, milestone attainment, and any needs to move into Phase 2 implementation or revise the TMDL.

2016-2017 Monitoring Year Program

The draft WWR Monitoring Plan (CMP Volume V) was finalized in July 2014 to reflect the improvements to methods and procedures made in the last few years and to include the most current monitoring program requirements based on the 2013 Permit. During the 2016-2017 monitoring year, the Permittees will continue to implement provisions under the 2013 Permit and MRP in accordance with the guidance in the 2014 CMP.

In accordance with the 2013 Permit, the Permittees will continue to monitor field parameters and constituents of concern at two MS4 outfall stations and one receiving water station. Several parameters have been non-detect, and an evaluation towards identifying parameters that could potentially be removed from the monitoring list should be considered.

As a result of the arid climate, as well as short flow durations, significant infiltration, and evaporation, it is highly likely that urban pollutants from MS4 outfalls typically do not reach the receiving water during wet weather. This has been evident based on some observations from the field crews, where they have observed lack of continuity from the outfall to the proximate receiving water, when conditions are safe to make said observations. However, in larger storms where connectivity is anticipated it has not been visually substantiated that it exists between proximate receiving water and the downstream receiving water, which often have other beneficial uses associated with them. In some circumstances, connection could not be verified because crews could not obtain access to tribal lands to make visual confirmations; however, as illustrated by Figure ES-9 there is no flow observed within the eventual receiving water for the majority of the year.

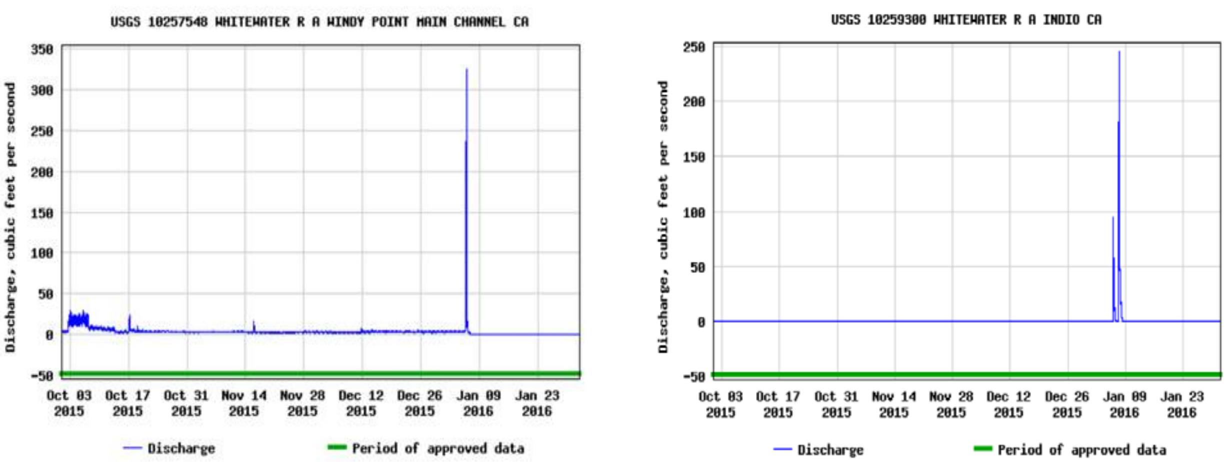

Figure ES-9: Selected USGS Flow Gauges within WWR

Only one storm (January 5, 2016) shows a measurable value on all gauges (Figure ES-9) showing their was most likely hydraulic connection between waterbodies during that event. The Permittees are currently considering ways to investigate the extents of the ephemeral characteristics of the watershed in order to better understand the conditions by Reach. This information will better inform decision makers regarding the implementation of their local programs and the results and recommendations will help inform the Report of Waste Discharge (ROWD) due in December 2017.

The Permittees will also continue to work closely with the contracted laboratory(s) in order to improve data quality assurance and quality control (QA/QC). Conclusions and recommendations are outlined in Section 3.7.

3.0 INTRODUCTION

This Monitoring Annual Report addresses the monitoring and reporting (MRP) requirements specified in Order No. R7-2013-0011 National Pollutant Discharge Elimination System (NPDES) Permit No. CAS617002 (2013 Permit), issued by the California Regional Water Quality Control Board Colorado River Basin Region (Regional Board). The Permittees identified in this municipal separate storm sewer system (MS4) permit as jointly responsible for compliance include the Riverside County Flood Control and Water Conservation District (District), County of Riverside (County), Coachella Valley Water District (CVWD), and incorporated cities of Riverside County within the Whitewater Region. The County of Riverside and the Riverside Flood Control District are identified as Principal Permittees, whereas the CVWD and each of the cities are identified as Co-Permittees. Collectively, these groups constitute the Permittees. Under this framework, the Principal Permittees are responsible for coordinating collective Permittee activities required by the MS4 Permit. The area of Riverside County addressed by the MS4 Permit is the Whitewater Region (WWR).

The Permittees, in conjunction with other agencies located in Riverside County, developed the Consolidated Monitoring Program (CMP) to coordinate monitoring programs in the three regions within Riverside County. The District developed and implemented a monitoring program in compliance with the requirements outlined in Section L of the 2013 Permit, and with reference to the Water Quality Control Plan for the Colorado River Basin (Basin Plan) (Regional Board, 2006) as it pertains to the WWR, the Southern California Stormwater Monitoring Coalition (SMC) Model Monitoring Program (MMP) for MS4s in Southern California (SMC, 2004), and the CMP (District, 2014). In 2014, the WWR CMP was redeveloped based on the new monitoring requirements established in the 2013 Permit. The new monitoring requirements under the 2013 Permit were implemented beginning on July 1, 2014.

This Monitoring Annual Report presents the results of water quality monitoring conducted during the period of July 1, 2015 to June 30, 2016 (i.e., 2015-2016 monitoring year). The 2015-2016 monitoring year is the second year of implementation of the monitoring requirements under the 2013 Permit. This document contains information regarding reporting requirements; the CMP; precipitation within the WWR; non-urban wastewater discharges and other sources of runoff; information regarding recent wildfires within the WWR; and special studies conducted during the 2015-2016 monitoring year, as well as an analysis and interpretation of findings of the 2015-2016 monitoring year, as required by the 2013 Permit. A glossary and list of commonly used terms and definitions are presented in Attachment A.

3.1 MONITORING PROGRAM OVERVIEW

The monitoring and reporting requirements of the 2013 Permit and the subsections that address these requirements are summarized below.

Section L.10.A of the 2013 Permit requires dry weather MS4 outfall monitoring for purposes of proactively seeking to identify illicit connection/illicit discharges (IC/IDs). Observed incidents are tracked in the IC/ID databases of the Permittees and are reported in annual reports where necessary. Permit Section L.10.B requires wet weather MS4 outfall monitoring for the purpose of evaluating long-term trends in WWR urban runoff. Analysis for long-term trends is a requirement of the 2015-2016 Monitoring Annual Report and is provided in Section 3.5.4.

Sections L.10.C and L.10.D of the 2013 Permit require dry and wet weather receiving water monitoring for the purpose of evaluating the health of the perennial portion of the Coachella Valley Stormwater Channel (CVSC) during dry and wet weather conditions. This evaluation is included in the 2015-2016 Monitoring Annual Report in Section 3.5.2**Error! Reference source not found.** for the receiving water monitoring results in relation to water quality objectives (WQOs), and in Section 3.5.4 for the analysis of long-term trend data.

A Monitoring Annual Report must be submitted to the Executive Officer stating the results of all monitoring performed and other reportable activities. This report shall be submitted to the Regional Board by March 1 of each year. This Monitoring Annual Report for the WWR fulfills this requirement.

3.1.1 Summary of Monitoring and Reporting Requirements

Monitoring reports shall provide the following elements:

1. Results from monitoring and other reportable activities. See Section 3.3 through 3.6 of this document.
2. Descriptions of monitoring stations, including locations (provided in Attachment B), quality assurance/quality control (QA/QC) procedures (provided in Section 3.1.6**Error! Reference source not found.** as well as the 2014 Quality Assurance Project Plan (2014 QAPP) (Volume II of the CMP), (District, 2014), sampling and analysis protocols (provided in Section 3.1and Attachment C), summary of data and results, methods used to evaluate the data, and graphical summaries of the data (provided in Section 3.5).
3. An analysis and interpretation of the findings of each monitoring year. Analysis shall identify water quality parameters measured outside of the normal ranges for that parameter based on historical water quality data (Section 3.5.3).
4. FY 2015-2016 Monitoring Annual Report only: Identification and analysis of long-term trends in stormwater or receiving water quality for signs of chronic water quality concerns. Analysis shall include the identification of potential urban sources of chronic problems, effectiveness of existing best management practice (BMP) control measures, and recommended necessary next steps.

Monitoring reports shall use a standard report format, including:

1. An introduction. See Section 3.0 of this document.
2. A summary of special studies participated in during the reporting period. See Section 3.6 of this document.
3. Comprehensive interpretations and conclusions. See Section 3.7 of this document.
4. Recommendations for necessary future actions. See Section 3.7 of this document.

3.1.2 Consolidated Monitoring Program

In general, the CMP describes methods for each type of monitoring, program-specific procedures, and analytical requirements, including but not limited to the following:

1. Wet weather monitoring;
2. Dry weather monitoring;
3. MS4 outfall IC/ID monitoring;
4. Use of monitoring equipment;
5. Field sampling and data collection procedures;
6. QA/QC procedures; and
7. Laboratory analytical methods, including the reporting and detection limits.

The CMP identifies MRP requirements pursuant to the MS4 permits and applicable to the MS4s in the WWR, Santa Margarita Region (SMR), and Santa Ana Region (SAR) of Riverside County. Region-specific appendices to the CMP address specific MS4 permit provisions. The CMP was revised in November 2012 to incorporate a regional QAPP. As of July 2014, the CMP had undergone further revision and enhancement in all volumes, including the addition of a glossary (Volume VI) for clarity of commonly used terms. The regional QAPP references separate monitoring plans for each Region. These separate monitoring plans were developed for the SAR and SMR to reflect specific MS4 permit provisions in the MRP for each region. The WWR Monitoring Plan (CMP Volume V) was finalized in July 2014 to reflect the most current monitoring program requirements based on the 2013 Permit. The CMP is reviewed and updated as needed based on program findings and modifications. The most current version of the CMP is available from the Riverside County Watershed Protection Programs Monitoring webpage (http://rcflood.org/NPDES/Monitoring.aspx).

The guidance from the 2014 WWR Monitoring Plan (CMP Volume V) was utilized for the purposes of this 2015-2016 Monitoring Annual Report. The CMP outlined five objectives applicable to this document:

1. Develop and support an effective MS4 management program.
2. Collect monitoring data from designated MS4 outfall stations in order to characterize pollutants associated with urban runoff in the region.
3. Determine the impact of urban runoff on beneficial uses of regional receiving waters.

4. Collect monitoring data from the only perennially flowing receiving water in the region (i.e., the lower 17-mile reach of the CVSC) during wet and dry weather conditions to evaluate the health of the CVSC.
5. Analyze and interpret the collected data to identify trends, if any, both to maintain existing receiving water quality through the implementation of BMPs and to track water quality improvements that may be observed as a result of the MS4 management program.

These objectives support the goal of the Riverside County Urban Runoff Management Program (URMP), which is to manage the quality of urban runoff within the Permittees' jurisdictions to prevent impacts to receiving waters. The goal of the CMP is to support the regional urban runoff monitoring programs conducted in Riverside County with consistent practices and procedures while accounting for and incorporating program differences among the three distinct regions. These objectives are also a superset of the MMP core management questions developed by the SMC.

The CMP includes the following monitoring types for the WWR:

1. Receiving water monitoring (wet weather and dry weather); and
2. MS4 outfall monitoring (wet weather and dry weather/ IC/ID).

In addition, the following standardized guidance and procedures are provided in the 2014 QAPP:

1. Project/task organization (i.e., identification of key staff and roles);
2. Monitoring frequencies;
3. Mobilization criteria;
4. Sampling, handling, and transport methods;
5. Sample ID format;
6. Documents and records;
7. Laboratory analytical methods, including the reporting and detection limits;
8. QA/QC procedures and frequencies (e.g., field sampling and laboratory analysis);
9. Instrument/equipment inspection, maintenance, and calibration; and
10. Data review, validation, and management.

Field staff collected samples under chain-of-custody procedures and submitted the samples either to E.S. Babcock & Sons, Inc. (Babcock)[1], an analytical laboratory certified by the National Environmental Laboratory Accreditation Program (NELAP) (NELAP Certificate No. 0201CA) and California Department of Health Services Environmental Laboratory Accreditation Program (ELAP) (ELAP Certification No. 1156) or CVWD's in-house laboratory for analysis. A list of monitored parameters and analytical methods used during the 2015-2016 monitoring year is presented in Attachment C. Babcock participated in the SMC Laboratory Intercalibration Study

[1] The use of company, trademark, or brand names does not constitute a recommendation of a particular product.

reported in the Stormwater Monitoring Coalition Laboratory Guidance Document (Southern California Coastal Watershed Research Project, [SCCWRP], 2010).

3.1.3 Monitoring Stations and Beneficial Uses

The 2013 Permit requires water quality monitoring at MS4 outfall stations and receiving water stations. Dry weather MS4 outfall IC/ID and wet weather MS4 outfall monitoring is required at two MS4 outfall stations, the Ramsey Street Storm Drain (719RMS782) and the Portola Avenue Storm Drain (719POR817). Dry weather and wet weather monitoring is required at the CVSC at the Avenue 52 Bridge (719CVS884) receiving water station. Figure 3-1 shows the general locations of the WWR monitoring sites. Table 3-1 provides a summary of the locations and characteristics of each MS4 outfall and receiving water station, including the latitudes and longitudes, receiving waters, hydrologic unit codes (HUCs), and Permittee jurisdictions. Attachment B provides a description of each monitoring station.

Table 3-1: Monitoring Station Summary

Station Type	Station ID	Station Name	Latitude / Longitude	Receiving Water	Receiving Water used to Identify Beneficial Uses	HUC	Permittee Jurisdiction
MS4 Outfall	719RMS782	Ramsey Street Storm Drain	33 º 48' 35.0", -116 º 51' 31.5"	Smith Creek	San Gorgonio River	719.32	Banning
	719POR817	Portola Avenue Storm Drain	33 º 44' 16.8", -116 º 22' 24.6"	Washes (Ephemeral Streams)	Washes (Ephemeral Streams)	719.47	Palm Desert
Receiving Water	719CVS884	CVSC at Avenue 52 Bridge	33º 40' 20.9", -116º 08' 57.8"	CVSC	CVSC	719.47	Coachella

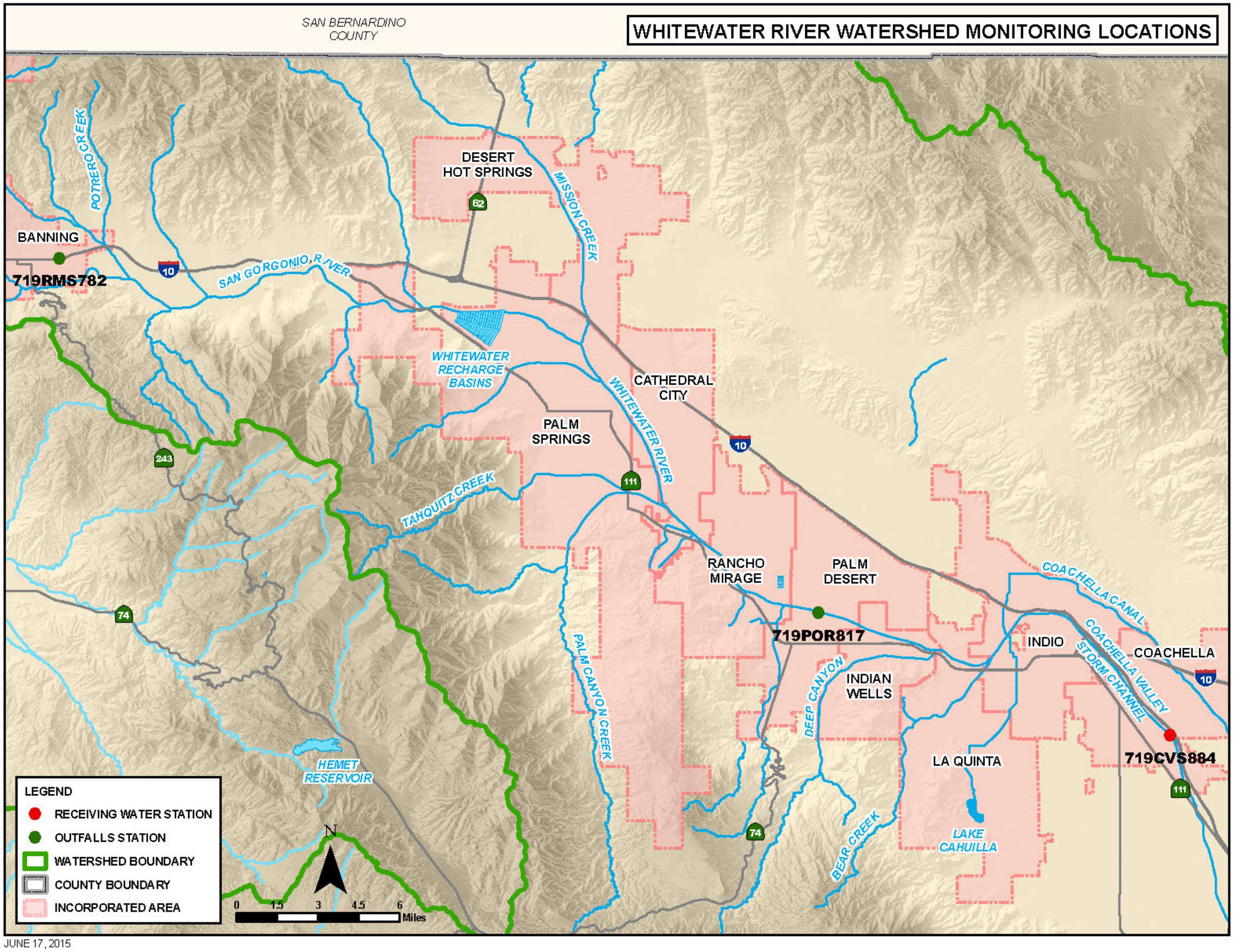

Figure 3-1: WWR Monitoring Sites Location Map

The Basin Plan establishes the WQOs that are applicable to receiving waters in the WWR for a number of pollutants based on beneficial uses. Listed below are the designated beneficial uses specified in the Basin Plan for receiving waters associated with the WWR monitoring locations. A discussion of monitoring stations within each receiving water and the potential applications and limitations of beneficial uses at each station follows each list of beneficial uses.

Other Whitewater River Beneficial Uses – Washes (Ephemeral Streams):

- Freshwater replenishment (FRSH) (intermittent);
- Groundwater Recharge (GWR) (intermittent);
- Non-contact Water Recreation (REC-2) (intermittent);
- Warm Freshwater Habitat (WARM) (intermittent); and
- Wildlife Habitat (WILD) (intermittent).

The Portola Avenue Storm Drain discharges to a reach of the Whitewater River that is subject to the beneficial use classifications for washes (ephemeral streams) as defined in Basin Plan Table 2-3, footnote 14. The beneficial uses for Whitewater River washes (ephemeral streams) are intermittent; therefore, WQOs only apply if sufficient flow exists to support those beneficial uses. Conditions in the Whitewater River are typically dry during non-storm conditions, and the Whitewater River remains dry for prolonged periods. The beneficial uses in the wash below the spreading grounds above the CVSC are typically not realized due to the absence of water during non-storm periods (dry weather events), and the beneficial uses in the reach typically are not realized due to the short duration of flow when it does occur. In general, there is flow in the Whitewater River only during flash flood conditions.

San Gorgonio River Beneficial Uses:

- Agricultural Supply (AGR);
- COLD;
- GWR;
- REC-1;
- REC-2;
- WILD; and
- Municipal and Domestic Supply (MUN) (potential).[2]

The Ramsey Street Storm Drain MS4 outfall discharges to Smith Creek, which is a tributary of the San Gorgonio River. Smith Creek and the San Gorgonio River are both ephemeral. San Gorgonio River is the closest downstream receiving water to the Ramsey Street Storm Drain MS4 outfall station (719RMS782) with Basin Plan-listed beneficial uses and WQOs (i.e., Smith Creek does not appear in the Basin Plan).

The San Gorgonio River beneficial uses are typically not realized due to the absence of water and short duration when flow does occur. Flows from the Ramsey Street Storm Drain must travel over 1 mile through coarse sand and rock before reaching Smith Creek, then travel another approximately 1.5 miles before reaching the confluence with the San Gorgonio River. When dry

[2] According to Basin Plan Table 2-3, footnote 11, "Potential use designations will be determined on a case-by-case basis as necessary in accordance with the Sources of Drinking Water Policy."

weather flow occurs at the Ramsey Street Storm Drain, flow typically evaporates and/or infiltrates without reaching the receiving water. Based on historical observations, the MS4 outfall and receiving water may have hydraulic connectivity only during extreme storm events (e.g., flash flood conditions). Although the Basin Plan also identifies a potential MUN beneficial use for the San Gorgonio River, wet weather flows from the Ramsey Street Storm Drain MS4 outfall station generally evaporate and/or infiltrate without reaching the San Gorgonio River receiving water, and the WQO associated with this potential use have not been applied to the Ramsey Street Storm Drain. For both wet weather events sampled at the Ramsey Street Storm Drain during the current year, the immediate proximate receiving water of Smith Creek was observed to be dry with no surface flow.

CVSC Beneficial Uses:

- FRSH;
- REC-1;
- REC-2;
- WARM;
- WILD; and
- Preservation of rare, threatened, or endangered species (RARE).

The CVSC is the 25-mile long constructed, downstream extension of the Whitewater River channel between Washington Street in La Quinta and the north shore of the Salton Sea. As described in Section A of the 2013 Permit, the lower 17-mile reach of the CVSC is the only surface waterbody in the WWR with perennial flow. All dry weather samples collected from the CVSC at the Avenue 52 Bridge receiving water station represent background conditions within the CVSC. As described in Section A of the Permit, these flows are dominated by effluent from NPDES-permitted publicly owned treatment works (POTW) discharges, rising groundwater, and agricultural return flows.

3.1.4 Water Quality Monitoring Frequency and Parameters

Table 3-2 presents a summary of the 2013 Permit monitoring requirements and monitoring conducted in accordance with these requirements during the 2015-2016 monitoring year. Monitored constituents included field parameters and constituents of concerns listed in Table L-1 of Section L of the 2013 Permit. Added to the parameter list under the 2013 Permit were methylene blue active substances (MBAS), ethylene glycol, oil and grease, total suspended solids (TSS), and total petroleum hydrocarbons (TPH). Because historical data are not available for these constituents of concern, long-term trend analysis cannot yet be conducted for these constituents. Attachment C provides a list of analytical parameters for each monitoring station and event.

The arid environment of the WWR strongly influences flow and hydraulic connectivity between MS4 outfall stations and the receiving waters. The MS4 outfall stations were frequently dry during monitoring events, observed water was ponded, and/or flow was insufficient for sample collection; therefore, these monitoring events are reported as visited not sampled (VNS), as identified in the Comments column of Table 3-2.

Table 3-2: 2015-2016 Permit Monitoring Requirements Summary

Station / Station ID	Monitoring Type	Constituent(s)	Frequency Required	Requirement Met?	Comments [(a)]
Ramsey Street Storm Drain (719RMS782)	Dry Weather and Outfall IC/ID	Field Parameters	Four Events Annually	Yes	VNS (4 events) *Conducted concurrently with IC/ID monitoring.*
		E. coli	Four Events Annually	Yes	
		Visual Observations	Quarterly	Yes	No evidence of IC/ID observed or suspected.
	Wet Weather	Field Parameters	Twice Annually	Yes	Measurements and samples collected (2 events)
		E. coli	Twice Annually	Yes	
		Metals	Twice Annually	Yes	
		Nutrients, TPH, TSS, TDS, MBAS, ethylene-glycol, and oil and grease	Twice Annually	Yes	
Portola Avenue Storm Drain (719POR817)	Dry Weather and Outfall IC/ID	Field Parameters	Four Events Annually	Yes	VNS (4 events) *Conducted concurrently with IC/ID monitoring.*
		E. coli	Four Events Annually	Yes	
		Visual Observations	Quarterly	Yes	No evidence of IC/ID observed or suspected.
	Wet Weather	Field Parameters	Twice Annually	No (see comment)	Measurements and samples collected (1 event). No additional events met mobilization or safety criteria.
		E. coli	Twice Annually	No (see comment)	
		Metals	Twice Annually	No (see comment)	
		Nutrients, TPH, TSS, TDS, MBAS, ethylene-glycol, and oil and grease	Twice Annually	No (see comment)	
CVSC at Avenue 52 Bridge (719CVS884)	Dry Weather	Field Parameters	Twice Annually	Yes	Measurements and samples collected (2 events)
		E. coli	Twice Annually	Yes	
		Metals	Twice Annually	Yes	
		Nutrients, TPH, TSS, TDS, MBAS, ethylene-glycol, and oil and grease	Twice Annually	Yes	

Table 3-2: 2015-2016 Permit Monitoring Requirements Summary

Station / Station ID	Monitoring Type	Constituent(s)	Frequency Required	Requirement Met?	Comments (a)
	Wet Weather	Field Parameters	Once Annually	Yes	Measurements and sample collected (1 event)
		E. coli	Once Annually	Yes	
		Metals	Once Annually	Yes	
		Nutrients, TPH, TSS, TDS, MBAS, ethylene-glycol, and oil and grease	Once Annually	Yes	

Notes for Table 3-2

VNS – Visited Not Sampled
TPH – Total Petroleum Hydrocarbons
TSS – Total Suspended Solids
TDS – Total Dissolved Solids
MBAS – Methylene-Blue Active Substances
(a) See Section 3.5**Error! Reference source not found.** of the document for additional comments on site characteristics and conditions during monitoring events.

Table 3-3 presents field parameters and constituents of concern as defined in the 2013 Permit, which are required for WWR monitoring in accordance with Table L-1 of the MRP (Regional Board, 2013). Field parameters were measured in the field and constituents of concern were analyzed by a certified analytical laboratory.

Table 3-3: Field Parameters and Constituents of Concern Required for Monitoring

WWR Sampling Requirements		
Field Parameters	**Measured in the Field**	Temperature
		pH
		Specific Conductance
		Turbidity
		Dissolved Oxygen (DO)
Constituents of Concern	**Total Metals**	Antimony
		Arsenic
		Barium
		Beryllium
		Cadmium
		Chromium
		Chromium^{6+}
		Copper
		Lead
		Mercury
		Nickel
		Selenium
		Silver
		Thallium
		Zinc
	Bacterial Indicator	*E. coli*
	Nutrients and Other	Nitrite as Nitrogen (N)
		Nitrate as Nitrogen (N)
		Total Kjeldahl Nitrogen (TKN)
		Total Nitrogen (calculation)
		Ammonia as Nitrogen (N)
		Total Suspended Solids (TSS)
		Total Dissolved Solids (TDS)
		Total Phosphorus
		Ortho Phosphorus
		Total Petroleum Hydrocarbons (TPH)
		Methylene-Blue Active Substances (MBAS)
		Ethylene-glycol
		Oil and Grease

The analytical results from the 2015-2016 monitoring year for MS4 outfall and receiving water stations are presented in Section 3.5.

3.1.5 Mobilization Criteria

The 2013 Permit requires collection of a minimum of two wet weather samples from MS4 outfalls and one wet weather sample from a receiving water station during the monitoring year. There is no defined wet season in the WWR because both general winter thunderstorms and summer monsoonal storms are experienced. As defined in the 2014 QAPP (Volume II of the CMP), the wet season generally falls between October 1 and May 31, annually.

Two National Weather Service (NWS) weather forecasts are closely monitored by District staff, including:

- The normal 7-day forecast for the possibility of a rain event; and
- The quantitative precipitation statement (QPS), within 3 days of an anticipated storm, to determine how much rain is predicted to fall in 6-hour increments over the next 72-hour period.

If a storm event is forecasted by the NWS quantitative precipitation forecast (QPF) to be greater than 0.10 inch and there are at least 72 hours between the forecasted event and the previous measurable (>0.10 inch) rainfall event, storm event monitoring will be conducted according to the following mobilization criteria:

- The District will follow the decision chart and procedures outlined in Figure 10-1 of the 2014 QAPP. Pursuant to NWS standard practice, there must be a probability of precipitation of at least 60% (i.e., a "likely" event).
- Mobilization will occur when the NWS QPS forecast shows likely rainfall of 0.3 inch in 6 hours and/or 0.5 inch in 24 hours. This gives the District the greatest chance to sample a representative storm event.[3]
- For mobilization to occur, criteria will typically be met 24 hours in advance of sampling for coordination with property owners, consultants, and sampling personnel.
- Field crews are not mobilized during or near certain holidays (Thanksgiving, the day after Thanksgiving, Christmas Eve, Christmas Day, New Year's Eve, and New Year's Day) if the mobilization or laboratory analysis would continue through that holiday.

The first wet weather event meeting mobilization criteria may not provide sufficient runoff for monitoring. Based on the District's monitoring experience, storm event forecasts of less than 0.5 inch in 24 hours do not typically result in measurable runoff and translate into false start wet weather events.

In accordance with the 2013 Permit, Section L.5, sample mobilization is contingent upon sample holding time and normal working hours of a contract laboratory. For safety reasons, wet weather monitoring only occurs when adequate sunlight is available for sampling (see 2013 Permit Section L.6).

3.1.6 Programmatic Quality Assurance and Quality Control

Volume II of the CMP contains the QAPP for monitoring in the WWR, which prescribes program-wide QA/QC procedures. The District conducts programmatic QA/QC sampling for the County as specified in the CMP, and results are reported in the annual report for the region (i.e., SAR, SMR, or WWR) in which the field samples were collected. Laboratory QA/QC data for the WWR provided by Babcock and the CVWD are included in Attachment D. Data quality objectives described in Table 7-3 of the QAPP were met for laboratory analyses, with some exceptions. These exceptions include replicate analyses that did not produce consistent results, matrix spike (MS)/matrix spike duplicate (MSD) recoveries that did not meet laboratory acceptance criteria, as

[3] The District derived the representative storm event to be 0.38-inch and 1.14-inches in depth and 6 and 18 hours in duration (2014 QAPP, Vol. II of CMP).

well as insufficient sample volume for MS/MSD analysis. In addition, several laboratory reporting errors occurred, which were corrected upon request. Other QA/QC issues identified included the ongoing challenges at the laboratory to meet State Board and/or SWAMP target reporting limits as well as simple data entry errors (Table 3-4). The Permittees have continued ongoing efforts to improve the quality of the monitoring program. These efforts include working closely with the field staff to ensure CMP procedures are followed and necessary information recorded, and with the laboratory to improve the quality of future analysis for consistency, as certified analytical methods allow, with the Surface Water Ambient Monitoring Program (SWAMP) recommended criteria and with the guidance in the CMP.

Table 3-4: 2015-2016 QA/QC Monitoring Event Summary

Area Identified for Improvement	Site ID	Date	Program QA/QC Comment	Corrective Action
Laboratory Reporting Limits	All	-	On-going analytical challenges at laboratory to meet State Board and/or SWAMP recommended target reporting limits.	Continue on-going efforts with laboratory and Regional Board. Refer to laboratory memo in Section 8, Attachment C of the 2014-2015 Annual Report.
Field Sampling/Laboratory Coordination	CVSC at Avenue 52 Bridge (719CVS884)	7/30/2015	Field technician incorrectly submitted and requested on the chain of custody two sets of total metals' analysis on the same sample.	Continue to work with Coachella Valley Water District (sampling agency) to improve sampling procedures.
Laboratory	CVSC at Avenue 52 Bridge (719CVS884)	-	Laboratory reported total petroleum hydrocarbons during dry weather analysis but reported gasoline and diesel range hydrocarbons during wet weather analysis.	Discuss with laboratory standardizing the testing and reporting of total petroleum hydrocarbons or gasoline and diesel range hydrocarbons.
Data Entry into Laboratory Information Management System	CVSC at Avenue 52 Bridge (719CVS884)		Times and dates on laboratory reports do not match with actual sample/ analyzed times.	CVWD has acquired a new management system and will work to improve their QC process when recording the data.
Field Parameters	CVSC at Avenue 52 Bridge (719CVS884) Portola Avenue Storm Drain (719POR817)		Recorded calibration dates of instruments seems to indicate they have not been calibrated immediately prior to the event.	Confirmed with CVWD staff the instruments are tested against known standards immediately prior to every event.

3.2 CHARACTERISTICS OF THE WWR

3.2.1 Precipitation within the WWR

Precipitation-gauging stations, as listed below, within the WWR were utilized to derive average annual rainfall statistics and provide historical context for monitoring events. The locations and key parameters for the historical records from these precipitation-gauging stations are presented in Table 3-5.

Table 3-5: Precipitation Gauging Station Information

Station Name	ID No	Average Annual Rainfall (inches)	Years of Record	Location*	Latitude+	Longitude+
Banning	12	15.92	107	3S/1E-14	33:54:50.0	116:51:05.0
Palm Springs	142	5.91	80	4S/4E-15	33:49:34.0	116:32:41.0
Desert Hot Springs	57	5.45	52	2S/4E-25	33:58:03.0	116:29:40.0
Rancho Mirage**	166	3.92	34	5S/5E-11	33:46:17.0	116:26:00.0
Cathedral City	34	4.08	62	4S/5E-33	33:46:53.0	116:27:27.0

* Describes the general location of the precipitation gauge, divided by township, range and section.
+ Latitude and longitude are reported in degrees, minutes, and seconds.
** Station 166 ceased reporting in 2015.

Table 3-6 presents a summary of the annual rainfall records for the precipitation gauging stations located in the WWR from 1993 to 2016. This period reflects the time during which the WWR was under application and coverage by a MS4 Permit. Daily rainfall totals for the 2015-2016 monitoring year for each of the precipitation gauging stations are provided in Attachment B.

Table 3-6: Annual Rainfall (inches)

Monitoring Year	Banning	Palm Springs	Desert Hot Springs	Rancho Mirage	Cathedral City
1993-1994	7.14	3.94	1.87	2.37	2.40
1994-1995	24.10	8.98	4.32	6.54	6.32
1995-1996	11.07	1.34	0.62	1.06	1.23
1996-1997	12.98	2.80	1.09	2.29	1.02
1997-1998	27.76	10.79	8.67	7.70	5.03
1998-1999	13.28	1.06	0.46	1.11	0.49
1999-2000	17.12	3.48	3.24	1.37	1.83
2000-2001	14.43	5.20	5.99	3.57	2.81
2001-2002	6.02	0.70	0.74	0.38	0.55
2002-2003	12.56	4.15	3.98	2.28	3.14
2003-2004	8.69	4.23	4.34	1.85	2.87
2004-2005	23.32	12.20	14.82	9.68	9.45
2005-2006	11.77	3.61	5.75	3.17	3.21
2006-2007	2.88	0.12	0.12	0.07	0.48
2007-2008	13.76	5.25	5.15	2.47	4.27
2008-2009	7.96	6.91	4.13	4.03	4.30
2009-2010	14.71	7.88	7.61	6.44	5.70

Table 3-6: Annual Rainfall (inches)

Monitoring Year	Banning	Palm Springs	Desert Hot Springs	Rancho Mirage	Cathedral City
2010-2011	18.09	7.97	8.28	5.07	4.62
2011-2012	10.50	2.67	1.79	1.01	1.25
2012-2013	6.73	2.97	2.68	1.61	1.73
2013-2014	7.67	3.25	0.97	2.16	1.11
2014-2015	11.16	3.36	2.89	--	2.01
2015-2016	9.75	4.11	3.96	--	2.78

Table 3-7 presents the annual rainfall as a percentage of normal for each of the precipitation gauging stations. The percentage of normal rainfall is calculated using the current year rainfall (Table 3-6) and dividing it by the average annual rainfall (Table 3-5). For this analysis, if the current year rainfall were equal to the average annual rainfall, the result would be 100%. For example, during the 2015-2016 monitoring year, the Banning precipitation gauging station received 9.75/15.92 = 61% (or 0.61 times) the average annual rainfall.

Table 3-7: Percent of Normal Annual Rainfall - Current Year/Average Year

Monitoring Year	Banning	Palm Springs	Desert Hot Springs	Rancho Mirage	Cathedral City	Regional Average	Characterization
1993-1994	45	66	34	51	58	51	dry
1994-1995	150	151	78	141	153	135	wet
1995-1996	69	22	11	23	30	31	very dry
1996-1997	81	47	20	49	25	44	dry
1997-1998	173	181	157	166	121	160	very wet
1998-1999	83	18	8	24	12	29	very dry
1999-2000	107	58	59	30	44	60	dry
2000-2001	90	87	108	77	68	86	normal
2001-2002	38	12	13	8	13	17	very dry
2002-2003	78	70	72	49	76	69	dry
2003-2004	54	71	78	40	69	63	dry
2004-2005	145	205	268	209	228	211	very wet
2005-2006	73	61	104	68	78	77	dry
2006-2007	18	2	2	2	12	7	very dry
2007-2008	86	88	93	53	103	85	normal
2008-2009	50	116	75	87	104	86	normal
2009-2010	92	132	138	139	138	128	wet
2010-2011	113	134	150	109	112	123	wet
2011-2012	66	45	32	22	30	39	dry
2012-2013	42	50	48	35	42	43	dry
2013-2014	48	55	18	47	27	39	dry
2014-2015	70	57	53	---	49	57	dry
2015-2016	61	70	73	---	68	68	dry

Dry – Regional average precipitation more than 20% below the annual average.
Normal – Regional average precipitation within 20% of the annual average.
Wet – Regional average precipitation more than 20% above the annual average.

Figure 3-2 presents the annual rainfall as a percentage of normal rainfall for the WWR as a whole (regional average). For this analysis, the portion of rainfall above or below average was determined by comparing the average regional rainfall (i.e., average column in Table 3-7) to the normal baseline (i.e., the average current year rainfall equals the average annual rainfall defined in Table 3-5). Based on this analysis, the 2015-2016 monitoring year was characterized as dry, with an average rainfall that was 32% below normal.

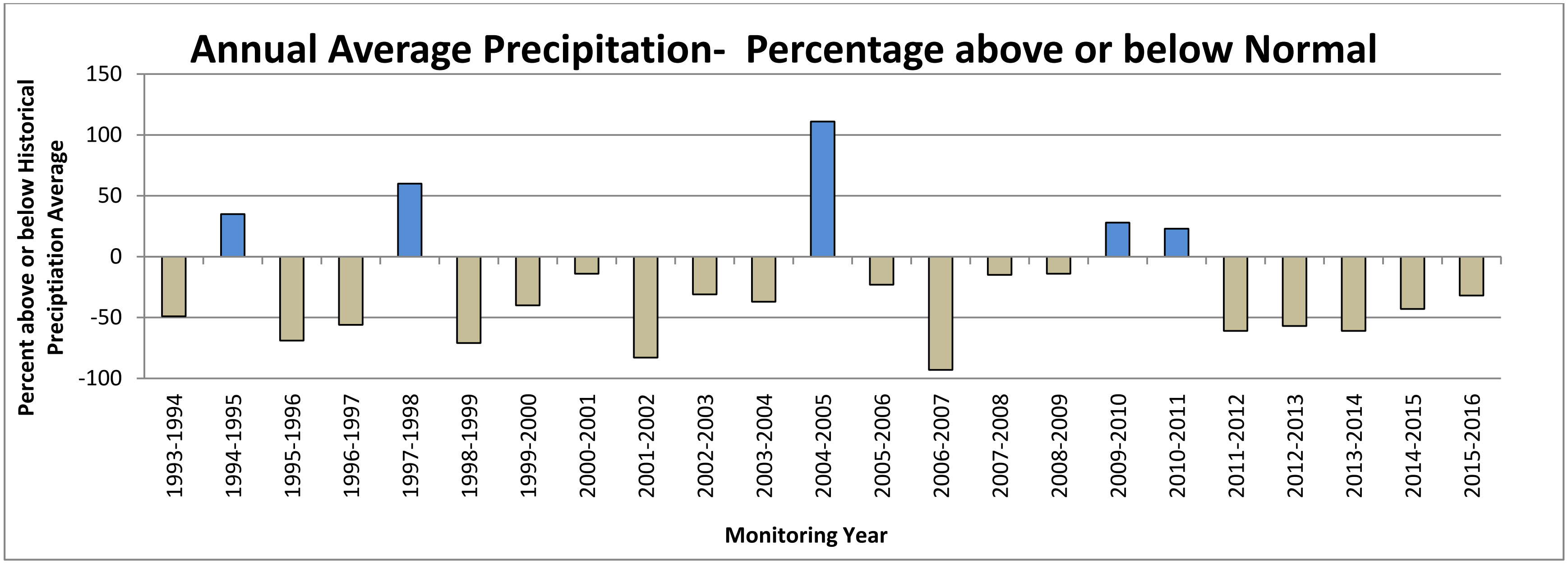

Figure 3-2: Comparison of Regional Average Precipitation from 1993-1994 through 2015-2016

3.2.2 Characterization of Runoff within the WWR

The CVSC is the 25-mile long, constructed downstream extension of the Whitewater River channel, beginning west of Washington Street in La Quinta and ending on the north shore of the Salton Sea. The lower 17-mile reach of the CVSC is the only surface waterbody in the WWR that features perennial flow; these flows are dominated by effluent from NPDES-permitted POTW discharges, rising groundwater, and agricultural return flows (United States Geological Survey [USGS], 2010; CVWD, 2002; CVWD, 2010). According to the CVWD Urban Water Management Plan (CVWD, 2005), the CVSC Bacterial Indicator Total Maximum Daily Load (TMDL) (approved by the United States Environmental Protection Agency [USEPA] on April 27, 2012) and the Implementation Plan for Bacterial Indicators in the CVSC (CVWD, 2007), sources of water that may be found in surface waters within the WWR that are not related to urban runoff may include:

- Snowmelt;
- Releases of imported water (Colorado River water) for groundwater recharge;
- Subsurface agricultural drainage system discharges;
- Reclaimed wastewater discharges to the CVSC;
- Municipal water well blow-off discharges;
- Groundwater;
- Miscellaneous wastewater discharges approved by the Regional Board; and
- Discharges from fish hatchery operations.

The 2013 Permit acknowledges that stormwater flows from non-urbanized areas (National Forests, State Parks, wilderness, and agriculture) naturally exhibit high levels of TSS, and runoff from areas outside the Permittees' jurisdictions to MS4s may affect flow and water quality in the WWR. Toxic substances (from pesticides, petroleum products, metals, and industrial wastes) may cause acute and/or chronic toxicity, and may bioaccumulate in organisms to levels that may be harmful to human health. Nutrients (from fertilizer use, firefighting chemicals, decaying plants, confined animal facilities, pets, and wildlife) may cause excessive algal blooms. These blooms may lead to problems with odor, color and increased turbidity, and may depress the dissolved oxygen content leading to fish kills.

According to the permit definition of urban runoff (Permit Section K),

> "The quality of the discharges from the MS4 varies considerably and is affected by, among other things, past and present land use activities, basin hydrology, geography and geology, season, the frequency and duration of storm events, and the presence of past or present illegal and allowed disposal practices and IC. The Permittees lack legal jurisdiction over discharges into their respective MS4 facilities from agricultural activities, California and Federal facilities, utilities and special districts, Native American tribal lands, wastewater management agencies and other point and non-point source discharges otherwise permitted by or under the jurisdiction of the Regional Board. The Regional Board recognizes that the Permittees should not be held responsible for such facilities and/or discharges. Similarly, certain activities that generate pollutants present in urban runoff are

beyond the ability of the Permittees to eliminate. Examples of these include the operation of internal combustion engines, atmospheric deposition, brake pad and tire wear, bacteria from wildlife (including feral dogs and cats) or from bacterial resuscitation or reactivation from treated waters or growth of bacteria in the environment (such as in sediments, surface water, or other substrate), and leaching of naturally occurring nutrients and minerals from local soils, residues from lawful application of pesticides, nutrient runoff from agricultural activities, and leaching of naturally occurring minerals from local geology."

Visual surveys of the WWR have been conducted continually since March 2006. These visual surveys focused mainly on verifying the following:

- Locations and conditions of Permittee outfalls;
- Locations and conditions of MS4 outfall stations; and
- Presence or lack of water in receiving waters and MS4 outfalls.

These observations indicate that the arid environment of the WWR strongly influences hydraulic connectivity between MS4 outfall stations and the receiving waters. During dry conditions, such as those observed during the 2015-2016 monitoring year, hydraulic connectivity would be expected only during extreme storm events (e.g., flash flood conditions). The information obtained from these surveys is also utilized to annually update the WWR NPDES base maps (Attachment B).

3.2.3 Normal Range of Monitored Constituents within the WWR

Section L.11.C. of the Permit requires the annual monitoring report to identify the water quality parameters measured during the monitoring year that were outside the normal range for that parameter based on the historical water quality data. A normal range was calculated using the historical water quality data (e.g., monitoring data collected through the 2014-2015 monitoring year) and provides the minimum and maximum values in the data for each constituent at a monitoring station. The normal range results presented in this report include only the station-event-constituent combinations that were monitored during the 2015-2016 monitoring year. The definition of normal range and, therefore, constituents flagged as measured outside the normal range, will continue to evolve as the WWR monitoring program continues to collect additional data. Data collected in subsequent years will allow the Permittees to provide a better definition of what constitutes a normal range for a particular constituent as measured in the WWR.

The historical mean was also calculated in the normal range analysis. For *E. coli*, the geometric mean was calculated instead of the arithmetic mean due to the high variability in bacteria data. Means were calculated for each constituent using the reporting limit (RL) when the constituent was not detected above the RL. As technology and methods improve, laboratories will adjust a RL. For many of the total metals, historical samples reported as non-detect had higher RLs than more recent samples with reported results. Therefore, results detected in more recent samples were lower than the reporting limits in prior samples that were non-detect. For these instances, a "<" sign is shown in the normal range.

3.2.4 Wildfires in the WWR

The residual effects of the wildfires that occur in the WWR may impact water quality both in the short term and for several years after their initial burn due to loss of ground cover and chemical changes in the soil (United States Forest Service [USFS], 2009; Meixner and Wohlgemuth, 2004; SCCWRP, 2009). Naturally occurring elements typically retained by forest vegetation may be washed away during storm events subsequent to a wildfire, in addition to large amounts of sediment. Daniel Cozad, former Deputy General Manager of the Santa Ana Watershed Project Authority (SAWPA), stated, "Normally, the forest filters water naturally absorbing nitrates, phosphorus, and other elements. Because of the fires, more contaminants will reach stream channels. Increasingly, rain will cause rocks and soil that usually trap particulate matter on the forest floor to fill watercourses, washing pollutants such as lead, mercury, copper, zinc, and phosphorus into debris basins and groundwater" (Cozad, 2004). Other potential sources of post-wildfire pollutants include fire retardants and suppression chemicals, aerially-deposited particulates, partially burned organic matter, and ash. Ash deposition caused by southern California wildfires has been shown to affect other constituent levels in fire-influenced waterbodies, such as increased alkalinity and, thus, hydrogen ion concentration (pH), in soil samples. For example, Ballona Creek in Los Angeles County had disproportionately higher copper and zinc concentrations after the 2003 wildfires (SCCWRP, 2009). Where burns have occurred in residential areas, soil samples also contained greater concentrations of arsenic, lead, antimony, copper, zinc, and chromium, as observed during the 2007 Harris Wildfire in Southern California (USGS, 2007; SCCWRP, 2009). Because it takes several years for ashes and sediments displaced by wildfires to be washed into the receiving waters, elevated concentrations of these pollutants may be the result of wildfires that occurred in previous years. Wildfires are considered a possible source of pollutants during source investigations.

The District continues to track wildfires in Riverside County in order to document potential future impacts to receiving water(s). Table 3-8 presents information about the wildfires that have occurred in the region since 2011, including the name, start date, number of acres burned, and location of each wildfire. There were no wildfires in the WWR during the 2015-2016 monitoring year. Figure 3-3 shows the locations of the recent wildfires and the monitoring stations that may show water quality impacts from those wildfires (for simplicity, the last three digits of each monitoring station are used to identify locations).

Table 3-8: Wildfires Occurring within the WWR during the Past 5 Years

Incident No.	Fire Name	Start Date	Acres	Location	Latitude	Longitude
2015-2016 Monitoring Year						
No Fires during FY 2015-2016						
2014-2015 Monitoring Year						
CA-RRU-061908	Harrison	6/1/2015	80	Avenue 66 / Harrison Street	33.5692	-116.1808
2013-2014 Monitoring Year						
CA-RRU-079781	Silver	08/07/2013	20,292	Poppet Flats	33.918	-116.911
CA-BDF-10914	Tram	08/06/2013	60	Palm Springs Tram	33.836	-166.607
2012-2013 Monitoring Year						
CA-BDF-8526	Hathaway	06/09/2013	3,825	North of the City of Banning	34.003	-116.825
CA-RRU-045459	Gorgonio	05/04/2013	510	Highway 243, one mile south of Banning	33.903	-116.862
CA-RRU-44298	Summit	05/01/2013	3166	Banning Bench	33.945	-116.869
CA-RRU-103031	Sunset	10/17/2012	NR	South of the City of Banning	33.896	-116.878
2011-2012 Monitoring Year						
CA-RRU-021434	Palm	02/29/2012	NR	Palm Drive at 20th Avenue Desert Hot Springs	33.903	-116.502
CA-BDF-13860	Windy Point	09/25/2011	541	Angel Canyon	33.894	-116.626
CA-RRU-82684	Banning	09/07/2011	50	San Gorgonio Avenue, City of Banning	33.912	-116.883
CA-RRU-070962	Valley	08/03/2011	33	South of the City of Banning	33.900	-116.855
CA-RRU-064148	School	07/13/2011	40	School House Road, City of Banning	33.938	-116.886
CA-RRU-059775	View	06/18/2012	376	Cabazon	33.924	-116.694

Source: GeoMAC Wildfire Information (http://www.geomac.gov/).
NR – Not reported. Acreage not provided by GeoMAC or CalFire.

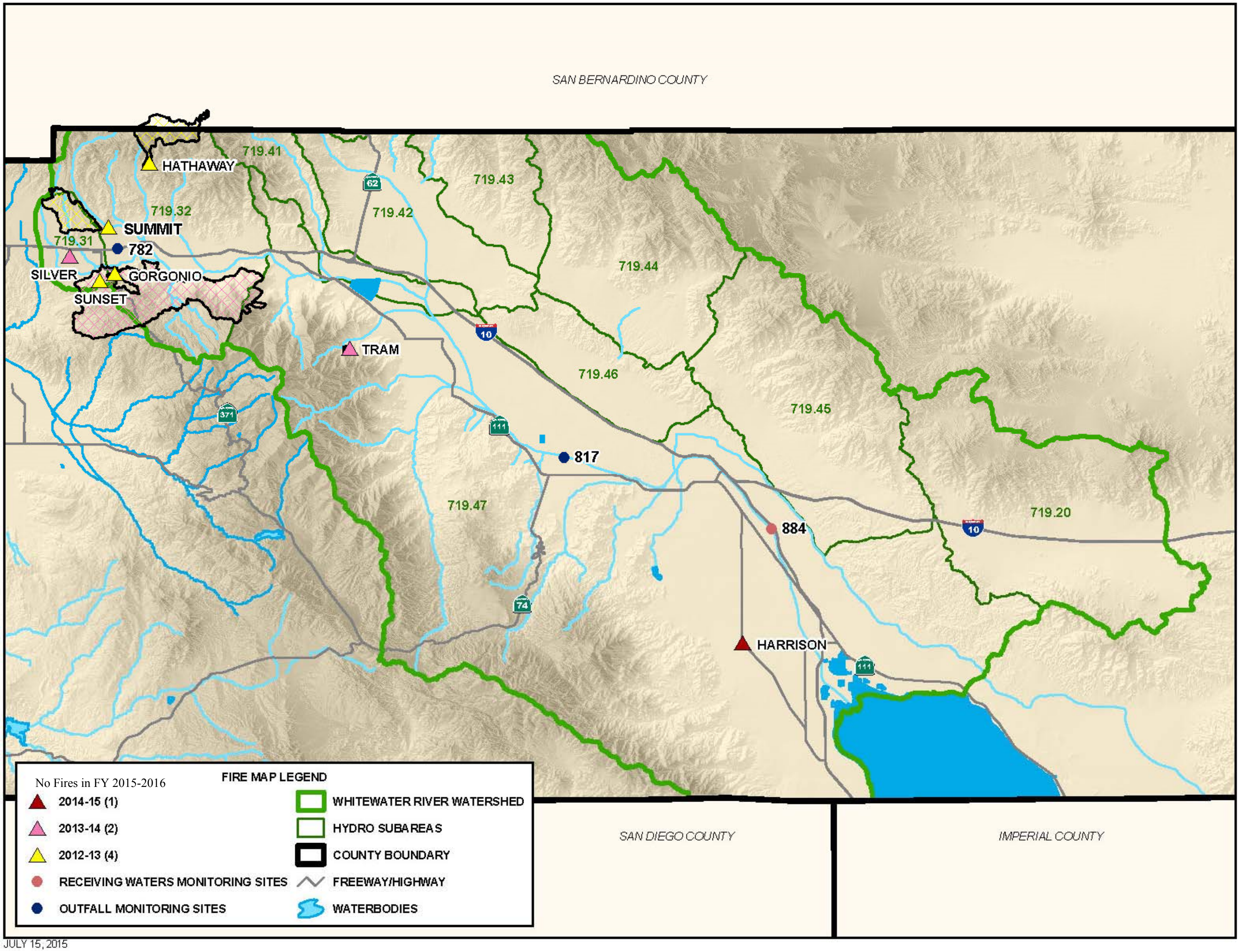

Figure 3-3: Overview of Recent Wildfires within the WWR

3.3 ILLICIT CONNECTION/ILLEGAL DISCHARGE ELIMINATION

3.3.1 MS4 Outfall Dry Weather IC/ID Monitoring

Quarterly dry weather IC/ID monitoring is required for the two MS4 outfall stations to investigate for evidence of non-typical flow and water quality conditions. When sufficient flow is present at an MS4 outfall station, bacteriological samples are collected along with field parameters and flow. Based on the results of quarterly IC/ID monitoring, follow-up investigations may be necessary if parameters are outside of normal range, there is evidence of non-typical flow or water quality conditions, and/or an IC/ID is suspected. If an IC/ID incident is discovered within a Permittee's jurisdiction, that Permittee is notified to conduct a follow-up investigation (see Section 3.3.2.1). Table 3-9 presents the field visit dates of the dry weather monitoring at MS4 outfall stations during the 2015-2016 monitoring year.

3.3.2 Complaint Calls

In the event that a Permittee has received a complaint call, the Permittee determines the jurisdiction responsible for the follow-up actions (see Section 3.3.2.1) based on the location described by the complaint report, and notifies the appropriate point of contact as referenced in the QAPP (Vol. II of the CMP). For complaints falling within a Permittee's jurisdiction, respective internal enforcement protocols are followed, or the Enforcement and Compliance Response Procedures (Section 1.7 of the WWR Stormwater Management Plan [SWMP]) may be utilized as guidance.

3.3.2.1 Follow-Up Investigations and Actions

In the event that quarterly monitoring results indicate the need for follow-up IC/ID investigations, the Permittee having jurisdiction will follow their local procedures, as necessary, including Permittee outfall inspections and field reconnaissance.

Where necessary, Permittee staff enforces respective Stormwater Ordinances; the Enforcement and Compliance Response Procedures (SWMP Section 1.7) may be utilized as guidance. Escalated enforcement continues until the discharger is able to obtain a permit from the Regional Board or the discharge is determined to be acceptable by the Permittees.

To provide further guidance to the Permittees, the July 2014 WWR CMP (Volume V) contains additional procedures and recommendations to assist in the response to a potential IC/ID.

3.4 2015-2016 MONITORING EVENTS

Dry weather and wet weather monitoring was conducted in the WWR during the 2015-2016 monitoring year as summarized in Table 3-9. Storm events are defined by the EPA as an event with at least 0.1 inch average total rainfall within a 24-hour period (EPA 833-B-92-001). However, a storm meeting this minimalistic definition in this desert region will likely not provide sufficient runoff for monitoring; therefore, mobilization is based on the criteria defined in Section 3.1.5, to facilitate monitoring success. QPS used to evaluate wet weather mobilization are also summarized in Table 3-9. The average total amount of rain shown is the daily average rainfall as measured across four gauging stations throughout the region for a given event (Daily rainfall data are provided in Attachment B). For events lasting more than one day, the daily region-wide averages were summed to generate an average total rainfall for a storm event. The storm duration for each wet weather event (i.e., number of days with a daily average precipitation greater than zero) is shown in parentheses in Table 3-9.

The QPS and measured precipitation amounts vary significantly between individual stations due to the topography of the WWR. The Thermal QPS precipitation station is the closest to the Portola Avenue Storm Drain MS4 outfall station and the CVSC at Avenue 52 Bridge receiving water station, and the Beaumont precipitation station is the closest station to the Ramsey Street Storm Drain outlet. Aside from the two monitored events on October 4, 2015 and January 5, 2016, only one other wet weather forecast (1/31/16) met the mobilization criteria 24 hours or more prior to the start of rainfall. Since two storm events had already been monitored during the 2015-2016 wet weather season, Permit requirements had been met prior to the storm event of January 31, 2016, and no further monitoring was performed.

Table 3-9: 2015-2016 Monitoring Event Summary and Wet Weather Data

Date	Ramsey Street Storm Drain (719RMS782)	Portola Avenue Storm Drain (719POR817)	CVSC at Avenue 52 Bridge(719CVS884)	QPS at Thermal, CA [(a)] 6 hr (in) / 24 hr (in)	Actual Rainfall at Thermal, CA (in) (Duration of storm in days)	QPS at Beaumont, CA [(a) (b)] 6 hr (in) / 24 hr (in)	Actual Rainfall at Beaumont, CA (in) (Duration of storm in days)	Average Total Rain for 4 District Gauges (in) [(c)] (Duration of storm in days)
Wet Weather Events								
9/14/15*				0.00/0.00**	0.00	0.27/**0.81****	0.25 (1)	0.34(1)
10/4/15	X			0.00/0.00	Trace	**0.45/0.95**	0.09*** (1)	0.02 (1)
10/14/15				0.01/0.02**	0.41 (2)	0.19/**0.52****	0.05 (2)	0.16 (3)
11/2/15				0.00/0.00	0.00	0.23/0.36	0.29 (2)	0.07 (2)
11/9/15				0.00/0.00	0.00	0.04/0.07	0.00	0.00
11/15/15				0.00/0.00	0.00	0.00/0.00	0.00	0.02 (2)
11/24/15				0.00/0.00	0.00	0.13/0.27	0.15 (2)	0.04 (2)
11/27/15				0.07/0.07	Trace	0.01/0.01	0.00	0.00
12/10/15				0.00/0.00	0.00	0.08/0.16	0.28 (2)	0.11 (2)
12/13/15				0.00/0.00	0.00	0.27/0.33	0.22 (1)	0.06 (1)
12/19/15				0.00/0.00	0.00	0.16/0.21	0.09 (1)	0.06 (2)
12/21-22/15				0.00/0.00	0.00	0.03/0.11	0.40 (2)	0.10 (2)

Table 3-9: 2015-2016 Monitoring Event Summary and Wet Weather Data

Date	Ramsey Street Storm Drain (719RMS782)	Portola Avenue Storm Drain (719POR817)	CVSC at Avenue 52 Bridge(719CVS884)	QPS at Thermal, CA [(a)] 6 hr (in) / 24 hr (in)	Actual Rainfall at Thermal, CA (in) (Duration of storm in days)	QPS at Beaumont, CA [(a) (b)] 6 hr (in) / 24 hr (in)	Actual Rainfall at Beaumont, CA (in) (Duration of storm in days)	Average Total Rain for 4 District Gauges (in) [(c)] (Duration of storm in days)
12/24-25/15				0.00/0.00	0.00	0.22/0.34	0.01 (2)	0.00
12/28-29/15				0.00/0.00	0.02 (2)	0.01/0.02	0.04 (2)	0.04 (1)
1/5/16	X	X	X	0.07/0.11	1.11 (1)	**0.83/1.59**	3.13 (4)	2.38 (4)
1/31/16				0.13/0.19	0.05	**0.68/1.44**	0.25 (2)	0.19 (2)
2/16/16				0.00/0.00	0.00	0.11/0.20	0.00	0.04 (1)
Dry Weather Events (including quarterly IC/ID monitoring)								
7/14/15	VNS							
7/30/15		VNS	X					
10/1/15	VNS							
10/29/15		VNS						
1/28/16		VNS	X					
2/16/16	VNS							
4/27/16		VNS						
5/4/16	VNS							

Notes for Table 3-9

X - Sampled.
VNS - Visited not sampled. Site was dry or there was insufficient flow for sample collection.
* NOAA QPS forecast reports are not typically released during the summer months. In accordance with discussion with the NOAA forecaster, this is due to less confidence in the probability of events and the typical convective nature of summer thunderstorms.
**QPS data were less than 24 hours prior to event.
***Although less than 0.1" were recorded by the Beaumont rain gauge nearest to the Ramsey Storm Drain, 0.4" were recorded by two other nearby rain gauges including one within the tributary area of the monitored location.
(a) Storm event mobilization criteria for typical wet weather conditions, as defined in the 2014 QAPP, range from 0.3-inch within 6 hours to 0.5-inch within 24 hours, must be met prior to 24 hours before storm's arrival. QPS meeting these mobilization criteria are presented in **bold** font.
(b) This precipitation station is used to evaluate storm event mobilization criteria for Ramsey Street Storm Drain MS4 outfall station. QPS meeting the District's mobilization criteria are presented in **bold** font.
(c) Cumulative depth of rain in inches for entire storm using daily average for four precipitation gauging stations (see Table B-2 in Attachment B). The storm duration (number of days with a daily average precipitation greater than zero) is shown in parentheses.

Dry Weather MS4 Outfall IC/ID Monitoring

Dry weather IC/ID MS4 outfall monitoring was conducted at the Ramsey Street Storm Drain MS4 outfall station on July 14, 2015; October 1, 2015; February 16, 2016; and May 4, 2016. All dry weather events at the Ramsey Street Storm Drain were classified as VNS because observed dry weather flows were absent or insufficient for field parameter measurement and sample collection.

Dry weather IC/ID MS4 outfall monitoring was conducted at the Portola Avenue Storm Drain MS4 outfall station on July 30, 2015; October 29, 2015; January 28, 2016; and April 27, 2016. All dry weather events at the Portola Avenue Storm Drain were classified as VNS because observed dry weather flows were absent or insufficient for field parameter measurement and sample collection.

Dry Weather Receiving Water Monitoring

Dry weather receiving water monitoring was conducted at the CVSC at Avenue 52 Bridge receiving water station on July 30, 2015 and January 28, 2016. Field parameters were measured, and water samples were collected and analyzed for *E. coli* and constituents of concern.

Wet Weather MS4 Outfall Monitoring

Wet weather monitoring was conducted at the Ramsey Street Storm Drain MS4 outfall station on October 4, 2015 and January 5, 2016. Field parameters were measured, and samples were collected and analyzed for *E. coli* and constituents of concern. The Ramsey Street Storm Drain is a tributary to Smith Creek, which is a tributary of the San Gorgonio River. Because nearly 3 miles of dry ephemeral stream lie between the San Gorgonio receiving water and the MS4 outfall, there is only hydraulic connectivity during significantly large storm events. For the October 4, 2015 storm event, the Banning precipitation station recorded 0.09 inch of rainfall, whereas the regional average for rainfall was 0.02 inch (Attachment B). The estimated flow at the Ramsey Street Storm Drain MS4 outfall station for this event (0.267 cubic feet per second [cfs]) indicated that this was not representative of a large storm event. In addition, conditions in the WWR during the 2015-2016 monitoring year were dry (32% below normal precipitation, Table 3-7), and no flow was observed in the receiving water for this event. Therefore, wet weather flow from the October 4, 2015 storm event likely evaporated and/or infiltrated before reaching the San Gorgonio River and would not have impacted the receiving water's beneficial uses.

During the January 5, 2016 storm event, the receiving water (Smith Creek) was not flowing during sampling. However, Smith Creek likely began flowing after sampling ceased, because sampling was performed in the initial portion of the storm event on January 5, 2016 (total rainfall at Banning on 1/5/16 was 0.01 inch), and it continued to rain until January 8, 2016. For this event, the Banning precipitation station recorded 3.13 inches of rainfall over 4 days, whereas the regional average for rainfall was 2.38 inches (Attachment B). The estimated flow at the Ramsey Street Storm Drain MS4 outfall station during the time of sampling was 1.75 cfs. Based on the duration of the storm event and amount of rainfall received, storm flows likely reached the San Gorgonio River.

Wet weather monitoring was performed at the Portola Avenue Storm Drain MS4 outfall station on January 5, 2015. The estimated flow at the Portola Avenue Storm Drain MS4 outfall station during the time of sampling was 3.9 cfs. Based on the duration of the storm event and amount of rainfall received, storm flows likely reached the Whitewater River. Only one other storm event for the 2015-2016 monitoring year met the CMP mobilization criteria; however, this event on January 31, 2016 took place during nighttime hours when safety concerns prevented CVSC crews from mobilization for sampling.

Wet Weather Receiving Water Monitoring

The receiving water monitoring station CVSC at Avenue 52 Bridge was visited on January 5, 2015 as a wet weather event, but was not sampled until January 6, 2015 due to the runoff having not yet reached the southwest channel. The estimated flow at the CVSC Avenue 52 Bridge station was 41.5 cfs on January 6, 2016.

3.5 SUMMARY OF ANALYTICAL DATA RESULTS

This section provides the analytical results for the water quality monitoring conducted during the 2015-2016 monitoring year at the two MS4 outfall stations and one receiving water station in the WWR. The water quality results for the analytes and field parameters measured during the 2015-2016 monitoring year are described below by MS4 outfall monitoring station and receiving water station. Results tables are provided separately for MS4 outfall monitoring and receiving water monitoring at the end of each subsection and include WQOs from the Basin Plan for reference. For compliance purposes, Basin Plan WQOs are applicable only to receiving waters and not MS4 outfall discharges.

Constituents with estimated results due to detections above the laboratory method detection limit (MDL) but below the RL are presented in all results tables as detected not quantified (DNQ). The significance of these constituents as they relate to urban runoff water quality, and the types of industries within the WWR that are likely to discharge them, are discussed in Attachment E.

As described in Section 3.2.3, water quality data collected during the 2015-2016 monitoring year were compared to normal ranges based on historical monitoring data at each station, as a general means of assessing whether individual MS4 outfalls may be contributing to changing receiving water conditions. Data tables comparing the 2015-2016 monitoring data with the historical range values for each parameter by station are also presented separately for the MS4 outfall stations and the receiving water station at the end of each respective report section. Concentrations of pollutants measured outside the normal ranges for that station are shown with grey shading in these tables.

Given the dry conditions of the 2015-2016 monitoring year for the WWR as a whole (e.g., 32% below normal precipitation, see Table 3-7), there was very limited hydraulic connectivity between the MS4 outfall stations and downstream receiving waters. Due to these dry conditions, hydraulic connectivity would be expected only during significantly large storm events. As discussed in Section 3.4, only the January 5, 2016 event would qualify as a large storm event.

3.5.1 MS4 Outfall Station Results

Table 3-10 presents the monitoring results for the two MS4 outfall stations in the WWR. Results are shown for wet weather events only, as all four dry weather events were VNS.

Table 3-10. 2015-2016 Concentrations of Monitored Constituents – WWR MS4 Outfall Stations

Constituent	Units	Basin Plan WQO	719RMS782		719POR817
			Ramsey Street Storm Drain		Portola Avenue Storm Drain
			Wet Event	Wet Event	Wet Event
			10/4/2015	1/5/2016	1/5/2016
Bacteriological					
E. coli	MPN/100mL	400 (REC-1) 2,000 (REC-2)	**30,000**	**2,000**	920
Field Measurements					
Dissolved Oxygen	mg/L	5 (WARM) 8 (COLD)	**5.23**	9.84	8.81
Specific Conductance	µS/cm	[a]	179	272	652
Temperature	Celsius	[a]	23	11.49	15
Turbidity	NTU	[a]	20.4	92.4	240
pH	pH	6.0-9.0	6.24	6.19	7.85
Other General Parameters					
Methylene Blue Active Substances (MBAS)	mg/L	[a]	0.94	ND	ND
Total Dissolved Solids (TDS)	mg/L	[a]	170	120	500
Total Suspended Solids (TSS)	mg/L	[a]	13	53	510
Hydrocarbons					
Ethylene Glycol	mg/L	[a]	140	ND	ND
Diesel Range Hydrocarbons[b]	mg/L	[a]	ND	ND	ND
Gasoline Range Organics[b]	mg/L	[a]	ND	ND	DNQ (0.024)
Oil & Grease (HEM)	mg/L	[a]	2	1.9	DNQ (3.3)
Nutrients					
Ammonia-Nitrogen	mg/L	[a]	1.5	0.67	1.6
Kjeldahl Nitrogen	mg/L	[a]	4.4	2.6	13
Nitrate as N	mg/L	[a]	1.6	1.3	16
Nitrite as N	mg/L	[a]	0.24	0.069	0.42
Total Nitrogen	mg/L	[a]	6.2	4	30
Ortho Phosphate Phosphorus	mg/L	[a]	0.52	0.23	0.32
Total Phosphorus	mg/L	[a]	0.8	0.42	1.5
Total Metals					
Antimony	µg/L	[a]	1.6	1.7	DNQ (3.9)
Arsenic	µg/L	[a]	DNQ (0.9)	1.2	DNQ (3.1)
Barium	µg/L	[a]	19	27	140
Beryllium	µg/L	[a]	ND	ND	DNQ (1.9)
Cadmium	µg/L	[a]	ND	DNQ (0.15)	DNQ (0.76)
Chromium	µg/L	[a]	2.3	4	DNQ (17)
Chromium, Hexavalent	µg/L	[a]	0.34	0.84	1.5
Copper	µg/L	[a]	22	20	130
Lead	µg/L	[a]	3.1	6.2	10
Mercury	µg/L	[a]	ND	ND	ND

Table 3-10. 2015-2016 Concentrations of Monitored Constituents – WWR MS4 Outfall Stations

Constituent	Units	Basin Plan WQO	719RMS782 Ramsey Street Storm Drain		719POR817 Portola Avenue Storm Drain
			Wet Event	Wet Event	Wet Event
			10/4/2015	1/5/2016	1/5/2016
Nickel	µg/L	(a)	4.9	4	DNQ (11)
Selenium	µg/L	(a)	DNQ (0.5)	ND	DNQ (1.4)
Silver	µg/L	(a)	ND	ND	DNQ (1.3)
Thallium	µg/L	(a)	ND	ND	DNQ (0.26)
Zinc	µg/L	(a)	93	140	250

(a) Basin Plan WQOs are dependent upon Beneficial Uses and vary by monitoring station. Note that the potential WQOs associated with the potential MUN Beneficial Use for the Ramsey Street Storm Drain have not been applied.
(b) Laboratory reported total petroleum hydrocarbons as gasoline range organics and diesel range hydrocarbons.
DNQ - Detected not Quantified. Indicates that the constituent was detected below the reporting limit (RL). The concentration was not quantified. Values in parentheses are estimated.
ND – Indicates constituent was not detected above the RL.
Bold text indicates an exceedance of the applicable Basin Plan WQO.

3.5.1.1 Ramsey Street Storm Drain MS4 Outfall Station

E. coli results for both wet weather events at the Ramsey Street Storm Drain outfall were above the Basin Plan WQO of 400 most probable number (MPN)/100mL. The *E. coli* concentration was 30,000 MPN/100mL during the October 4, 2015 sampling event and 2,000 MPN/100mL during the January 5, 2016 sampling event. Dissolved oxygen (DO) was measured at 5.23 milligrams per liter (mg/L) during the October sampling event, which is below the WQO of 8 mg/L for the COLD beneficial use. As noted earlier the Ramsey Street Storm Drain is rarely hydraulically connected to its proximate receiving waterbody, as it is over 3 miles upstream from the San Gorgonio River therefore its WQO may not be the appropriate benchmark on which to compare. Wet weather flow from the October 2015 storm event, which was smaller than the January 2016 event, likely evaporated and/or infiltrated before reaching the San Gorgonio River and would not have impacted the receiving waters' beneficial uses.

There were no detections of diesel range hydrocarbons or gasoline range organics during either of the two monitored wet weather events at the Ramsey Street Storm Drain outfall. In general, nutrient concentrations were slightly higher during the October event compared to the January event.

The following total metals were either not detected above the reporting limit or were DNQ during both wet weather events at the Ramsey Street Storm Drain outfall: beryllium, cadmium, mercury, selenium, silver, and thallium. Arsenic was DNQ during the October event only. In general, total metals concentrations varied little, less than 2-fold in most cases, between the two wet weather events.

3.5.1.2 Portola Avenue Storm Drain Outfall Station

For constituents with Basin Plan WQOs, the results for the one monitored wet weather event at the Portola Avenue Storm Drain did not exceed the WQOs. The *E. coli* concentration was 920 MPN/100mL, which is below the Basin Plan WQO of 2,000 MPN/100mL for waters with a REC-2 beneficial use. Field measurements of DO and pH were 8.81 mg/L and 7.85 pH units, respectively, and within Basin Plan WQO criteria. Nutrient concentrations were generally higher at the Portola Avenue Storm Drain compared to the Ramsey Street Storm Drain. Oil & grease and gasoline range organics were DNQ at the Portola Avenue Storm Drain outfall while ethylene glycol and diesel range hydrocarbons were not detected. Mercury was not detected, and the concentrations of the following total metals were DNQ: antimony, arsenic, beryllium, cadmium, chromium, nickel, selenium, silver, and thallium were DNQ.

3.5.2 Receiving Water Station Results

3.5.2.1 CVSC at Avenue 52 Bridge Receiving Water Station

Table 3-11 presents the monitoring results for CVSC at Avenue 52 Bridge Receiving Water Station in the WWR. The results of the one wet event and two dry events are described below.

Table 3-11: 2015-2016 Concentrations of Monitored Constituents – WWR Receiving Water Station

Constituent	Units	Basin Plan WQO	719CVS884		
			CVSC at Avenue 52 Bridge		
			Dry Event	Dry Event	Wet Event
			7/30/2015	1/28/2016	1/6/2016
Bacteriological					
E. coli	MPN/100mL	400 (REC-1)	79	350	**4,900**
Field Measurements					
Dissolved Oxygen	mg/L	5 (WARM)	**4.17**	**3.89**	**4.07**
Specific Conductance	µS/cm	(a)	1123	1140	1638
Temperature	Celsius	(a)	30	16.5	13.4
Turbidity	NTU	(a)	16.4	14.9	196
pH	pH	6.0-9.0	7.3	7.68	8.38
Other General Parameters					
MBAS	mg/L	(a)	ND	ND	ND
Total Dissolved Solids	mg/L	(a)	710	650	960
Total Suspended Solids	mg/L	(a)	20	17	120
Hydrocarbons					
Ethylene Glycol	mg/L	(a)	ND	ND	ND
Diesel Range Hydrocarbons[b]	mg/L	(a)	-	-	ND
Gasoline Range Organics[b]	mg/L	(a)	-	-	DNQ (0.024)

Table 3-11: 2015-2016 Concentrations of Monitored Constituents – WWR Receiving Water Station

Constituent	Units	Basin Plan WQO	719CVS884		
			CVSC at Avenue 52 Bridge		
			Dry Event	Dry Event	Wet Event
			7/30/2015	1/28/2016	1/6/2016
Total Petroleum Hydrocarbons	mg/L	(a)	DNQ (0.44)	ND	-
Oil & Grease (HEM)	mg/L	(a)	DNQ (2.1)	DNQ (3.8)	DNQ (2.6)
Nutrients					
Ammonia-Nitrogen	mg/L	(a)	15	24	10
Kjeldahl Nitrogen	mg/L	(a)	17	28	21
Nitrate as N	mg/L	(a)	13	2.6	2.9
Nitrite as N	mg/L	(a)	0.77	0.56	0.38
Total Nitrogen	mg/L	(a)	31	31	24
Ortho Phosphate Phosphorus	mg/L	(a)	1.3	1.8	1.2
Total Phosphorus	mg/L	(a)	2.2	2.3	1.5
Total Metals					
Antimony	µg/L	(a)	DNQ (0.61)	ND	DNQ (1.3)
Arsenic	µg/L	(a)	DNQ (1.2)	DNQ (1.4)	DNQ (2.7)
Barium	µg/L	(a)	45	49	77
Beryllium	µg/L	(a)	ND	DNQ (0.34)	ND
Cadmium	µg/L	(a)	ND	DNQ (0.27)	ND
Chromium	µg/L	(a)	DNQ (2.5)	ND	DNQ (8.5)
Chromium, Hexavalent	µg/L	(a)	DNQ (0.32)	DNQ (0.038)	DNQ (0.47)
Copper	µg/L	(a)	DNQ (3.6)	DNQ (2.7)	23
Lead	µg/L	(a)	DNQ (0.51)	DNQ (0.69)	DNQ (5.2)
Mercury	µg/L	(a)	ND	ND	DNQ (0.058)
Nickel	µg/L	(a)	DNQ (2.2)	DNQ (3)	DNQ (9)
Selenium	µg/L	(a)	ND	ND	DNQ (1.5)
Silver	µg/L	(a)	ND	DNQ (0.26)	ND
Thallium	µg/L	(a)	ND	DNQ (0.21)	ND
Zinc	µg/L	(a)	DNQ (7.8)	DNQ (7.5)	47

DNQ - Detected Not Quantified. Indicates that the constituent was detected below the reporting limit (RL). The concentration was not quantified. Values in parentheses are estimated.
ND - Indicates constituent was not detected above the RL.
(a) Basin Plan WQOs are dependent upon Beneficial Uses and vary by monitoring station.
(b) Laboratory reported total petroleum hydrocarbons as gasoline range organics and diesel range hydrocarbons for wet weather samples at this station.
Bold text indicates an exceedance of the applicable Basin Plan WQO.

Wet Weather

During the one wet weather event monitored at the CVSC at the Avenue 52 Bridge receiving water station on January 6, 2016 (Table 3-11), both the *E. coli* and DO concentrations were outside the Basin Plan WQOs. The *E. coli* concentration of 4,900 MPN/100mL was above the REC-1 beneficial use WQO of 400 MPN/100mL, and the DO concentration of 4.07 mg/L was below the 5.0 mg/L threshold for the WARM beneficial use. The pH concentration (8.38 pH units) was within the Basin Plan WQO range of 6.0 to 9.0 pH units.

MBAS, oil and grease, and gasoline range organics were DNQ, whereas ethylene glycol and diesel range hydrocarbons were not detected. Ammonia and total nitrogen were measured at 10 mg/L and 24 mg/L, respectively, and orthophosphate and total phosphorus concentrations were 1.2 mg/L and 1.5 mg/L, respectively. For total metals, concentrations of antimony, arsenic, chromium, hexavalent chromium, lead, mercury, nickel, and selenium were DNQ and beryllium, cadmium, silver, and thallium were not detected.

Dry Weather

Two dry weather events were monitored at the CVSC at the Avenue 52 Bridge receiving water station during the 2015-2016 monitoring year (Table 3-11). Dry weather samples collected at the receiving water station characterize background conditions in the CVSC and predominately represent NPDES-permitted POTW discharges, rising groundwater, and agricultural return flows. During both dry weather events, the measured DO concentrations were below the 5 mg/L Basin Plan WQO for waters designated with WARM beneficial use. The measured DO concentration was 4.17 mg/L during the July event and was 3.89 mg/L during the January event.

MBAS, ethylene glycol, and total petroleum hydrocarbons were not detected during either of the two monitored dry weather events at the CVSC at the Avenue 52 Bridge receiving water station. Oil and grease was DNQ during both dry weather events. Ammonia and nitrate concentrations were 15 mg/L and 13 mg/L during the July event, and 24 mg/L and 2.6 mg/L during the January event, respectively. Total nitrogen concentrations were 31 mg/L during both events. Orthophosphate and total phosphorus concentrations were 1.3 mg/L and 2.2 mg/L during the July event, and 1.8 mg/L and 2.3 mg/L during the January event, respectively. The following total metals were either not detected or were DNQ during both dry weather sampling events: antimony, arsenic, beryllium, cadmium, chromium, hexavalent chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc.

3.5.3 Normal Range Analysis of Water Quality Parameters

As previously stated in Section 3.2.3, a normal range analysis was conducted in accordance with MRP requirement L.11.C to identify water quality parameters measured outside the normal range for that parameter based on historical water quality data. The normal range analysis was based on historical water quality data (e.g., monitoring data collected through the 2014-2015 monitoring year) and represents the minimum and maximum values in the data for each constituent at a given monitoring station. Of the three stations monitored during the 2015-2016 monitoring year, the Ramsey Street Storm Drain MS4 outfall station has the largest historical dataset.

MS4 Outfall Stations

Table 3-12 presents the normal range and mean of the historical monitoring results for the MS4 outfall stations. This table also provides the 2015-2016 monitoring results to allow a comparison to the normal range. Normal range results are not presented for dry weather, as both stations were VNS for all four monitoring events.

For the 2015-2016 monitored wet weather events, there were five constituents observed to be outside the historical wet weather ranges established at the Ramsey Street Storm Drain outfall. Concentrations of *E. coli*, temperature, TSS, and ethylene glycol were above the historical range during one monitored event, and the concentration of DO was below the normal range during one monitored event. The DO result during the October 4, 2015 wet weather monitoring event was 20% below the lower end of the normal range. Temperature, *E. coli* and ethylene glycol results during the October event were 18%, 30%, and 140% greater than the upper end of the normal range, respectively. During the January 2016 event, TSS results were 6% greater than the upper end of the normal range.

At the Portola Avenue Storm Drain, only nitrate as N, TKN, and total nitrogen were outside the normal range during wet weather monitoring. These constituents ranged from 37% to 400% greater than the upper end of the normal range at this station. All other results at this MS4 outfall fell within the normal range, provided that there were at least two historical data points in order to calculate the normal range.

Table 3-12: Normal Range Analysis – Outfall Stations

Constituent	Units	Ramsey Street Storm Drain (719RMS782)					Portola Avenue Storm Drain (719POR817)			
		Wet Weather					Wet Weather			
		Historical Data			2015-2016 Monitoring Year Data		Historical Data			2015-2016 Monitoring Year Data
		n	Normal Range	Mean of Results[1]	10/4/2015	1/5/2016	n	Normal Range	Mean of Results[1]	1/5/2016
Bacteriological										
E. coli	MPN/100mL	12	60-23,000	1,970*	30,000	2,000	9	330-160,000	7,093*	920
Field Measurements										
Dissolved Oxygen	mg/L	18	6.51-13.5	9.2	5.23	9.84	9	7.38-11.15	8.95	8.81
Specific Conductance	µS/cm	26	0.04-732	136	179	272	11	37-4,560	575	652
Temperature	Celsius	19	6.58-19.5	12.5	23	11.49	10	9.2-30.1	18.92	15
Turbidity	NTU	18	15.4-371	92.9	20.4	92.4	9	14.3-444	125.7	240
pH	pH	26	5.5-9.1	7.6	6.24	6.19	11	6.6-9.3	7.98	7.85
Other General Parameters										
MBAS	mg/L	28	<0.05-2	0.37	0.94	ND	4	0.11-8.2	2.6	ND
Total Dissolved Solids	mg/L	41	23-670	103	170	120	12	22-570	181.17	500
Total Suspended Solids	mg/L	2	11-50	30.5	13	53	1	NA	1,100**	510
Hydrocarbons										
Ethylene Glycol	mg/L	2	<3-<10	<6.5	140	ND	1	NA	<10**	ND
Oil & Grease (HEM)	mg/L	28	<1-23	5.7	2	1.9	4	<1-<5	3.725	DNQ (3.3)
Diesel Range Hydrocarbons[2]	mg/L	2	<5-<5	<5	ND	ND	1	NA	<5**	ND
Gasoline Range Organics[2]	mg/L	2	<0.05-<0.05	0.05	ND	ND	1	NA	<0.05**	DNQ (0.024)
Nutrients										
Ammonia-Nitrogen	mg/L	39	DNQ (0.06)-6.7	0.81	1.5	0.67	12	0.099-2.5	0.96	1.6
Nitrate as N	mg/L	39	<0.2-3.9	0.90	1.6	1.3	12	0.11-3.2	1.56	16
Nitrite as N	mg/L	39	0.024-2.9	0.18	0.24	0.069	12	DNQ (0.06)-0.87	0.17	0.42
Total Kjeldahl Nitrogen	mg/L	39	0.37-21	2.9	4.4	2.6	12	0.45-9.5	4.64	13
Total Nitrogen	mg/L	37	0.4-28	4.4	6.2	4	12	<0.2-11.56	5.26	30
Ortho Phosphate Phosphorus	mg/L	17	0.063-0.64	0.19	0.52	0.23	11	0.057-0.5	0.25	0.32
Total Phosphorus	mg/L	39	<0.05-2.6	0.57	0.8	0.42	12	0.12-2.1	0.71	1.5
Total Metals[3]										
Antimony	µg/L	10	DNQ (0.4)-<10	7.17	1.6	1.7	5	2.7-<10	7.38	DNQ (3.9)
Arsenic	µg/L	39	DNQ (0.4)-<10	4.68	DNQ (0.9)	1.2	12	0.5-<10	4.07	DNQ (3.1)
Barium	µg/L	39	8-200	51.67	19	27	12	14-330	76.1	140
Beryllium	µg/L	10	<0.5-<10	<7.15	ND	ND	5	<0.5-<10	6.25	DNQ (1.9)
Cadmium	µg/L	39	DNQ (0.08)-<10	3.11	ND	DNQ (0.15)	12	0.08-<10	2.34	DNQ (0.76)
Chromium	µg/L	39	1.2-37	15.6	2.3	4	12	1.2-32	11.9	DNQ (17)

Table 3-12: Normal Range Analysis – Outfall Stations

Constituent	Units	Ramsey Street Storm Drain (719RMS782)					Portola Avenue Storm Drain (719POR817)			
		Wet Weather					Wet Weather			
		Historical Data			2015-2016 Monitoring Year Data		Historical Data			2015-2016 Monitoring Year Data
		n	Normal Range	Mean of Results[1]	10/4/2015	1/5/2016	n	Normal Range	Mean of Results[1]	1/5/2016
Chromium, Hexavalent	µg/L	4	DNQ (0.26)-0.87	0.50	0.34	0.84	1	NA	0.74**	1.5
Copper	µg/L	29	8.5-190	26.70	22	20	5	18-220	78.6	130
Lead	µg/L	39	DNQ (0.9)-120	19.60	3.1	6.2	12	1-30	9.02	10
Mercury	µg/L	39	DNQ (0.067)-78	2.49	ND	ND	12	DNQ (0.11)-<1	0.35	ND
Nickel	µg/L	29	1.9-30	19.20	4.9	4	5	3.6-30	21.1	DNQ (11)
Selenium	µg/L	39	DNQ (0.2)-8.5	3.72	DNQ (0.5)	ND	12	DNQ (0.6)-<5	2.73	DNQ (1.4)
Silver	µg/L	29	<0.25-<10	<8.99	ND	ND	5	<0.25-<10	6.15	DNQ (1.3)
Thallium	µg/L	10	<1-<200	<1	ND	ND	5	DNQ (0.32)-<200	120	DNQ (0.26)
Zinc	µg/L	29	30-1,700	163.1	93	140	5	44-700	287	250

< Constituent not detected above the reporting limit (RL).

NA -Range not calculated, only one previous sample.

DNQ - Detected Not Quantified. Indicates that the constituent was detected below the reporting limit (RL). The concentration was not quantified. Values in parentheses are estimated. DNQ values are known for data after July 1, 2011.

HEM – Hexane extractable material

[1] - The mean was calculated using the RL for samples that were not detected above the RL.

[2] - Beginning in the 2014-2015 monitoring year, the laboratory reported gasoline range organics and diesel range organics in lieu of total petroleum hydrocarbons.

[3] - Historical analyses for total metals used higher RLs than more recent analyses. Therefore, more recent samples may have a detection below an older sample that was reported as not detected.

*For *E. coli*, the mean calculation is the geometric mean.

**Result based on one sample.

Shaded text indicates the result was outside the normal range.

Receiving Water Station

The normal range and mean of the historical monitoring results for the CVSC at Avenue 52 Bridge receiving water station are provided in Table 3-13 with the 2015-2016 monitoring results for comparison.

Dry weather monitoring results indicated that water temperature, nitrate as N, and total nitrogen were above the normal range at 2%, 10%, and 17% greater than the highest value recorded in the historical range, respectively, during the July monitoring event. During the January 2016 dry weather monitoring event, concentrations of ammonia as N, TKN, and total nitrogen were approximately 20%, 17%, and 17% greater than the highest value recorded in the historical range, respectively.

Wet weather monitoring results at CVSC at Avenue 52 Bridge indicated that specific conductance and TDS were above the normal range; specific conductance was approximately 38% above the upper range and TDS was 20% greater than the upper range.

Table 3-13. Normal Range Analysis - WWR Receiving Water Station

Constituent	Units	CVSC at Avenue 52 Bridge (719CVS884)								
		Dry Weather					Wet Weather			
		Historical Data			2015-2016 Monitoring Year Data		Historical Data			2015-2016 Monitoring Year Data
		n	Normal Range	Mean of Results[1]	7/30/2015	1/28/2016	n	Normal Range	Mean of Results[1]	1/6/2016
Bacteriological										
E. coli	MPN/100mL	14	1.8-540	131*	79	350	9	200-33,000	2,060*	4,900
Field Measurements										
Dissolved Oxygen	mg/L	16	2.78-7.18	4.42	4.17	3.89	9	1.2-9.55	5.14	4.07
Specific Conductance	µS/cm	16	917-1,500	1119	1,123	1,140	9	216-1,191	855	1,638
Temperature	Celsius	16	15-29.3	21.8	30	16.5	9	9.9-26	17.5	13.4
Turbidity	NTU	16	2.15-39.6	12.5	16.4	14.9	9	5.4-31,200	6187	196
pH	pH	16	7.2-8.2	7.6	7.3	7.68	9	7.2-8.8	7.9	8.38
Other General Parameters										
MBAS	mg/L	3	<0.08-<0.2	0.12	ND	ND	NA	NA	NA	ND
Total Dissolved Solids	mg/L	15	500-980	669	710	650	9	360-800	609	960
Total Suspended Solids	mg/L	3	17-31	26	20	17	NA	NA	NA	120
Hydrocarbons										
Ethylene Glycol	mg/L	3	<10-<10	<10	ND	ND	NA	NA	NA	ND
Oil & Grease (HEM)	mg/L	3	DNQ (2.8)-6.9	4.3	2.1	DNQ (3.8)	NA	NA	NA	DNQ (2.6)
Diesel Range Hydrocarbons[1]	mg/L	-	-	-	-	-	NA	NA	NA	ND
Gasoline Range Organics[1]	mg/L	-	-	-	-	-	NA	NA	NA	DNQ (0.024)
Total Petroleum Hydrocarbons	mg/L	3	<1-<1	<1	DNQ (0.44)	ND	-	-	-	-
Nutrients										
Ammonia-Nitrogen	mg/L	16	6.6-20	13	15	24	9	0.22-15	6.8	10
Nitrate as N	mg/L	16	0.41-6.6	2.9	13	2.6	9	1.2-4.3	2.5	2.9
Nitrite as N	mg/L	16	0.23-1.4	0.59	0.77	0.56	9	0.08-0.67	0.30	0.38
Total Kjeldahl Nitrogen	mg/L	16	1.8-24	15	17	28	9	3.9-26	15.3	21
Total Nitrogen	mg/L	15	2.4-26.44	18	31	31	9	5.3-28	18	24
Ortho Phosphate Phosphorus	mg/L	16	0.2-5.83	1.8	1.3	1.8	9	0.065-6.36	1.7	1.2
Total Phosphorus	mg/L	16	0.42-3.2	1.8	2.2	2.3	9	2-23	5.8	1.5
Total Metals[3]										
Antimony	µg/L	5	<0.5-<10	<6.2	DNQ (0.61)	ND	1	<0.5-<0.5	<0.5**	DNQ (1.3)
Arsenic	µg/L	18	1.1-<5	2.1	DNQ (1.2)	DNQ (1.4)	9	1.5-7.2	4.1	DNQ (2.7)
Barium	µg/L	18	31-68	51	45	49	9	39-4,300	907	77
Beryllium	µg/L	5	<0.5-<10	<6.2	ND	DNQ (0.34)	1	NA	11**	ND
Cadmium	µg/L	18	<0.25-<2	<1.1	ND	DNQ (0.27)	9	DNQ (0.02)-3.6	1.1	ND

Table 3-13. Normal Range Analysis - WWR Receiving Water Station

Constituent	Units	CVSC at Avenue 52 Bridge (719CVS884)								
		Dry Weather					Wet Weather			
		Historical Data			2015-2016 Monitoring Year Data		Historical Data			2015-2016 Monitoring Year Data
		n	Normal Range	Mean of Results[1]	7/30/2015	1/28/2016	n	Normal Range	Mean of Results[1]	1/6/2016
Chromium	µg/L	18	1.7-<20	5.0	DNQ (2.5)	ND	9	2.4-260	58	DNQ (8.5)
Chromium, Hexavalent	µg/L	5	DNQ (0.064)-<10	2.3	DNQ (0.32)	DNQ (0.038)	NA	NA	NA	DNQ (0.47)
Copper	µg/L	5	DNQ (2.7)-5.5	3.8	DNQ (3.6)	DNQ (2.7)	1	NA	380**	23
Lead	µg/L	17	DNQ (0.23)-1.1	0.61	DNQ (0.51)	DNQ (0.69)	9	<0.5-510	86	DNQ (5.2)
Mercury	µg/L	17	<0.2-<0.2	<0.2	ND	ND	9	<0.2-2.6	0.50	DNQ (0.058)
Nickel	µg/L	5	DNQ (1.5)-3.1	2.3	DNQ (2.2)	DNQ (3)	1	NA	150**	DNQ (9)
Selenium	µg/L	17	1.1-<5	2.4	ND	ND	9	1.6-<5	2.7	DNQ (1.5)
Silver	µg/L	5	<0.25-<10	<6.1	ND	DNQ (0.26)	1	NA	0.85**	ND
Thallium	µg/L	5	<1-<200	<120	ND	DNQ (0.21)	1	NA	<1**	ND
Zinc	µg/L	5	DNQ(9.4)-38	17	DNQ (7.8)	DNQ (7.5)	1	NA	980**	47

< Constituent not detected above the reporting limit (RL).
NA -Data not available.
ND - Indicates sample was not detected above the RL.
DNQ - Detected Not Quantified. Indicates that the constituent was detected below the reporting limit (RL). The concentration was not quantified. Values in parentheses are estimated. DNQ values are known for data after July 1, 2011.
[1] The mean was calculated using the RL for samples that were not detected above the RL.
[2] Laboratory reported gasoline range organics and diesel range organics in lieu of total petroleum hydrocarbons for wet weather samples.
[3] Historical analyses for total metals used higher RLs than more recent analyses. Therefore, more recent samples may have a detection below an older sample that was reported as not detected.
* For *E. coli* the mean calculation is the geometric mean.
** Result based on one sample.
Shaded text indicates the result was outside the normal range.

<u>**WWR Historical Range and Historical Mean Results Specific to *E. coli***</u>

Because there is currently a bacterial indicator TMDL for the Coachella Valley Stormwater Channel (CVSD), the most recent results for *E. coli* from the 2015-2016 monitoring year, as well as the historical range from previous monitoring years, are discussed in greater detail below. Samples collected in the WWR have been analyzed for *E. coli* since the 2008-2009 monitoring year. Given the limited total number of samples collected due to arid conditions within the WWR and the high variability for stormwater runoff samples, the historical range and historical geometric mean calculated for each monitoring station are descriptive. As more data become available, these descriptive statistics will change.

The 2008-2015 historical range and historical mean *E. coli* results for each MS4 outfall and receiving water station are presented in Table 3-14 for dry weather and wet weather. The historical geometric means for *E. coli* at the Portola Avenue Storm Drain and at the CVSC at Avenue 52 Bridge receiving water station were 441 MPN/100mL and 131 MPN/100mL, respectively. Due to the small sample size (one sample), a geometric mean could not be calculated for dry weather *E. coli* results at Ramsey Street Storm Drain; all but one event has been VNS since 2008. During wet weather, the historical geometric means were 1,970 MPN/100mL at the Ramsey Street Storm Drain, 7,093 MPN/100mL at the Portola Avenue Storm Drain, and 2,060 MPN/100mL at the CVSC at the Avenue 52 Bridge receiving water station.

Table 3-14: 2008-2015 Normal Range for *E. coli* (MPN/100mL)

Monitoring Station (Station ID)	Dry Weather			Wet Weather		
	n	Normal Range	Geometric Mean	n	Normal Range	Geometric Mean
Ramsey Street Storm Drain (719RMS782)	1	NA	NA	12	60-23,000	1,970
Portola Avenue Storm Drain (719POR817)	13	ND-1,700	441	9	330-160,000	7,093
CVSC at Avenue 52 Bridge (719CVS884)	14	1.8-540	131	9	200-33,000	2,060

* Geometric mean calculated using 12 results (n=12) due to one result that was reported as zero.
N/A – Not applicable. Insufficient data have been collected to establish a normal range and historical mean value.
ND – Not detected.
n – Sample size.

***E. coli* in discharges to the Whitewater River Receiving Water (washes)**

The Portola Avenue Storm Drain MS4 outfall station is a tributary to a wash (ephemeral stream portion) of the Whitewater River. Because all of the dry weather events at the Portola Avenue Storm Drain MS4 outfall station were VNS for the 2015-2016 monitoring year, there was no comparison of current data to the normal range.

The *E. coli* concentration for the January 5, 2016 wet weather sample from the Portola Avenue Storm Drain MS4 outfall station (920 MPN/100mL) was within the normal range for wet weather. Flow from the Portola Avenue Storm Drain MS4 outfall station was calculated at 3.9 cfs during the time of sample collection. It is unclear if flow from the Portola Avenue Storm Drain reached the receiving water, but it is likely based on the 1.90 inches of rain recorded at the Cathedral City rain gauge over the 2 day event. If the storm water effluent from the Portola Avenue Storm Drain did reach the Whitewater River, it would not have impacted beneficial uses because it was below the REC-2 threshold of 2,000 MPN/100mL.

E. coli in discharges tributary to the San Gorgonio River Receiving Water

All dry weather events at the Ramsey Street Storm Drain MS4 outfall station were VNS for the 2015-2016 monitoring year; therefore, a normal range analysis was not applicable.

The wet weather sample collected at the Ramsey Street Storm Drain MS4 outfall station on October 4, 2015 had an *E. coli* concentration of 30,000 MPN/100mL, which was above the upper limit of the normal range for wet weather at this station. It should be noted that wet weather bacterial concentrations can vary greatly both spatially and temporally and may be highest in concentration during the initial portion of a storm event. The Ramsey Street Storm Drain does not show a significant increasing trend for *E. coli* during wet weather, and *E. coli* concentration was measured within the normal range during the January 5, 2016 wet weather event. As previously mentioned, the flow from the Ramsey Street Storm Drain MS4 outfall station during the October 4, 2015 storm event likely evaporated and/or infiltrated within ephemeral tributaries prior to reaching the San Gorgonio River receiving water. Field data sheets made no mention of flow reaching the receiving water on October 4, 2015. Flow from the January 5, 2016 storm event likely reached the San Gorgonio River at some point given the amount of rain that fell over the course of four days (3.13 inches recorded at Banning rain gauge); however, the field data sheet indicated that stream flow had not connected to the surface receiving water at the time of sampling. If flow from the Ramsey Street Storm Drain did reach the receiving water, beneficial uses may have been affected, because the *E. coli* result (2,000 MPN/100mL) was above the 400 MPN/100mL WQO listed in the Basin Plan for REC-1 waters.

E. coli in the CVSC Receiving Water

Two dry weather sampling events occurred at the CVSC Avenue 52 Bridge receiving water station during the 2015-2016 monitoring year. The *E. coli* concentration for the July 30, 2015 dry weather sample was 79 MPN/100mL and the concentration for the January 28, 2016 sample was 350 MPN/100mL. Both dry weather results fell within the normal range of 1.8 to 540 MPN/100 mL and were below and above the historical geometric mean concentration of 131 MPN/100mL, respectively. These dry weather monitoring data reflect the background conditions in the CVSC (i.e., NPDES-permitted POTW discharges, rising groundwater, and agricultural return flows).

One wet weather event was monitored at the CVSC Avenue 52 Bridge receiving water station during the 2015-2016 monitoring year. The *E. coli* concentration for the January 6, 2016 wet weather sample was 4,900 MPN/100mL. This concentration was above the historic geometric mean concentration of 2,060 MPN/100mL but was within the normal range of 200 to 33,000 MPN/100mL.

Box and whisker plots of the wet weather and dry weather *E. coli* historical data are provided in Figure 3-4 and Figure 3-5, respectively. In the box and whisker figure, the endpoints of the whiskers illustrate the minimum and maximum values (the normal range). The boxes represent the first through third quartiles (25%-75% of the data), and the horizontal line within the box represents the median of the historical data set (i.e., 50% of the data are above and 50% below), as opposed to the historical mean which was calculated as part of the normal range analysis. Because there was only a single result for the dry weather historical *E. coli* concentration data at the Ramsey Street Storm Drain, it was not possible to create a box whisker plot. On these figures, individual points are used to display the 2015-2016 results relative to the historical range. The red line identifies the REC-1 (Water Contact Recreation Use) or REC-2 (Non-contact Water Recreation Use) WQO associated with each station's receiving water.

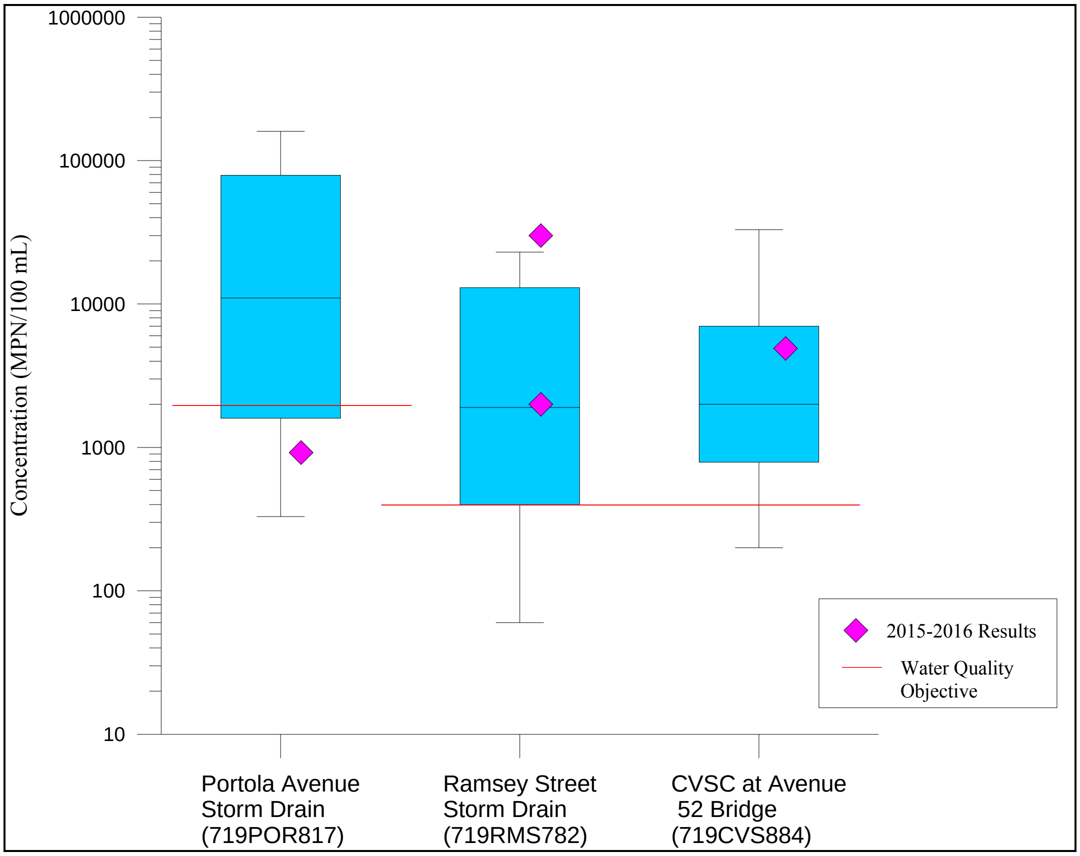

Figure 3-4: 2015-2016 Wet Weather *E. coli* Concentrations Plotted in Relation to Historical *E. coli* Concentrations

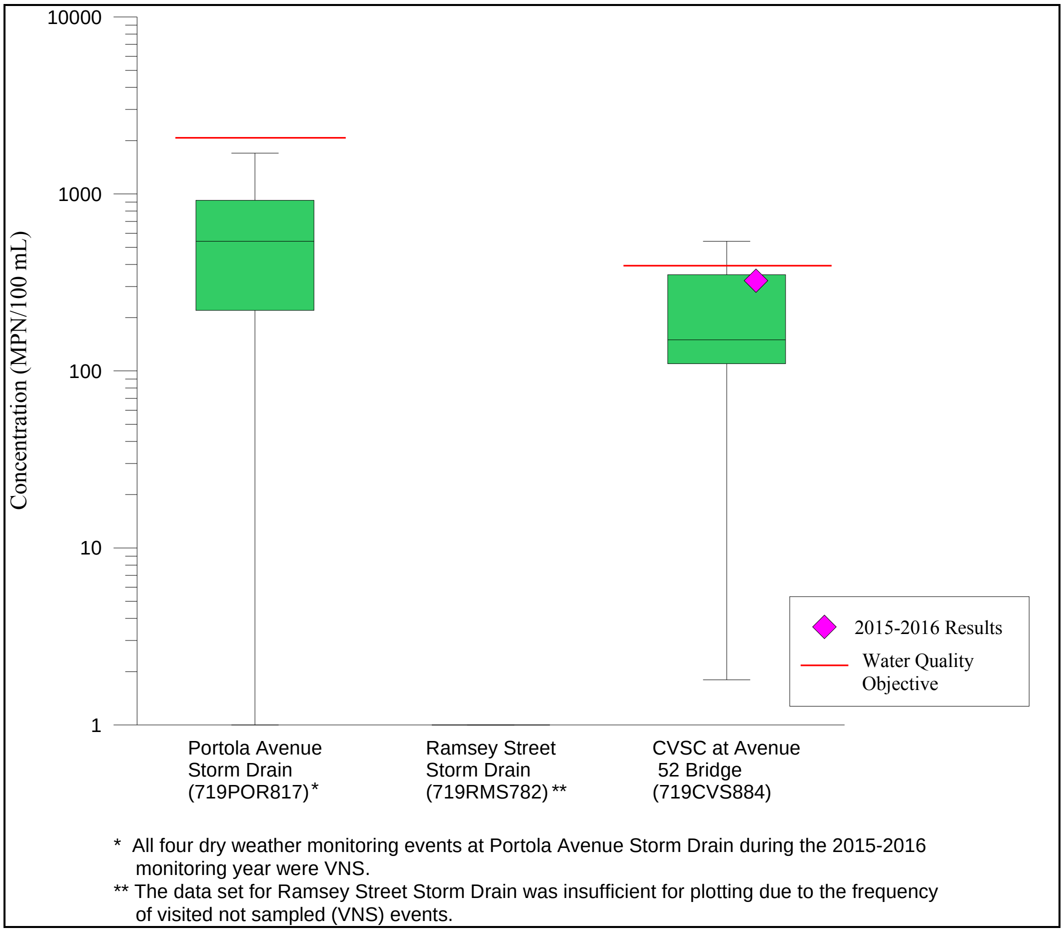

Figure 3-5: 2015-2016 Dry Weather *E. coli* concentrations Plotted in Relation to Historical *E. coli* Concentrations

3.5.4 Long Term Analysis Results

Wet and dry weather results from the 2015-2016 monitoring year were analyzed with results from previous years to determine the presence of any long-term trends in constituent concentrations for each parameter, station and sample event type (wet or dry weather) combination. Table 3-15 presents the results of the trend analysis for samples and field measurements collected during wet weather, and Table 3-16 presents the results of the trend analysis for samples and field measurements collected during dry weather. Reported trend results include parameter-specific units, number of monitoring years of data, p-value, trend, proportion of ND results, and if calculable, the Theil-Sen's slope (i.e., the change in concentration in terms of parameter-specific units per years of data). An arrow signifies the direction of the trend result. An upward arrow, ∆, signifies a statistically significant increasing long-term trend. A downward arrow, ▽, signifies a statistically significant decreasing long-term trend. The potential effect from a water quality trend is signified by color-coding. In general, water quality improvements are colored **green**, while declines in water quality are colored **orange**. Where the long-term water quality implication of a trend could not be easily determined (e.g., as is usually the case for pH field measurements), these results are colored **black**. Trends for constituents that did not meet applicable Basin Plan WQOs during 2015-2016 wet weather monitoring are indicated with **bold typeface**. Constituents in the trend tables with 2015-2016 monitoring results that were determined to be outside the normal range are shaded.

Additionally, for the three constituents that have WQOs listed in the Basin Plan (*E. coli*, DO, and pH), historical results for data collected since 2008 were analyzed to determine WQO exceedance rates under dry and wet weather conditions for each MS4 and receiving water station. This analysis of data from the most recent two permit terms was performed to identify chronic water quality problems that may or may not demonstrate a trend. Exceedance rates are presented in Table 3-17.

3.5.4.1 Trend Analysis

Current and historical monitoring data for the MS4 outfall stations and receiving water stations were analyzed for statistically significant trends using the nonparametric Mann-Kendall test for linear trend. The historical datasets for each station-parameter-event type (wet or dry weather) combination ranged from three to 19 monitoring years of data.

3.5.4.1.1 Wet Weather

Between the two MS4 outfalls, a total of 11 statistically significant (p-value <0.05) wet weather trends were identified (eight for the Ramsey Street Storm Drain and three for the Portola Avenue Storm Drain). Three of these trends suggest a potentially improving water quality condition. Among the significant trends at the Ramsey Street Storm Drain were downward trends (i.e., decreasing concentrations, signifying a possible improvement in water quality) in the total metals lead, zinc, and barium; a slightly upward trend (i.e., increasing concentrations signifying a possible decline in water quality) in orthophosphate phosphorus (Sen's slope of 0.009 mg/L per year); an upward trend in specific conductance (Sen's slope of 4.42 µS/cm/yr); and, a downward trend in DO (Sen's slope of -0.17 mg/L/yr) which may signify a decline in water quality (Table 3-15). The DO concentration at the Ramsey Street Storm Drain has historically been low in relation to its COLD freshwater habitat beneficial use. During the 12-year period of record for DO monitoring at the Ramsey Street Storm Drain, seven (of 20) wet weather samples had DO measurements below the COLD WQO minimum criteria (8.0 mg/L), including one of the two wet weather samples collected during the 2015-2016 monitoring year (Figure 3-6). It should be mentioned, however, that with the exception of large storm events, wet weather flows monitored at this MS4 outfall typically evaporate and/or infiltrate within ephemeral tributaries before reaching the San Gorgonio River receiving water.

At the Portola Avenue Storm Drain, wet weather trends were identified for DO, water temperature, and turbidity. Both water temperature and turbidity had upward trends (i.e., increasing measurements signifying a possible decline in water quality), and Sen's slopes were 1.438 ºC per year and 28.1 NTU per year, respectively. The wet weather trend for DO at the Portola Avenue Storm Drain, a downward trend of -0.314 mg/L per year, was similar to that seen for the Ramsey Street Storm Drain. However, DO at the Portola Avenue Storm Drain remained above Basin Plan WQOs (5.0 mg/L for the WARM beneficial use), and historically has ranged from 7.38 mg/L to 11.15 mg/L.

No wet weather trends were identified for the CVSC at Avenue 52 Bridge receiving water station.

Table 3-15. Long-Term Trend Analysis for Wet Weather Samples Collected from Outfall and Receiving Water Stations

Monitoring Station	Parameter	Trend	p-value	ND Percent	Sen's Slope	No. of Monitoring Years
Outfall Stations						
Ramsey Street Storm Drain (719RMS782)	Barium, Total	▼	<0.001	32%	NA	19
	Lead, Total	▼	<0.001	15%	-0.598	19
	Zinc, Total	▼	0.033	0%	-2	14
	Ortho Phosphate Phosphorus	▲	0.034	0%	0.009	11
	Dissolved Oxygen (DO)	▼	0.037	0%	-0.17	12
	pH	▼	0.006	0%	-0.064	18
	Specific Conductance	▲	0.024	0%	4.42	16
	Water Temperature	▲	0.003	0%	0.386	13
Portola Avenue Outfall (719POR817)	Dissolved Oxygen	▼	0.016	0%	-0.314	8
	Water Temperature	▲	0.043	0%	1.438	9
	Turbidity	▲	0.006	0%	28.1	8
Receiving Water Station						
CVSC at Avenue 52 Bridge (719CVS884)	No trends identified					

▽ – Statistically significant downward (inverse) trend.

△ – Statistically significant upward (direct) trend.

Green arrow signifies improving water quality. Orange arrow signifies declining water quality. Black arrow signifies no water quality impact interpretation.

NA – Sen's slope not calculated for constituents with greater than 15% ND.

Bold parameters did not meet WQO during the 2015-2016 monitoring year.

Shading indicates 2015-2016 result was outside the normal range.

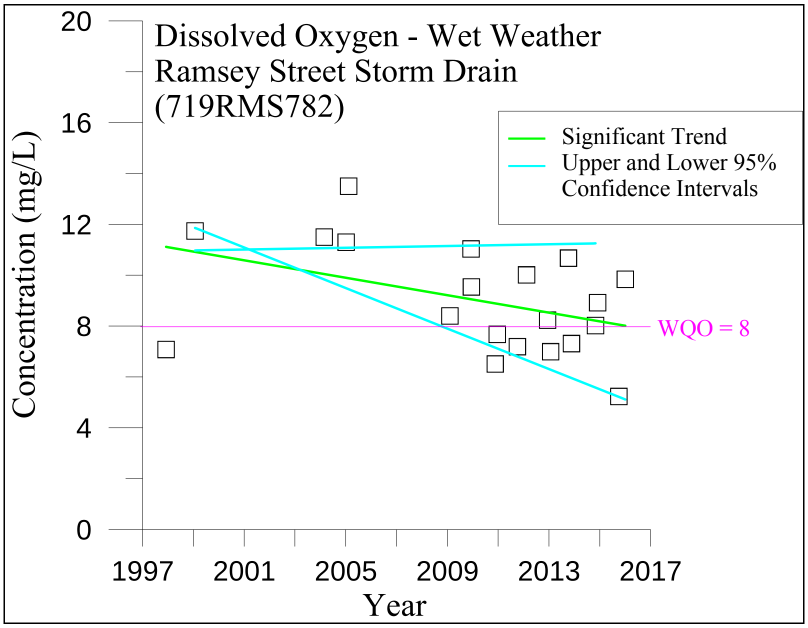

Figure 3-6. Wet Weather DO Trend Plot at Ramsey Street Storm Drain

3.5.4.1.2 Dry Weather

All dry weather monitoring events at both MS4 outfall stations were VNS during the 2014-2015 and 2015-2016 monitoring years. Therefore, dry weather trends were not assessed for the MS4 outfall stations.

At the CVSC at Avenue 52 Bridge receiving water station, nine statistically significant dry weather trends were identified. Two of these trends suggest an improving water quality condition, including reductions in total copper (Sen's slope of -0.225 µg/L per year) and total zinc (Sen's slope of -1.417 µg/L per year). Upward trends in constituent concentrations, signifying a possible decline in water quality, were identified for total selenium, specific conductance (Sen's slope of 15.1 µS/cm per year), TDS (11.68 mg/L per year), and several nutrient constituents. The nutrients with upward trends at the CVSC at the Avenue 52 Bridge receiving water station included ammonia, nitrate, nitrite, and total nitrogen. Of these, concentrations of ammonia, nitrate and total nitrogen were outside the normal range during the 2015-2016 monitoring year. Trend plots for ammonia, nitrate, and total nitrogen are presented in Figure 3-7.

A downward trend (i.e., decreasing concentrations) for hexavalent chromium during dry weather was determined to be inconclusive at the CVSC at the Avenue 52 Bridge receiving water station due to a large change in the reporting limit. A high reporting limit was used for hexavalent chromium during analysis of the first sample collected (in November of 2011), and the hexavalent chromium value was reported as a non-detect. In subsequent monitoring events, the reporting limit was lowered ten-fold. Since the non-detect value was assigned a value of one-half of the much higher detection limit for trend calculation purposes, the result of the calculated trend was downward. This trend result is assumed to be unreliable as a result of the limited amount of data incorporated into the trend analysis (three monitoring years, n=7) and the change in the reporting limit.

Table 3-16. Long-Term Trend Analysis for Dry Weather Samples Collected from Outfall and Receiving Water Stations

Monitoring Station	Parameter	Trend	p-value	ND Percent	Sen's Slope	No. of Monitoring Years
Outfall Stations						
Ramsey Street Storm Drain (719RMS782)	VNS					
Portola Avenue Outfall (719POR817)	VNS					
Receiving Water Station						
CVSC at Avenue 52 Bridge (719CVS884)	Ammonia as N	▲	0.031	0%	0.433	8
	Nitrate as N	▲	0.013	0%	0.18	8
	Nitrite as N	▲	0.024	0%	0.02	8
	Total Nitrogen	▲	0.003	0%	0.934	8
	Copper, Total	▼	0.047	0%	-0.225	3
	Selenium, Total	▲	0.0277	26%	NA	8
	Zinc, Total	▼	0.003	0%	-1.417	3
	Specific Conductance	▲	0.003	0%	15.1	8
	Total Dissolved Solids	▲	0.024	0%	11.68	8

▽ – Statistically significant downward (inverse) trend.

∆ – Statistically significant upward (direct) trend.

Green arrow signifies improving water quality. Orange arrow signifies declining water quality. Black arrow signifies no water quality impact interpretation.

NA – Sen's slope not calculated for constituents with greater than 15% ND.

Grey shading identifies constituents that were measured outside the normal range during the 2015-2016 monitoring year.

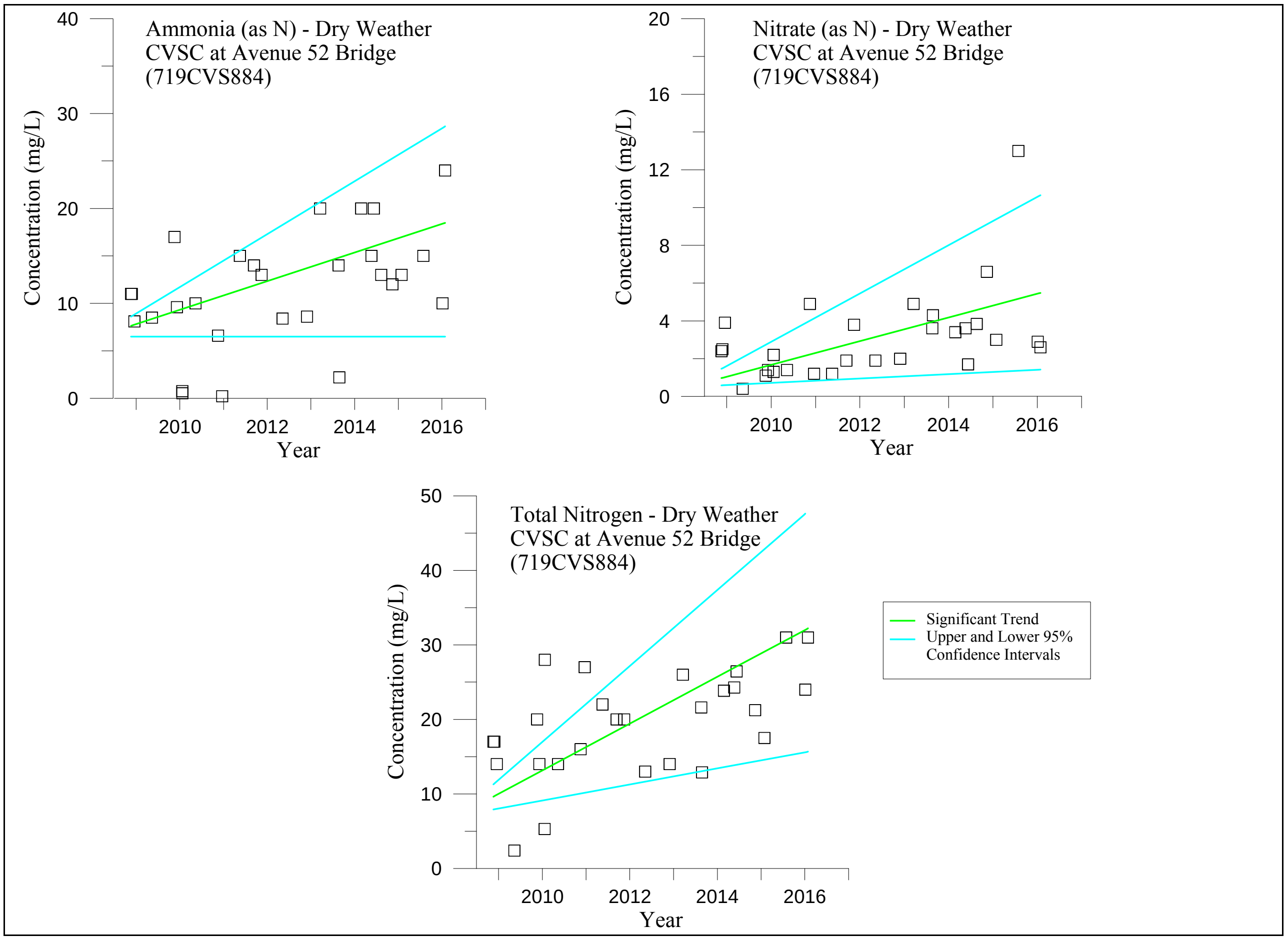

Figure 3-7. Dry Weather Trend Plots for Nutrients at CVSC at Avenue 52 Bridge

3.5.4.2 WQO Exceedance Rates

The numbers of samples and frequency of exceedance of WQOs (since 2008-2009 monitoring year) for the MS4 (wet weather) and receiving water monitoring stations (wet and dry weather) are presented in Table 3-17. Note that for *E. coli* and DO, the WQOs can differ based on the waterbody's beneficial uses in determining an exceedance. As previously mentioned, there are only three constituents with applicable WQOs based on Basin Plan beneficial uses for the associated receiving waters in the WWR; therefore, exceedance frequencies are only presented for *E. coli*, DO, and pH.

Dry weather exceedance results for the MS4 outfalls are not included in this table due to the large number of VNS events and dry conditions during which flow does not reach receiving waters, and therefore does not impact beneficial uses. No samples have been analyzed for *E. coli* at the Ramsey Street and Portola Avenue storm drains during dry weather since 2008 and 2013, respectively. Historically, when dry weather flows from the Ramsey Street Storm Drain MS4 outfall station have occurred, they are likely to have evaporated and/or infiltrated without impacting receiving water beneficial uses. This assumption can be made based upon the arid environment and geography. There is over a one-mile distance from the Ramsey Street Storm Drain MS4 outfall to Smith Creek, and an additional 1.5 miles to Smith Creek's confluence with the San Gorgonio River. The Portola Storm Avenue Drain discharges to Whitewater River washes (ephemeral streams), for which the beneficial uses are intermittent; therefore, WQOs only apply if sufficient flow exists to support those beneficial uses. Conditions in the Whitewater River are typically dry during non-storm conditions, and the Whitewater River remains dry for prolonged periods. The beneficial uses in the wash below the spreading grounds above the CVSC are typically not realized due to the absence of water during non-storm periods (dry weather events).

Table 3-17. MS4 and Receiving Water Station Exceedance Rates (Data from 2008-2016)

Constituent	Ramsey Street Storm Drain (719RMS782)		Portola Avenue Storm Drain (719POR817)		CVSC at Avenue 52 Bridge (719CVS884)			
	Wet Weather		Wet Weather		Dry Weather		Wet Weather	
	Total n	Percent Exceed (%)	Total n	Percent Exceed (%)	Total n	Percent Exceed (%)	Total n	Percent Exceed (%)
Bacteriological								
E. coli	14	79%	10	60%	16	13%	10	90%
Field Measurements								
Dissolved Oxygen	15	40%	10	0%	18	78%	10	50%
pH	15	13%	10	10%	18	0%	10	0%

3.5.4.2.1 MS4 Outfall Stations

During wet weather, the *E. coli* concentration exceeded the Basin Plan WQO in 79% of the samples collected during the past two permit terms (2008-2009 through 2015-2016 monitoring years) at the Ramsey Street Storm Drain and in 60% of the samples collected at the Portola Avenue Storm Drain, as shown in Table 3-17.

E. coli exceedance ratios were plotted (Figure 3-8) for data collected during the past two permit terms. *E. coli* exceedance ratios were greater than 20 times the WQO during four events at the Ramsey Street Storm Drain (including one event in 2015-2016) and during two events at the Portola Avenue Storm Drain.

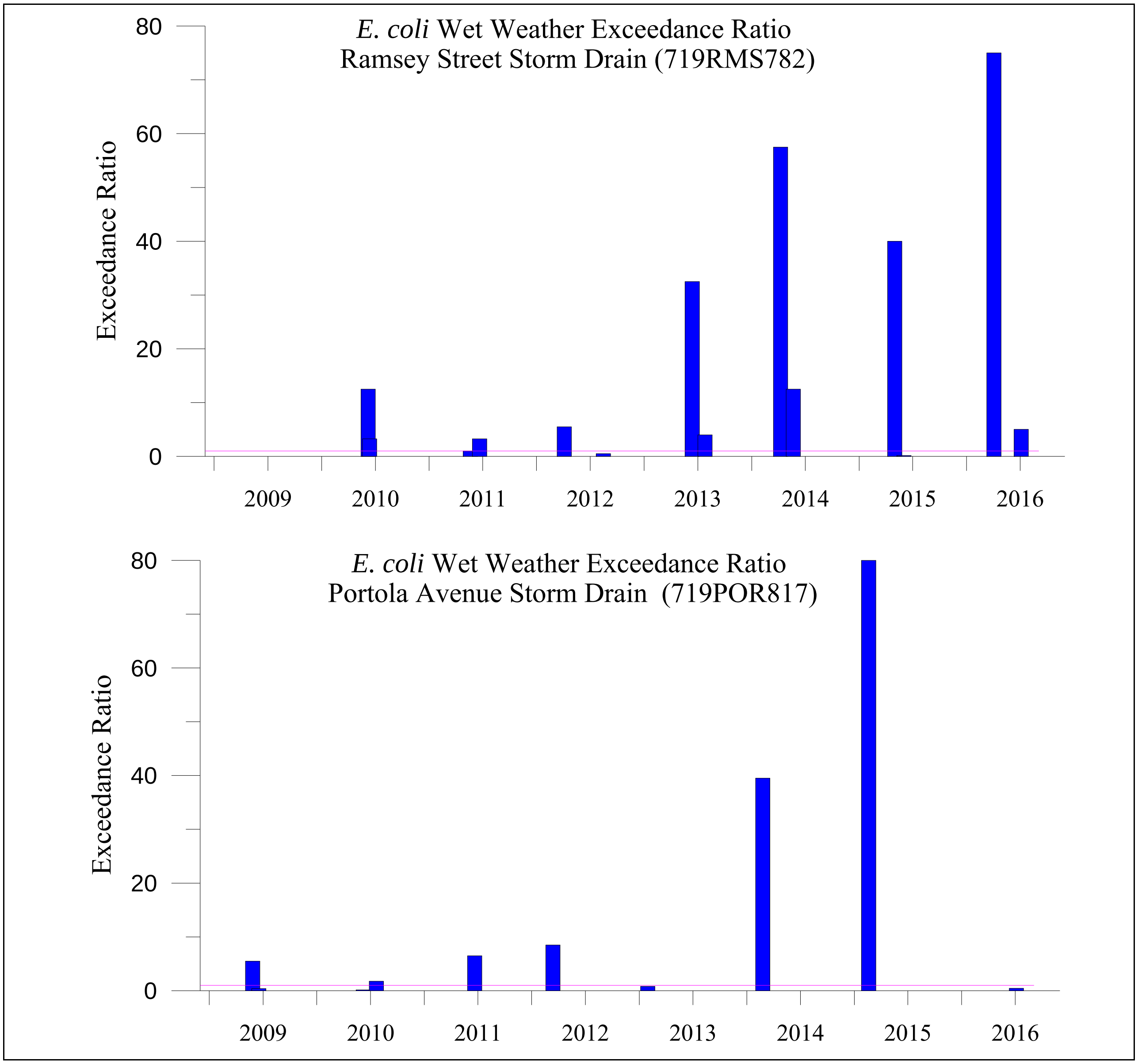

Figure 3-8. MS4 *E. coli* Wet Weather Exceedance Ratio Plots

Wet weather DO measurements were below (in exceedance of) the WQO in 40% of the samples at the Ramsey Street Storm Drain. Wet weather DO measurements at the Portola Avenue Storm Drain have met the WQO threshold in 100% of samples in the historical dataset.

DO ratio plots for samples collected at the MS4 outfall stations during the last two permit terms (from 2008-2009 through 2015-2016) are shown in Figure 3-9. Wet weather pH measurements had exceedance frequencies of 13% at Ramsey Street Storm Drain and 10% at Portola Avenue Storm Drain.

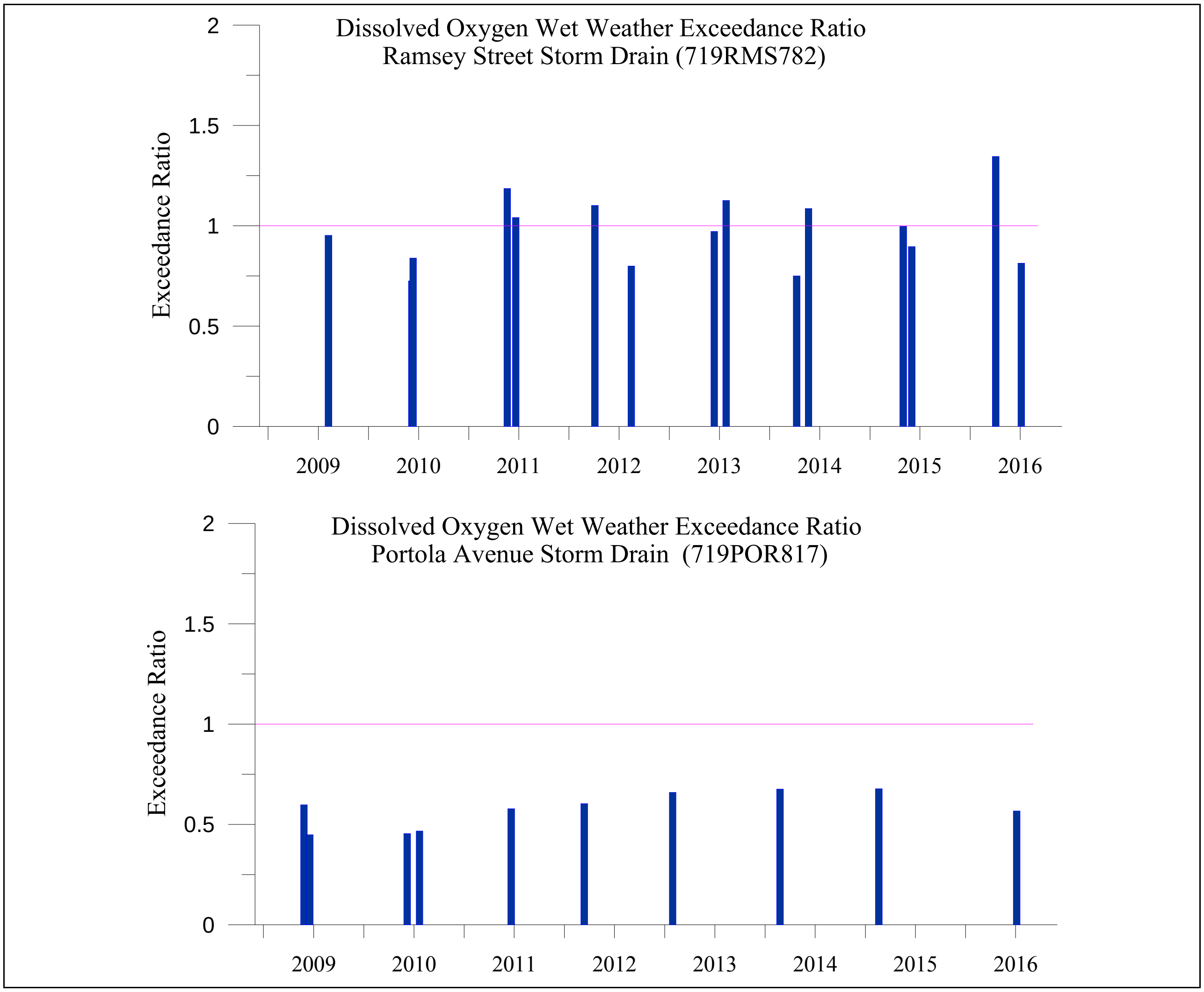

Figure 3-9. MS4 Dissolved Oxygen Wet Weather Exceedance Ratio Plots

3.5.4.2.2 Receiving Water Station

The exceedance frequency for *E. coli* at CVSC at the Avenue 52 Bridge was 13% during dry weather, and the exceedance frequencies for DO and pH during dry weather were 78% and 0%, respectively (Table 3-17). As shown in Figure 3-10, only two samples had exceedance ratios greater than one for *E. coli* at the receiving water station during the last two permit cycles. In both instances, the magnitude of the exceedance was below 1.5. The higher frequency of DO exceedances of the WQO (as compared to *E. coli*) at the CVSC receiving water station is illustrated in this figure. The maximum exceedance ratio that can occur for DO is a value approaching two.

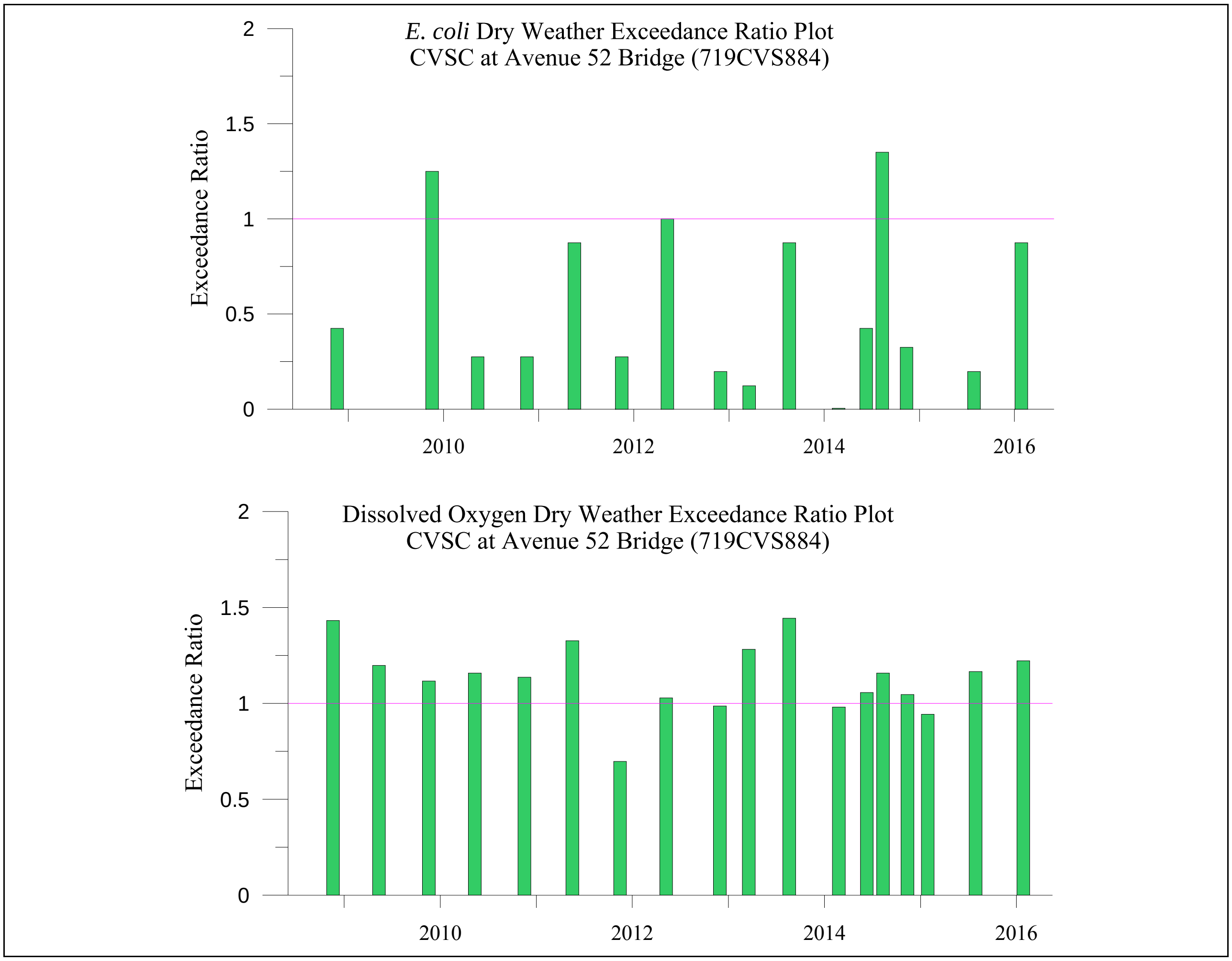

Figure 3-10. Receiving Water *E. coli* and DO Dry Weather Exceedance Ratio Plots

During wet weather, the receiving water exceedance frequency for *E. coli* increased to 90%, and the DO exceedance frequency decreased to 50% (Table 3-17). As shown in Figure 3-11, four samples since the 2008-2009 monitoring year had exceedance ratios above 10 for *E. coli* at the receiving water station. The pH exceedance frequency at the CVSC receiving water station during wet weather remained at 0%, the same as it was during dry weather.

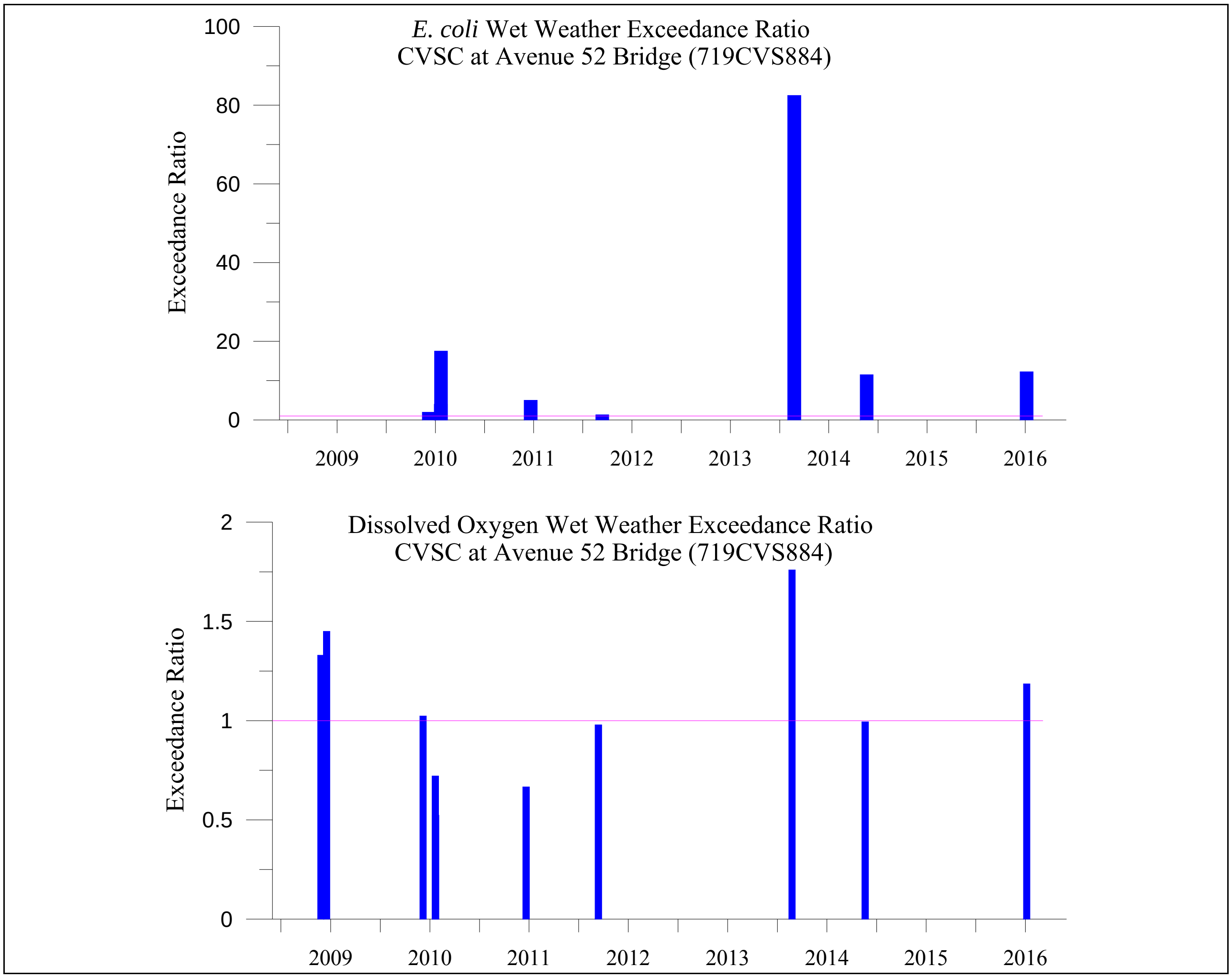

Figure 3-11. Receiving Water *E. coli* and DO Wet Weather Exceedance Ratio Plots

3.6 SPECIAL STUDIES AND REGIONAL ACTIVITIES

During the 2015-2016 monitoring year, the Permittees, individually or jointly, participated in regional activities and special studies as described below.

3.6.1 Desert Task Force

As a Principal Permittee, the District conducts certain activities to coordinate the efforts of the Permittees and facilitate compliance with the 2013 Permit requirements. One of these activities is chairing quarterly meetings of the Permittees' NPDES Advisory Committee, the Desert Task Force.

3.6.2 Low Impact Development (LID) Demonstration Facility

The District, on behalf of all Permittees in Riverside County, constructed a LID Testing and Demonstration Facility at the District's headquarters in Riverside. Construction was completed in October 2012, and the facility formally opened on May 14, 2012.

The LID Integrated Management Testing and Demonstration Facility Plan is used to monitor the performance of LID features on-site, to illustrate LID features in training workshops, and to assist in the development of technical guidance regarding LID features. The 15-acre facility includes the following:

- Converting 8,400 square feet of existing asphalt pavement and base to new porous asphalt pavement and new porous concrete pavement with subdrain systems.
- Revising the parking circulation layout to reduce impervious asphalt and eliminate over 600 lineal feet of concrete curb, gutter, and storm drain in favor of a vegetated infiltration swale.
- Constructing two raised flow-through planters and one landscape filter basin that may double as "rain garden" educational displays.
- Replacing two-thirds of the facility's turf with drought-tolerant landscaping and efficient irrigation systems, designed in accordance with the County's Water Efficient Landscape Ordinance.
- Deepening an existing infiltration basin to facilitate positive drainage for the LID features.
- Constructing 10 monitoring vaults with flow and water quality monitoring equipment.

Site BMPs were designed based on the current state of science and specifically incorporated mechanisms to allow for both inflow and effluent water quality and flow volume measurements. The results of the study will be used to advance the science of stormwater treatment. Monitoring was conducted during the 2012-2013, 2013-2014, 2014-2015, and 2015-2016 monitoring years, in accordance with the approved LID Monitoring Plan and QAPP. Data are submitted to the SMC's overarching LID BMP evaluation project. Additional wet weather monitoring is planned for the FY 2016-2017.

3.6.3 California Stormwater Quality Association

The California Stormwater Quality Association (CASQA) is composed of stormwater quality management organizations and individuals, including cities, counties, special districts, industries, and consulting firms throughout the state. It was formed in 1989 to recommend approaches to the State Water Resources Control Board (SWRCB) for stormwater quality management in California. In this capacity, CASQA has assisted and continues to assist the SWRCB with the development and implementation of stormwater permitting programs. All Permittees are members of CASQA and attend CASQA's quarterly meetings and annual conferences, as their availability and priorities allow. District staff have participated, and continue to participate, in various subcommittees, including the Legislative, Monitoring and Science, Pesticides, and Conference subcommittees. Jason Uhley and Darcy Kuenzi of the District staff currently serve as Co-chairs to the Legislative Committee. Mr. Uhley was formerly a member of the CASQA Board of Directors and has previously served as Treasurer. The CASQA 2015 Annual Report can be accessed at the following web address:
https://www.casqa.org/sites/default/files/downloads/2015_casqa_annual_report.pdf

The Permittees have contributed to representative participation in the Pyrethroid Re-Evaluation Stakeholder Meeting (PRSM) process with the California Department of Pesticide Regulation (DPR) and other stakeholders for the 2015-2016 monitoring year.

The Permittees also have provided support for the ongoing work of CASQA's Pesticides Committee, "CASQA Pestcom," with DPR to develop surface water protection regulations to mitigate the effects of pyrethroid pesticides in urban waterways, and the ongoing efforts of CASQA to improve USEPA pesticide environmental effects assessments through the pesticide registration review process. The following outlines the findings from the 2015-2016 Pesticides Subcommittee Annual Report and Effectiveness Assessment (CASQA, 2016), which is available from CASQA.

> To address the problems caused by pesticides in urban waterways in California, CASQA has collaborated with the Water Boards in a coordinated statewide effort, which is referred to as the Urban Pesticides Pollution Prevention (UP3) Partnership. By working with the Water Boards and other water quality organizations, they are striving to address the impacts of pesticides efficiently and proactively through the statutory authority of Department of Pesticide Regulation (DPR) and USEPA's Office of Pesticide Programs (OPP). More than a decade of collaboration with UP3 partners, as well as USEPA and DPR staff, has resulted in significant changes in pesticide regulation in the last five years. In terms of assessing program effectiveness in the near- and long-term, the year's highlights include:
>
> <u>Pestcom Current Actions and Prevention:</u>
>
> - In direct response to continued communication from CASQA and UP3 regarding fipronil water pollution in urban areas, DPR has conferred with manufacturers and initiated both numeric modeling and experimental studies to validate potential mitigation strategies to reduce fipronil use on impervious surfaces directly flowing to gutters/storm drains.
> - In direct response to continued communication from CASQA and UP3 regarding pyrethroid water pollution in urban areas, DPR is expanding its pyrethroid monitoring and enforcement programs, and partnering with local governments on a special study to

examine non-professional pyrethroid use and to evaluate the effectiveness and level of compliance with State regulations on professional use (the largest pyrethroid source in urban runoff).

- Based on information provided by CASQA, USEPA's review of the herbicide triclopyr will include urban use (previously overlooked) as well as sales and use data available from DPR. Further, the USEPA will consider a degradate in its analysis, which may be more toxic than the parent chemical.
- Based in part on our request, to support its review of the wood preservative creosote, the USEPA is requiring a "*Leaching study for release of creosote components from creosote impregnated wood*" to better identify the polycyclic aromatic hydrocarbon (PAH) species in leachate.
- In direct response to continued communication from CASQA and partners, DPR agreed to route three storm drain pesticide product registration applications to its surface water program for review. (While most outdoor urban pesticide registration applications are automatically routed for surface water review, storm drain products are not.)
- Due, in small part, to information shared with USEPA by CASQA and the Regional Water Quality Control Boards over the last decade, manufacturers have withdrawn all tributyltin products from the urban marketplace.

Pestcom Long-term/Future Actions and Prevention:

- USEPA is currently reworking its water quality risk assessment methods to integrate Endangered Species Act (ESA) compliance. CASQA representatives communicated to USEPA the importance of retaining specific elements of a traditional risk assessment. Outcomes cannot yet be assessed.
- DPR's special study on pyrethroids includes a detailed examination of its systems for regulating urban professional pesticide applicators, with the goal of determining if changes are needed to ensure their effectiveness.
- DPR and the State Water Resources Control Board initiated an update to their Management Agency Agreement to improve and formalize the systems that the two agencies have in place to work together to prevent pesticide toxicity in California waterbodies.
- CASQA prepared comment letters to the USEPA for three pesticide reviews, provided the Regional Water Quality Control Boards information that triggered three additional comment letters, wrote two letters to DPR on its registration processes, and participated in numerous meetings and conference calls, focused on priority pesticides and long-term regulatory structure improvements.
- CASQA/UP3 provided presentations to DPR, scientific meetings, and professional associations; served on DPR's and Regional Water Quality Control Board's policy and science advisory committees; and prepared and delivered public testimony.

In 2016-2017, CASQA plans to undertake numerous activities to continue to address near-term pesticide concerns and seek long-term regulatory change, including, but not limited to:

- Seeking the opening of a strategic window of opportunity to improve urban water quality risk assessments created by USEPA's revision of its pesticide risk assessment procedures to comply with the ESA, and
- Finding a chance to leverage their recent success at the state level and continue to be a key stakeholder in the development of a statewide Water Quality Control Plan amendment for urban pesticides reduction.

3.6.4 CVSC Bacterial Indicator TMDL

Regional Board staff coordinated with the Permittees to develop a TMDL to address bacterial indicator impairment of recreational beneficial uses in the CVSC receiving water. The perennial portion of the CVSC, which begins at the VSD outfall (Indio) and continues to the Salton Sea, is a 303(d)-listed body for bacterial indicators. Only a portion of the perennial CVSC lies within the WWR – the portion beginning near the VSD outfall (Indio), in proximity to the southern portion of the unincorporated area of Mecca.

On June 17, 2010, the Regional Board approved an amendment to its Basin Plan to establish the CVSC Bacterial Indicator TMDL, which subsequently received final approval from the SWRCB on July 19, 2011, the Office of Administrative Law on February 2, 2012, and finally the USEPA on April 27, 2012.

The approved Basin Plan amendment specifies waste load allocations (WLAs) for point sources, including the City of Coachella (the only WWR MS4 Permittee named as a responsible party), Caltrans, VSD Wastewater Treatment Plant (WWTP), Coachella Sanitary District WWTP, and Mid-Valley Water Reclamation Plant, as well as load allocations (LAs) for agricultural runoff, federal and tribal lands, and septic systems.

As a proactive measure, the City of Coachella completed construction of drywell diversions at each of its three outfalls to the CVSC, thereby eliminating the City's dry weather discharges to the channel. On October 8, 2012, the Regional Board provided notification to responsible parties that Phase I implementation of the TMDL had been initiated. The CVSC Bacterial Indicator TMDL implementation plan is divided into two phases. Phase I actions focus on monitoring to assess individual contributions of bacteria to CVSC from each identified source. The City of Coachella was given 90 days from the date of notification by the Regional Board to develop and submit a Quality Assurance Project Monitoring Plan (QAPMP), which would describe its monitoring activities. The City submitted the first draft of its QAPMP, "QAPP and Bacterial Indicator Monitoring Plan for Outfalls Entering the CVSC" to the Regional Board on January 8, 2013 (City of Coachella, 2013). Regional Board and City of Coachella staff conducted a site walk in the CVSC on March 14, 2013, prior to the submittal of the second draft QAPMP. The City of Coachella's final QAPMP was subsequently approved by the Regional Board on May 9, 2013, which marked the start date of the City's three-year Phase I monitoring program.

In accordance with its QAPMP and Phase I of TMDL implementation, the City performed monthly monitoring at each of its outfalls, and the gathered monitoring data were provided to the Regional Board on a quarterly basis. On June 30, 2015, the City submitted its final quarterly report. Pursuant to Permit Section G.1.a.ii, the City submitted its final report and recommendations to the Regional Board on December 17, 2015, thus concluding the City's compliance requirements under Phase I.

The Basin Plan describes that the Regional Board will conduct the following next steps: assessment of data from all named point and non-point sources, submittal of a final written report to Regional Board members to describe final monitoring, milestone attainment, and any needs to move into Phase 2 implementation, or revise the TMDL.

3.6.5 Southern California Stormwater Monitoring Coalition (SMC)

As Principal Permittee for the three MS4 Permit compliance programs in Riverside County, the District participates in the SMC. The SMC is a regional monitoring consortium that consists of southern California agency members. The consortium includes SCCWRP; the Los Angeles, Santa Ana, and San Diego Regional Water Quality Control Boards; Principal Permittees in Southern California (Counties of Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura); the Cities of Los Angeles, San Diego, and Long Beach; as well as Caltrans and the SWRCB. The overall goal of the SMC is to increase the compliance and effectiveness of existing NPDES monitoring programs by integrating information among agencies to achieve a large-scale assessment of the watershed condition. Additionally, the program focuses on improvement of stormwater monitoring science, development and improvement of monitoring standards and techniques, coordination among data collection programs, and evaluation of the effects of stormwater discharges to receiving waters. The implementation of the SMC's research plan for 2015–2019 began in early 2015. The SMC Annual Reports may be viewed and/or downloaded at: http://www.socalsmc.org/Reports.aspx. Additional information regarding completed SMC Projects may be viewed and/or downloaded at: http://www.socalsmc.org/projects.aspx. These projects include the following:

- Stormwater Research Needs in California;
- Phase I Hydromodification Study;
- Design of Regional Bioassessment Program;
- Low Impact Development Manual for Southern California;
- Barriers to Low Impact Development Study; and
- Southern California Monitoring Coalition 2014 Research Agenda.

3.6.6 Southern California Water Committee

The Southern California Water Committee is a non-profit, non-partisan, public education partnership dedicated to informing Southern Californians about their water needs and the State's water resources. It is a cooperative effort of business, government, water agencies, agriculture, and public interests. The District contributes $15,000 per year as part of Riverside County's support of the committee.

The Committee has a Water Quality Task Force dedicated to promoting water conservation. No specific special studies benefitting the Permittees were conducted by the Southern California Water Committee during the 2015-2016 monitoring year.

3.7 CONCLUSIONS AND RECOMMENDATIONS

3.7.1 Summary of Monitoring Findings for FY2015-2016

The 2015-2016 monitoring year was the second year of water quality monitoring under the 2013 Permit. Results are summarized below by event type and monitoring station.

3.7.1.1 Dry Weather Monitoring Findings for FY2015-2016

Dry conditions prevailed in the Whitewater River watershed for much of the 2015-2016 monitoring year as shown in Figure ES-9. The Ramsey Street Storm Drain and Portola Avenue Storm Drain outfall stations were not sampled during the two dry weather monitoring events, due to a lack of flow. In fact, IC/ID monitoring for the past several years has demonstrated dry conditions at these outfalls, in which the MS4 are not contributing to receiving water conditions, as shown in Figures ES-2 and ES-3 of the Executive Summary. The CVSC at Avenue 52 Bridge receiving water station was sampled during both dry weather events. Dry weather samples represent background conditions within the CVSC. These flows are dominated by effluent from NPDES-permitted POTW discharges, rising groundwater, and agricultural return flows. Figure 3-12 shows the categories of constituents sampled in the receiving water as the percentage of results below the detection limit, DNQ, and above the RL. As depicted in the figure, bacteria and nutrient analyses all had reportable values, but all of the hydrocarbons, most of the total metals, and to a lesser extent general parameters, were below the laboratory RL (not detected or DNQ).

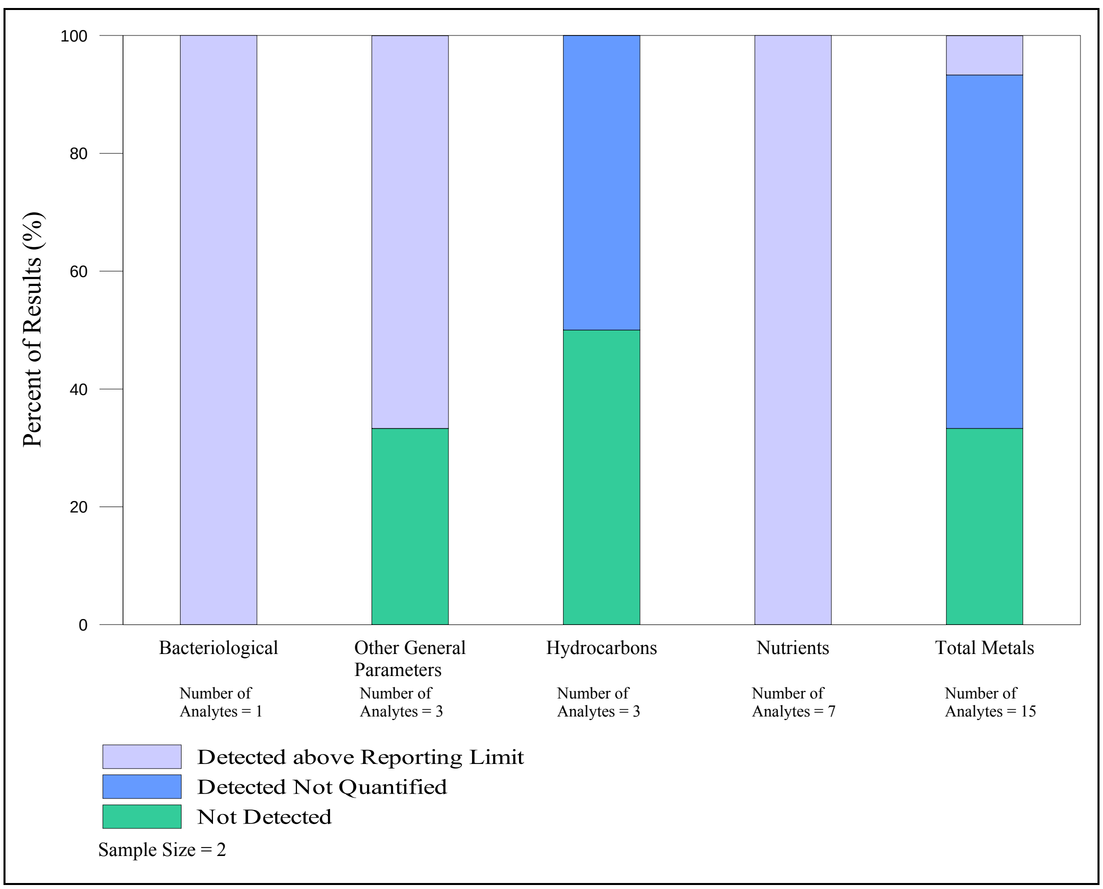

Figure 3-12. Dry Weather Analytical Results of Constituent Groupings from CVSC at

Avenue 52 Bridge Receiving Water Station during the 2015-2016 Monitoring Year

As required by the Permit, a normal range analysis was conducted. The normal range analysis is useful for screening purposes for a particular monitoring year, but does not signify the most pertinent water quality concern. Constituents found outside the range were not associated with a WQO exceedance. Variance within the monitoring data over time is typical and does not necessarily warrant a concern as it can be influenced by drought or discharge anomalies. Therefore, analyzing for trends is an important additional assessment. Refer to Section 3.7.2.

3.7.1.2 Wet Weather Monitoring Findings for FY2015-2016

Figure 3-14 shows the groups of constituents were present in samples collected at outfalls that may have entered the downstream receiving waters, and below Figure 3-14 shows the groups of constituents present from the sample collected at the receiving water station.

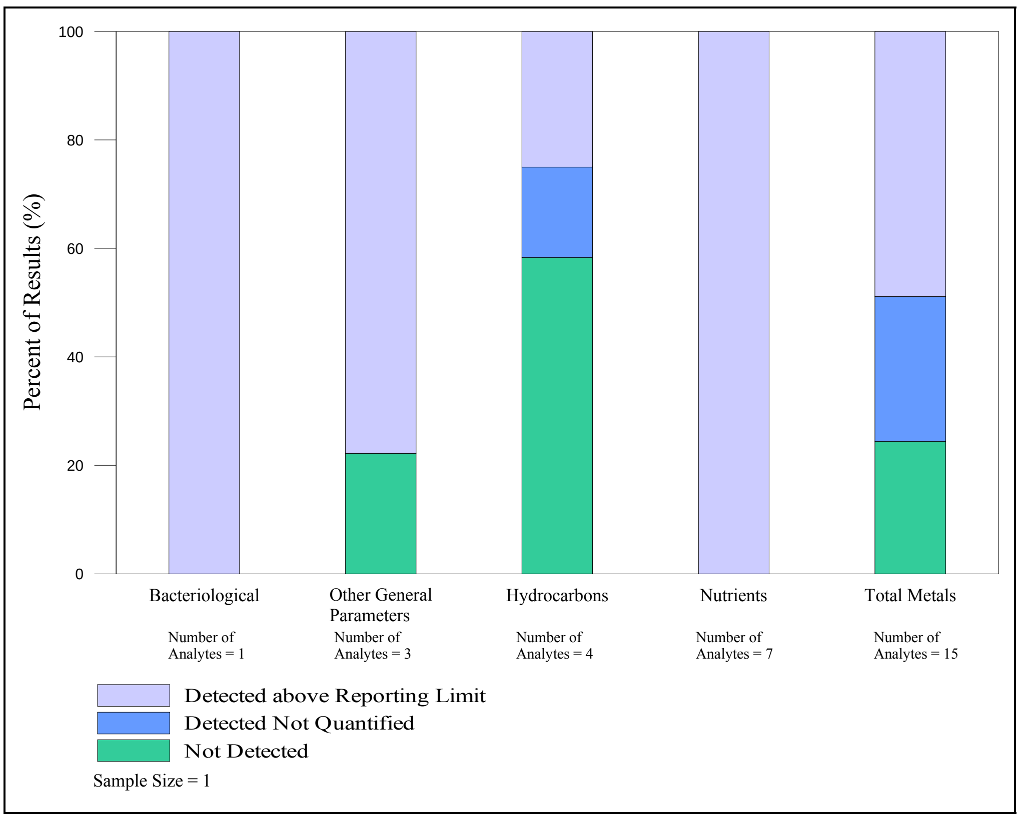

Figure 3-13. Wet Weather Analytical Results of Constituent Groupings from MS4 Outfalls during the 2015-2016 Monitoring Year

<u>Ramsey Street Storm Drain</u>

The Ramsey Street Storm Drain outfall was monitored during two wet weather events. Constituents that were not detected or DNQ included diesel range hydrocarbons, gasoline range organics, and several metals (beryllium, cadmium, mercury, selenium, silver, and thallium) during both events and MBAS, ethylene glycol, and arsenic during one event. Figure 3-13shows the analytical results combined for the two MS4 outfall stations, as the percentage of results below the detection limit, DNQ, and above the RL for each category of constituents. As depicted in the figure, bacteria and nutrient analyses all had reportable values, but there was a substantial portion of hydrocarbons and total metals, and to a lesser extent general parameters, that were below the RL (not detected or DNQ).

Constituents outside the normal range included *E. coli*, DO, temperature, TSS, and ethylene glycol during one event each. It should be noted that only four samples have been analyzed for ethylene glycol, and three had concentrations below the detection limit, which resulted in the single sample being outside the normal range. Results from the normal range analysis were for screening purposes only.

Wet weather flow from the October 2015 storm event, which was smaller than the January 2016 event, likely evaporated and/or infiltrated before reaching the San Gorgonio River via Smith Creek, and would not have impacted the receiving water's beneficial uses. As observed by field crews during both events, the proximate receiving water of Smith Creek was dry when samples were collected. Based on the duration of the storm event and amount of rainfall received, flow from the January event likely reached the San Gorgonio River.

Portola Avenue Storm Drain

The Portola Avenue Storm Drain outfall was monitored during one wet weather event. Constituents that were not detected or DNQ included MBAS, hydrocarbons, and several metals (antimony, arsenic, beryllium, cadmium, chromium, hexavalent chromium, mercury, nickel, selenium, silver, and thallium). Figure 3-12 shows the analytical results combined for the two MS4 outfall stations, as the percentage of results below the detection limit, DNQ, and above the RL for each category of constituents. As depicted in the figure, bacterial analyses and nutrients all had reportable values, but there was a substantial portion of hydrocarbons and total metals, and to a lesser extent general parameters, that were below the laboratory RL (not detected or DNQ).

Constituents outside the normal range included nitrate as N, TKN, and total nitrogen. Results from the normal range analysis were for screening purposes only.

The beneficial uses in the wash below the spreading grounds above the CVSC are typically not realized due to the absence of water during non-storm periods, and the beneficial uses in the reach typically are not realized due to the short duration of flow when it does occur. In general, there is flow in the Whitewater River only during flash flood conditions. Based on the duration of the storm event and amount of rainfall received, storm flows likely reached the Whitewater River during the January event.

CVSC at Avenue 52 Bridge Receiving Water Station

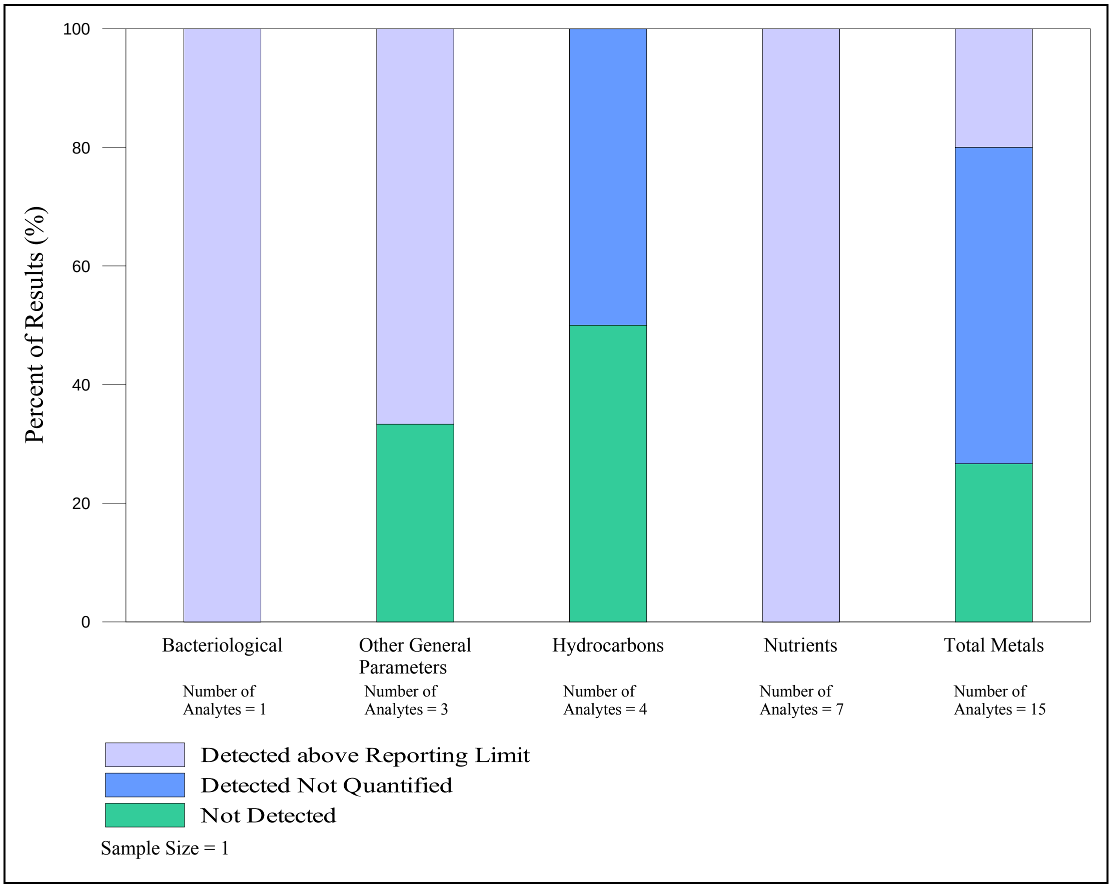

Figure 3-14. Wet Weather Analytical Results of Constituent Groupings from CVSC at Avenue 52 Bridge Receiving Water Station during the 2015-2016 Monitoring Year

The CVSC at Avenue 52 Bridge receiving water station was monitored during one wet weather event. Constituents that were not detected or DNQ included MBAS, hydrocarbons, and several metals (antimony, arsenic, beryllium, cadmium, chromium, hexavalent chromium, lead, mercury, nickel, selenium, silver, and thallium). Figure 3-14 shows the analytical results as the percentage of results below the detection limit, DNQ, and above the RL for each category of constituents. As depicted in the figure, bacteria and nutrient analyses all had reportable values, but all of the hydrocarbons and a substantial portion of total metals, and to a lesser extent general parameters, were below the laboratory RL (not detected or DNQ).

Constituents found to be outside the normal range included specific conductance and TDS, which do not have associated WQOs and therefore, are not expected to impact the designated BUs.

3.7.1.3 FY2015-2016 Comparisons to Water Quality Objectives

Exceedance frequencies were reviewed for the three constituents that have applicable Basin Plan WQOs: *E. coli*, DO, and pH (Table 3-17). The results of this review are presented by analyte below. It should be noted that where sample results from the MS4 outfall stations were compared to WQOs it was for informational purposes only, as WQOs are only applicable to the receiving waters.

E. coli

Historically, during wet weather, *E. coli* concentrations exceeded Basin Plan WQOs in 79% of samples from the Ramsey Street Storm Drain and 60% of samples from the Portola Avenue Storm Drain. During the 2015-2016 monitoring year, samples from both wet weather events at the Ramsey Street Storm Drain exceeded the Basin Plan REC-1 WQO, and the sample from the single monitored event at the Portola Avenue Storm Drain was below the REC-2 WQO. In the receiving water, *E. coli* concentrations exceeded the WQO 90% of the time historically, including the only monitored wet weather event during 2015-2016. During dry weather, *E. coli* concentrations in the receiving water historically exceeded the Basin Plan WQO in 13% of dry weather events; no exceedances occurred in 2015-2016 as shown in Figure 3-15.

CVSC at Avenue 52 Bridge Receiving Water Station:

***E. coli* result did <u>not</u> meet WQOs during the one wet weather event sampled this year.**
***E. coli* results did meet WQOs during the two dry weather events sampled this year.**

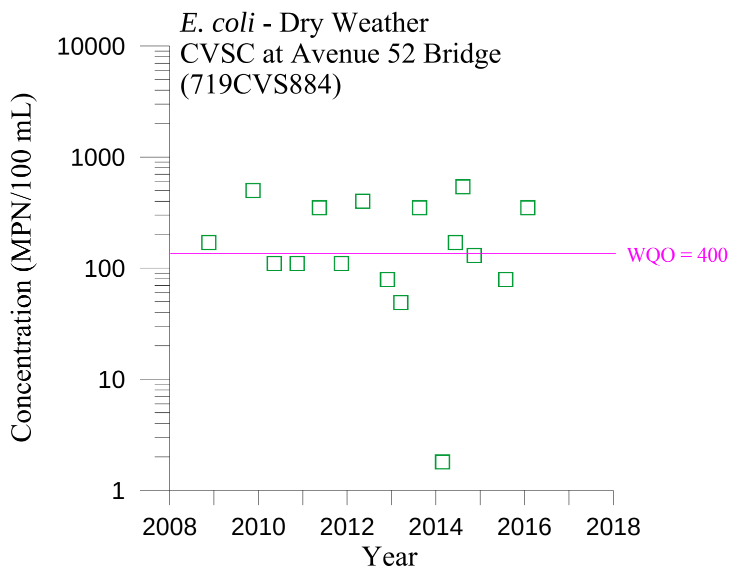

Figure 3-15. Dry Weather Analytical Results of *E. Coli* at CVSC

Dissolved Oxygen

Historically, DO has exceeded the WQO (for San Gorgonio Creek) during 40% of wet weather events at the Ramsey Street Storm Drain. DO has never exceeded the receiving water WQO during wet weather at the Portola Avenue Storm Drain. During 2015-2016, DO results met the WQO at the Ramsey Street Storm Drain during the second event, but the result from the first event was below the minimum WQO threshold (8 mg/L). The DO concentration in the receiving water at CVSC at the Avenue 52 Bridge during wet weather was below the minimum WQO (5 mg/L) during 2015-2016, and has historically exceeded this criterion in 50% of wet weather samples. Historical wet weather results for all three monitoring stations are depicted in Figure 3-16. DO concentrations within the receiving water have exceeded the WQO at a rate of 78% during dry weather, including both monitored events in 2015-2016, as shown in Figure 3-17.

CVSC at Avenue 52 Bridge Receiving Water Station:

DO result did not meet WQOs during the one wet weather event sampled this year.
DO results did not meet WQOs during the two dry weather events sampled this year.

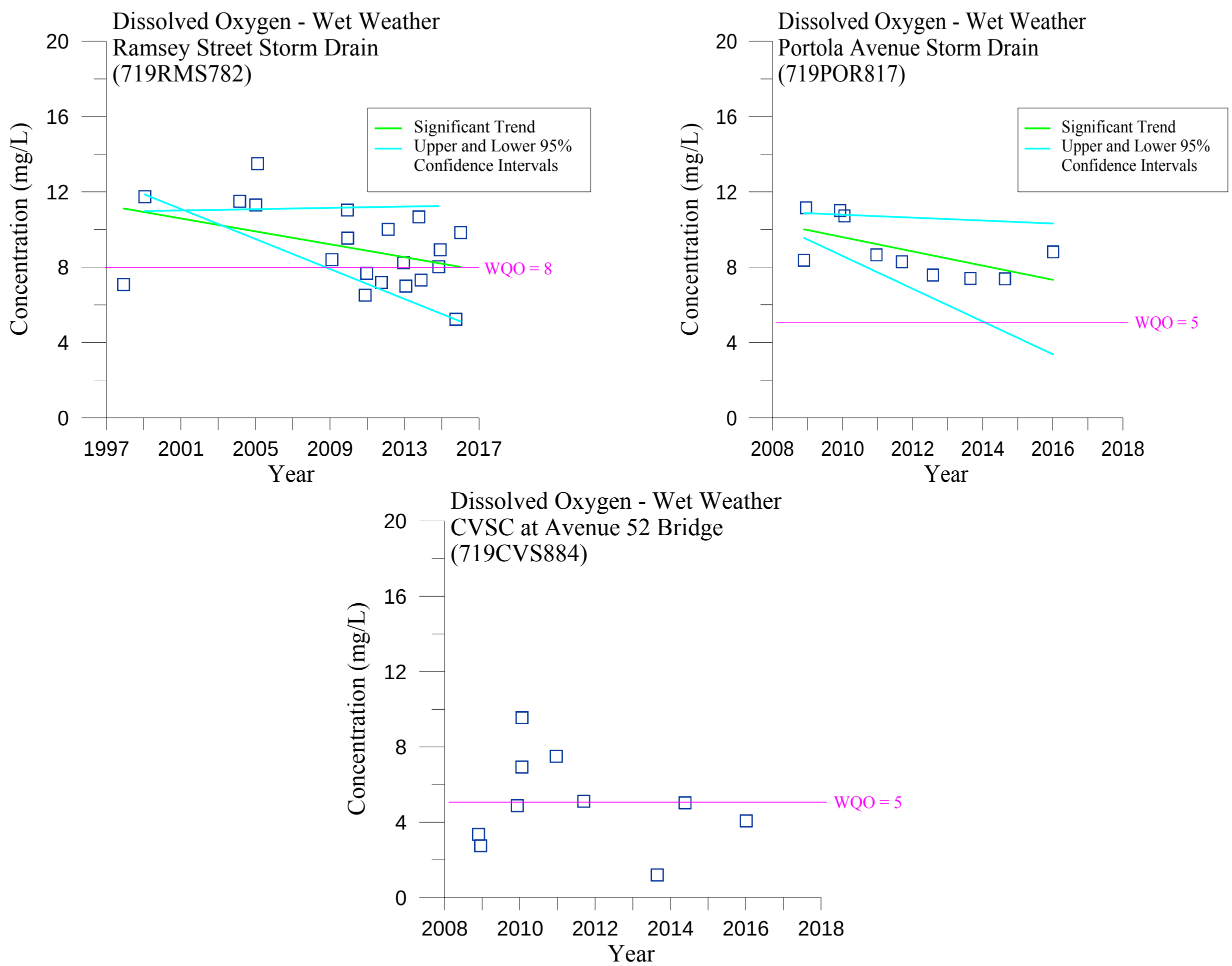

Figure 3-16. Wet Weather Results of Dissolved Oxygen

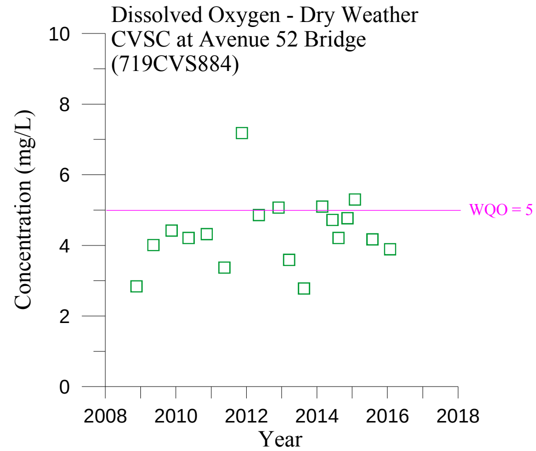

Figure 3-17. Dry Weather Results of Dissolved Oxygen at CVSC

pH

The pH has historically exceeded the WQO in 13%, 10%, and 0% of wet weather samples from the Ramsey Street Storm Drain, the Portola Avenue Storm Drain, and the CVSC receiving water, respectively. During the current monitoring year and the current Permit term, pH values were within the Basin Plan WQO for all wet weather samples across all stations. No exceedances of the pH WQO have occurred during dry weather at the CVSC receiving water station during the current Permit term or the period of record (since November 2008).

CVSC at Avenue 52 Bridge Receiving Water Station:

There were no exceedances of the pH WQO during any sampled event this year.

3.7.2 Summary of Historical Monitoring Findings

An analysis of all constituents within the historical period-of-record for all three monitoring locations reveals that WQOs are exceeded by only 1% in dry weather (Figure 3-18) and 2% in wet weather (Figure 3-19). This analysis was based on current WQOs as defined within the Basin Plan. The majority of the consituents were below labortory detection limits and another third of the consituents were detected however they have no associated WQOs for comparison.

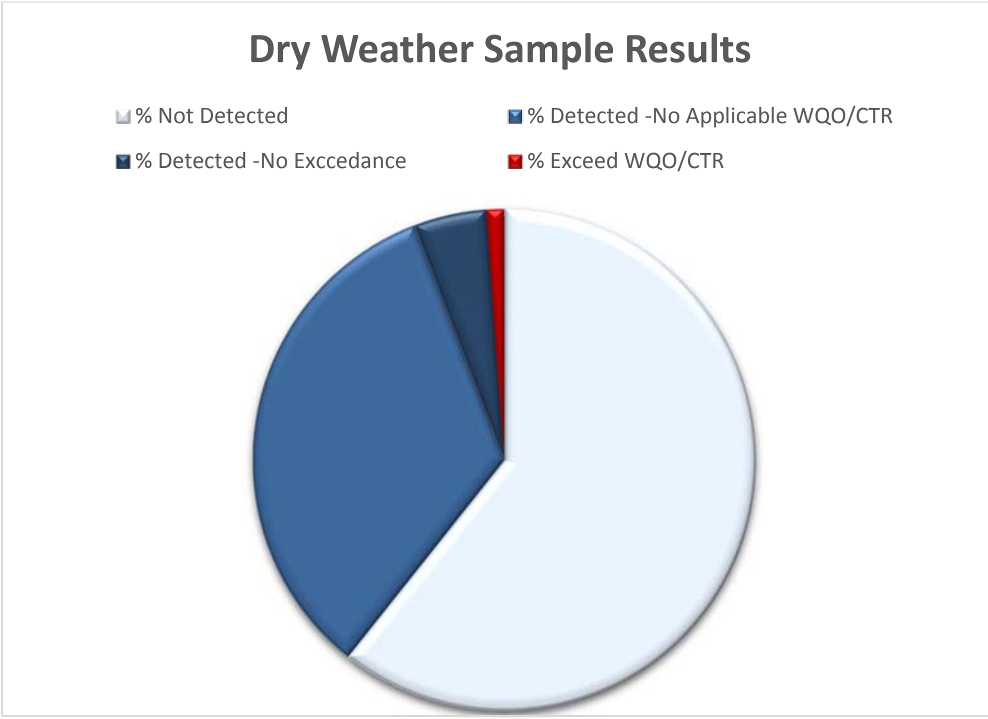

Figure 3-18. Analysis of Historical Monitoring Constituents During Dry Weather Events

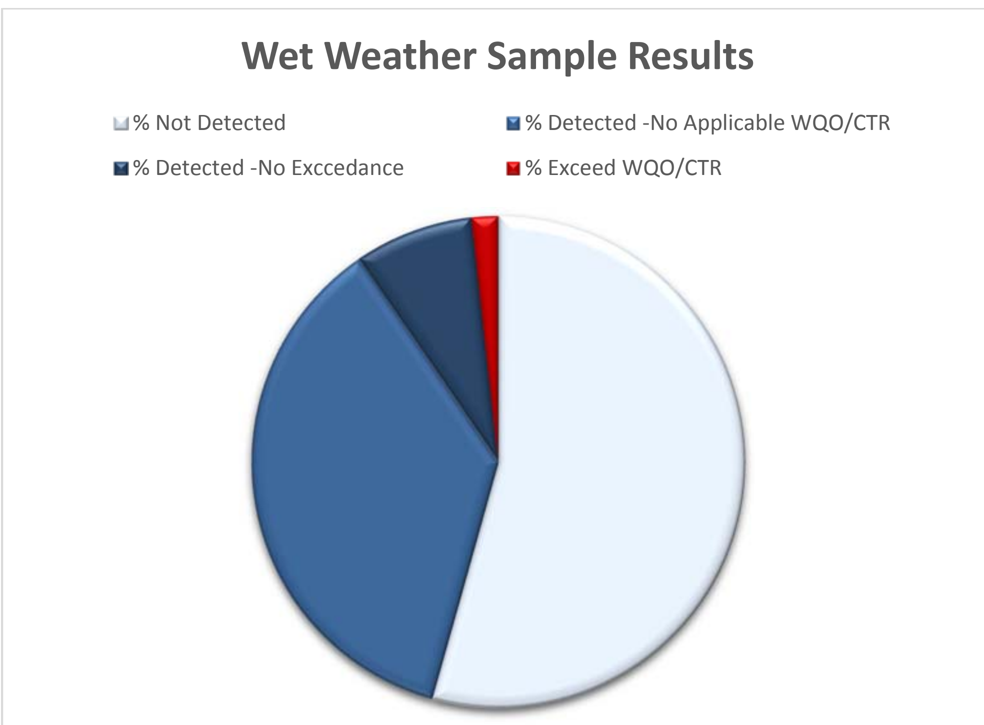

Figure 3-19. Analysis of Historical Monitoring Constituents During Wet Weather Events

Long term trend analysis results are shown below, with a green arrow signifying improving water quality and an orange arrow signifying declining water quality.

CVSC at Avenue 52 Bridge (Dry Weather)

▼ Copper
▼ Zinc

▲ Ammonia*
▲ Nitrate
▲ Nitrite
▲ Total Nitrogen
▲ Selenium
▲ Specific Conductance
▲ TDS

Ramsey Street Storm Drain (Wet Weather)

▼ Barium
▼ Lead
▼ Zinc

▼ DO
▲ Orthophosphate
▲ Specific Conductance
▲ Temperature

Portola Avenue Storm Drain (Wet Weather)

▼ None

▼ DO
▲ Temperature
Turbidity

* Ammonia is 303(d) listed for the CVSC, and is therefore a pollutant of specific focus for this waterbody.

Figure ES-20. Summary of Significant Trends Identified by Events Sampled

Long-term trend analysis results for CVSC at Avenue 52 Bridge Receiving Water Station identified significant Dry Weather trends indicating improving water quality for copper and zinc and significant Dry Weather trends indicating declining water quality for ammonia, nitrate, nitrite, total nitrogen, selenium, specific conductance, and TDS. None of these constituents is associated with applicable beneficial uses for this receiving water, as given in the Basin Plan. The long-term trend analysis did not identify any significant Wet Weather trends.

Long-term trend analysis results for Ramsey Street Storm Drain Outfall Station identified significant Wet Weather trends indicating improving water quality for barium, lead, and zinc and significant trends indicating declining water quality for orthophosphate, DO, specific conductance, and temperature. The only long-term Wet Weather trend identified for a chronic water quality concern was the trend toward declining water quality for DO. This outfall discharges to Smith Creek, an ephemeral wash that is tributary (but not generally hydraulically connected) to San Gorgonio Creek, for which the WQO is designated in the Basin Plan. The San Gorgonio River beneficial uses are typically not realized due to the absence of water and short duration when flow does occur. The long-term trend analysis did not identify any significant Dry Weather trends.

Long-term trend analysis results for Portola Avenue Storm Drain Outfall Station identified significant Wet Weather trends indicating declining water quality for DO, temperature, and turbidity. No long-term Wet Weather trends were identified for a chronic water quality condition. The long-term trend analysis did not identify any significant Dry Weather trends.

3.7.3 Chronic Water Quality Concerns

The Permit defines chronic water quality concerns as constituents that frequently experience exceedances of receiving water WQOs or for which there is an established TMDL. Based on this definition, chronic water quality concerns for WWR are summarized in Table 3-18.

Table 3-18. Chronic Water Quality Concerns

Wet Weather			Dry Weather		
Ramsey Street Storm Drain	**Portola Avenue Storm Drain**	**CVSC at Avenue 52 Bridge**	**Ramsey Street Storm Drain***	**Portola Avenue Storm Drain***	**CVSC at Avenue 52 Bridge**
E. coli DO	*E. coli*	*E. coli* DO	-	-	*E. coli* DO

*Typically dry or insufficient flow at these MS4 outfall stations during dry weather IC/ID monitoring.

***E. coli* has been detected at each of the sampling locations when sampling was possible. For the period-of record there have been no significant trends.**

As previously mentioned, the dry weather diversions constructed for the City of Coachella's MS4 facilities have virtually eliminated dry weather urban runoff from the CVSC receiving water.

Additionally the Regional Board staff has coordinated with the Permittees to develop a TMDL to address bacterial indicator impairment of recreational beneficial uses in the CVSC receiving water (Section 3.6.4).

The only long-term trend identified for a chronic water quality concern among the three stations was the trend toward declining water quality for DO.

DO is inversely related to temperature, which may be influenced by the intense temperatures in the desert region and in recent years by the record drought conditions.

Dissolved oxygen concentration is inversely related to temperature; therefore, lower DO values may be experienced when environmental conditions lead to higher water temperatures, such as drought. Warmer, low flow, or stagnant water will contain less DO than colder, rapidly flowing water. In addition, water with higher dissolved minerals (e.g., salts) will also have a lower DO concentration. Due to the unprecedented drought, which Southern California has experienced in recent years, it is quite probable these environmental conditions have affected the DO results.

The effect of temperature on DO is both seasonal and diurnal, where DO levels vary through the day. Sampling consistently conducted at mid-day could yield consistently lower DO values.

Refer to section 3.7.6 for future actions and recommendations.

3.7.4 IC/ID Program

Dry weather water quality impacts associated with urban runoff from the MS4 are believed to be negligible, given that the IC/ID program quarterly investigations generally find MS4 outfall stations are dry, ponded, or have insubstantial flow for sample collection (i.e., VNS results). There was no sampleable flow during the 2015-2016 dry weather monitoring activities at the two MS4 outfall stations.

3.7.5 Bacterial Indicator TMDL Program – Mitigation BMPs

The City of Coachella has constructed, and continues to maintain, three dry weather diversions for its MS4 facilities that previously discharged into the CVSC, including a diversion upstream of the previously monitored MS4 location at the Avenue 52 Storm Drain MS4 outfall station. These systems appear to have virtually eliminated dry weather urban runoff as a source of bacterial indicators to the CVSC. Pursuant to Permit Section G.1.a.ii, the City submitted its final report and recommendations to the Regional Board on December 17, 2015, thus concluding the City's compliance requirements under Phase I. Permittees will continue to monitor bacterial indicators in accordance with the CVSC Bacterial Indicator TMDL, monitor DO and investigate depressed DO concentrations in the WWR.

3.7.6 Future Actions and Recommendations

In addition to implementing the monitoring efforts associated with the 2013 Permit requirements, the Permittees continue to seek out additional means to improve the monitoring program. Looking forward, next steps and recommendations to the WWR monitoring program include, but are not limited to:

- ***Re-evaluation of REC beneficial uses applicability for CVSC:*** It should be noted that since the CVSC is owned and operated by the CVWD, public access is prohibited and recreational activities (REC-1 and REC-2 uses) in the stormwater channel are highly unlikely; and therefore may not be realized, especially as it typically experiences flash floods in wet weather conditions and there is likely not enough water to support REC uses in dry weather conditions. Applications of the REC-1 and REC-2 beneficial uses should be reviewed as they may not be appropriate.
- ***Re-evaluation of WQO applicability for comparison to results from the Ramsey Outfall Monitoring Station:***
    - *Connectivity:* Historically the Monitoring Annual Reports have compared monitoring results from Ramsey Street Storm Drain Outfall to the WQOs for the most downstream receiving water that has WQOs in the Basin Plan; however, where hydrologic connectivity does not exist in either wet weather or dry weather, this conservative approach made by the Permittees may not be appropriate moving forward.
    - *COLD Beneficial Use:* Another conservative approach that may need to be changed is the comparison to a receiving water's beneficial uses when the uses are not being realized. The most downstream receiving water (i.e., San Gorgonio River) to Ramsey Street Storm Drain Outfall Station has a WQO associated with the designated COLD beneficial use. The Basin Plan defines that "uses of water that support cold water ecosystems including but not limited to preservation or enhancement of aquatic habitats, vegetation, fish or wildlife, including invertebrates". Often this beneficial use is focused on protecting fish species. This

habitat would be rarely achieved in the ephemeral streams to which the MS4 Outfall Station discharges.

- ***Implementation of Program-Specific Laboratory Standards to the MEP:*** On behalf of the Permittees the District's monitoring program team will meet with the contracted laboratory staff prior to the next monitoring year to address any QC issues experienced during the 2015-2016 and current monitoring year. The District will meet with the laboratory consultant to review the 2016-2017 monitoring requirements in order to prevent issues experienced in the past regarding laboratory QA/QC reporting and report turnaround timeliness. In addition, the District will continue to work with the laboratory to provide lower detection limits and improve consistency with SWAMP recommended RLs. In general, the analytical methodologies used by Babcock Laboratories comply with the State Board minimum levels, except where the limitations of current technology and methodology prevent the requested limit from being achieved. The purpose of the meeting will be to improve the quality of future analysis and as possible, for consistency with the SWAMP recommended criteria and with the guidance in the CMP.
- ***Monitoring Program Implementation and Reinforcement:*** Additionally the District's Monitoring Program Manager will be meeting with the newly assigned CVWD project manager and laboratory manager, as well as field staff to share insight and problem shooting on the monitoring efforts and program expectations.
- ***Recon and Mapping of Ephemeral Extents and Hydraulic Connectivity:*** As a result of the arid climate, it is sometimes seen, but other times presumed that MS4 outfall effluent typically does not reach the receiving water during wet weather. Observations made during storm events in the future should include further detail regarding whether the MS4 flow reaches the receiving water, and if connections are occurring between receiving waters, as it may affect the WQOs for which to compare to sampling results. Mapping of perennial extents for dry weather conditions, and mapping of extents of connectivity in wet weather will allow Permittees to make better informed determinations regarding MS4 contribution.
- ***Revisions to the Monitoring Program Constituent Lists:*** Several parameters have been non-detect, and an evaluation towards identifying parameters that could potentially be removed from the monitoring list should be considered. Permittees shall continue to work towards identifying unknown sources of chronic water quality issues within the watershed, such as those sources of constituents identified as having long-term trends toward declining water quality and those exceeding WQOs.

This information will better inform decision makers regarding the implementation of their local programs and the results and recommendations will facilitate the development of the Report of Waste Discharge (ROWD) due in December 2017. These results and recommendations will help inform the Report of Waste Discharge (ROWD) due in December 2017; the ROWD will include a comprehensive evaluation of water quality as it pertains to waste discharges within the Whitewater River watershed.

Permittees will continue to revise their local programs based on these recommendations, as necessary, to fulfill the requirements of the Permit.

3.8 REFERENCES

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Attachment A

Glossary

ABBREVIATIONS AND ACRONYMS

2008 Permit	Order No. R7-2008-0001, NPDES Permit No. CAS617002
2013 Permit	Order No. R7-2013-0011, NPDES Permit No. CAS617002
AGR	agricultural beneficial use
Babcock	E.S. Babcock & Sons, Inc.
Basin Plan	Water Quality Control Plan for the Colorado River Basin
BMP	best management practice
CASQA	California Stormwater Quality Association
cfs	cubic feet per second
CMP	Consolidated Monitoring Program
COLD	cold freshwater habitat beneficial use
County	County of Riverside
CVSC	Coachella Valley Stormwater Channel
CVWD	Coachella Valley Water District
District	Riverside County Flood Control and Water Conservation District
DNQ	detected not quantified
DO	dissolved oxygen
DPR	Department of Pesticide Regulation
ELAP	Environmental Laboratory Accreditation Conference
FRSH	freshwater replenishment beneficial use
GWR	groundwater recharge beneficial use
HUC	hydrologic unit code
IC/ID	illicit connection/illicit discharge
IWMP	Integrated Watershed Management Plan
LA	load allocation
LID	low impact development
MDL	method detection limit
mg/L	milligrams per liter
mL	milliliter
MPN	most probable number
MRP	Monitoring and Reporting Program
MMP	Model Monitoring Program
Monitoring Year	July 1 to June 30
MS4	municipal separate storm sewer system
MUN	municipal beneficial use
N	nitrogen
NA	not analyzed
ND	not detected
NELAP	National Environmental Laboratory Accreditation Conference
NR	not reported/not required
NPDES	National Pollutant Discharge Elimination System
NTU	nephelometric turbidity unit
NWS	National Weather Service
Permittees	Collectively, the District, County of Riverside, CVWD, and incorporated Cities of Riverside County within the Whitewater River Basin
POTW	publicly owned treatment works
POW	hydropower generation beneficial use
PRSM	Pyrethroid Re-Evaluation Stakeholder Meeting
QA/QC	quality assurance/quality control
QAPP	Quality Assurance Project Plan

QPF	quantitative precipitation forecast
QPS	quantitative precipitation statement
RARE	preservation of rare, threatened, or endangered species beneficial use
REC-1	water contact recreation beneficial use
REC-2	non-contact water recreation beneficial use
Regional Board	California Regional Water Quality Control Board, Colorado River Basin Region
RL	reporting limit
RNA	requested not analyzed
ROWD	Report of Waste Discharge
SWMP	Storm Water Management Plan
SMC	Southern California Monitoring Coalition
SAR	Santa Ana Region
SAWPA	Santa Ana Watershed Project Authority
SCCWRP	Southern California Coastal Water Research Project
SMR	Santa Margarita Region
SSO	site-specific objective
SWRCB	State Water Resources Control Board
TDS	total dissolved solids
TKN	total Kjeldahl nitrogen
TMDL	total maximum daily load
µg/L	micrograms per liter
µs/cm	microSiemens per centimeter
UAA	use attainability analysis
URMP	Urban Runoff Management Program
USEPA	United States Environmental Protection Agency
VNS	visited not sampled
VSD	Valley Sanitary District
WARM	warm freshwater habitat beneficial use
WILD	wildlife habitat beneficial use
WLA	waste load allocation
WQBEL	water quality-based effluent limitation
WQMP	Water Quality Management Plan
WQO	water quality objective
WWR	Whitewater Region
WWTP	wastewater treatment plant

COMMONLY USED TERMS IN THE WWR MONITORING ANNUAL REPORT

Additional terms and definitions may be found in the Glossary of Commonly Used Terms (CMP Volume VI).

bacterial indicator – Bacterial indicator species used to indicate potential contamination with human waste. One bacterial indicator (*E. coli*) is sampled under the WWR monitoring program.

beneficial use – The uses of water necessary for the survival or well-being of man, plants, and wildlife. These uses of water serve to promote tangible and intangible economic, social, and environmental goals. "Beneficial Uses" of the waters of the State that may be protected include, but are not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves. Existing beneficial uses are uses that were attained in the surface or groundwater on or after November 28, 1975; and potential beneficial uses are uses that would probably develop in future years through the implementation of various control measures. "Beneficial Uses" are equivalent to "Designated Uses" under federal law. [California Water Code Section 13050(f)].

constituent of concern – Parameters commonly associated with urban runoff in the WWR defined in Table L-1 of the 2013 MS4 Permit. Monitoring for constituents of concern is required by the 2013 MS4 Permit.

CVSC Bacterial Indicator TMDL – Coachella Valley Stormwater Channel CVSC Bacterial Indicator Total Maximum Daily Load TMDL

dry weather event – Site visit and monitoring event where samples are collected of non-wet weather event flows during the dry season. Dry weather events are generally 72 hours or more after the last recorded precipitation event. Dry weather events may be referred to in report tables as "dry events."

dry season/ dry weather – June 1st through September 30th of each year, unless specifically defined otherwise in an applicable TMDL implementation plan.

impairment – Where water quality conditions are not adequate to support all designated existing or potential beneficial uses of a waterbody.

intermittent beneficial use – Beneficial uses which are dependent on and occur only when sufficient flow exists.

major outfall – In general, a major outfall is an MS4 outfall that discharges from a single pipe with an inside diameter of 36 inches or more, or its equivalent (discharge from a single conveyance other than circular pipe which is associated with a drainage area of more than 50 acres). It is also commonly referred to as a Major MS4 Outfall.

Monitoring Annual Report – Whitewater River Region Monitoring Annual Report, a report on annual monitoring activities, a part of the Annual Report.

monitoring year – Period of monitoring beginning on July 1st and ending on June 30th in a given year.

MS4 outfall station – Municipal separate storm sewer system outfall monitoring station used to represent urban runoff from the WWR.

pH – An expression of the intensity of the basic or acidic condition of a liquid.

priority pollutant – USEPA priority pollutants defined in Attachment D of the 2008 MS4 Permit. Monitoring of priority pollutants is required once during the permit period.

receiving water station – Receiving water monitoring station used to represent the WWR.

stormwater – Per 40 CFR 122.26(b)(13), means storm water [or stormwater] runoff, snowmelt runoff and surface runoff and drainage. Surface runoff and drainage pertains to runoff and drainage resulting from precipitation events.

urban runoff – In general, urban runoff includes those discharges from residential, commercial, industrial, and construction areas within the respective permit area and excludes discharges from open space, feedlots, dairies, publically owned treatment works (POTWs), and farms and agricultural fields. Urban runoff discharges consist of stormwater and non-stormwater surface runoff from drainage sub-areas with various, often mixed, land uses within all of the hydrologic drainage areas that discharge into the Waters of the U.S. In addition to urban runoff, the MS4s regulated by the MS4 permits receive flows from open space, agricultural activities, agricultural fields, state and federal properties, and other non-urban land uses not under the control of the Permittees. The quality of the discharges from the MS4s varies considerably and is affected by, among other things, past and present land use activities, basin hydrology, geography and geology, season, the frequency and duration of storm events, and the presence of past or present illegal and allowed disposal practices and illicit connections. The Permittees lack legal jurisdiction over stormwater discharges into their respective MS4 facilities from agricultural activities, California and federal facilities, utilities and special districts, Native American tribal lands, wastewater management agencies and other point and non-point source discharges otherwise permitted by or under the jurisdiction of the Regional Board. The Regional Board recognizes that the Permittees should not be held responsible for such facilities and/or discharges. Similarly, certain activities that generate pollutants present in urban runoff are beyond the ability of the Permittees to eliminate.

water quality objective – Water quality objectives (WQO) are water quality criteria required to be compared to water quality monitoring results, per the 2008 MS4 Permit. WQOs are referred to in this report as WQOs identified in the Basin Plan and beneficial uses.

water quality standards – In general these are the beneficial uses (e.g., swimming, fishing, municipal drinking water supply, etc.,) of water and the WQOs necessary to protect those uses.

wet weather event – Site visit and monitoring event where samples of wet weather event flows are collected during the wet season. Wet weather events may be referred to in report tables as "wet events."

wet season/ wet weather – There is no defined wet season in the WWR. In many Regions, the wet season is defined as October 1st through May 31st each year, unless defined otherwise in a TMDL implementation plan.

Attachment B

Monitoring Station Descriptions and Daily Rainfall for the 2015-2016 Monitoring Year

Monitoring Station Descriptions and Daily Rainfall for the 2015-2016 Monitoring Year

Table B-1 summarizes the sample history for the receiving water and MS4 outfall monitoring stations monitored in the Whitewater Region (WWR). Table B-1 identifies all monitoring stations required to be under the 2013 MS4 Permit. Table B-1 also identifies historic monitoring locations that are no longer required to be monitored. Land use maps and descriptions of current monitoring stations are presented in this Attachment, below.

Table B-2 provides the 2015-2016 total daily rainfall for each of the five precipitation gauging stations within the WWR used to derive average annual rainfall statistics and provide historical context for monitoring events conducted at MS4 outfall and receiving water monitoring stations. Daily rainfall totals are for 24-hour intervals ending at 08:00 of the date indicated. The monthly sum row represents the total rainfall per month by precipitation gauging station. The cumulative total row represents cumulative annual totals for the 2015-2016 monitoring year.

Table B-1. WWR Sample Collection Summary by Monitoring Station

Monitoring Year	2013 MS4 Permit Required Monitoring Stations			Historical Monitoring Stations*					
	719RMS782	719POR817 ±	719CVS884	719MWW799	719CCW810	719TCW812	719PCW815	719AVE785	719WWT813
	MS4 Outfall	MS4 Outfall	Receiving Water	Receiving Water	Receiving Water	Receiving Water	Receiving Water	MS4 Outfall	Receiving Water
	HUC 719.32	HUC 719.47	HUC 719.47	HUC 719.5	HUC 719.5	HUC 719.5	HUC 719.5	HUC 719.47	HUC 719.41
1996-1997	X	X			X	X			X
1997-1998	X	X		X	X	X			X
1998-1999	X					X			X
1999-2000	X							X	X
2000-2001	X								
2001-2002	X	X			X	X			
2002-2003	X							X	X
2003-2004	X							X	X
2004-2005	X								X
2005-2006	X	X							X
2006-2007									X
2007-2008	X							X	X
2008-2009	X	X	X					X	
2009-2010	X	X	X	X	X	X	X	X	X
2010-2011	X	X	X					X	X
2011-2012	X	X	X					X	
2012-2013	X	X	X					X	
2013-2014	X	X	X					X	
2014-2015	X	X	X						
2015-2016	X	X	X						

HUC - Hydrologic unit code. Describes the watershed subarea in which each respective monitoring station drains.
* Historical receiving water monitoring stations are not required to be monitored under the 2013 MS4 Permit.
± The receiving water and associated beneficial uses for individual monitoring stations are used to identify and determine the applicability of water quality objectives (WQOs). Not all applicable receiving waters are listed in the Basin Plan (i.e., Portola Avenue Storm Drain MS4 outfall station); the most applicable receiving water and associated beneficial uses/ WQOs are used for comparison purposes.

Table B-2: Daily Rainfall for Monitoring Year 2015-2016 (inches) *

Day	July					August					September				
	Banning	Palm Springs	Desert Hot Springs	Cathedral City	Avg.	Banning	Palm Springs	Desert Hot Springs	Cathedral City	Avg.	Banning	Palm Springs	Desert Hot Springs	Cathedral City	Avg.
1			0.01		0.00					0.00					0.00
2			0.03		0.01					0.00					0.00
3					0.00					0.00					0.00
4					0.00					0.00					0.00
5					0.00					0.00					0.00
6					0.00					0.00					0.00
7					0.00					0.00					0.00
8					0.00					0.00					0.00
9					0.00					0.00	0.25				0.06
10					0.00					0.00					0.00
11					0.00					0.00					0.00
12					0.00					0.00					0.00
13					0.00					0.00					0.00
14					0.00					0.00					0.00
15					0.00					0.00					0.00
16					0.00					0.00	0.77	0.19	0.33	0.06	0.34
17					0.00					0.00					0.00
18	0.29				0.07					0.00					0.00
19	0.63	0.45	0.30	0.31	0.42					0.00					0.00
20	0.44	0.17	0.13	0.09	0.21					0.00					0.00
21			0.01		0.00					0.00					0.00
22					0.00					0.00					0.00
23					0.00					0.00					0.00
24					0.00					0.00					0.00
25					0.00					0.00					0.00
26					0.00					0.00					0.00
27					0.00					0.00					0.00
28					0.00					0.00					0.00
29					0.00					0.00					0.00
30	0.02				0.01					0.00					0.00
31	0.17			0.05	0.06					0.00					0.00
Sum	1.55	0.62	0.48	0.45		0.00	0.00	0.00	0.00		1.02	0.19	0.33	0.06	
Total	1.55	0.62	0.48	0.45		1.55	0.62	0.48	0.45		2.57	0.81	0.81	0.51	

Table B-2: Daily Rainfall for Monitoring Year 2015-2016 (inches) * (continued)

Day	October					November					December				
	Banning	Palm Springs	Desert Hot Springs	Cathedral City	Avg	Banning	Palm Springs	Desert Hot Springs	Cathedral City	Avg	Banning	Palm Springs	Desert Hot Springs	Cathedral City	Avg
1					0.00					0.00					0.00
2					0.00					0.00					0.00
3					0.00	0.17				0.04					0.00
4					0.00	0.12				0.03					0.00
5	0.09				0.02					0.00					0.00
6					0.00					0.00					0.00
7					0.00					0.00					0.00
8					0.00					0.00					0.00
9					0.00					0.00					0.00
10					0.00					0.00					0.00
11					0.00					0.00	0.02				0.01
12					0.00					0.00	0.26		0.12	0.02	0.10
13					0.00					0.00					0.00
14					0.00					0.00	0.22		0.01		0.06
15	0.02	0.02			0.01		0.02			0.01					0.00
16	0.03	0.10	0.22	0.13	0.12			0.02		0.01					0.00
17		0.07	0.01	0.02	0.03					0.00					0.00
18				0.01	0.00					0.00					0.00
19					0.00					0.00		0.07			0.02
20					0.00					0.00	0.09		0.06		0.04
21					0.00					0.00					0.00
22					0.00					0.00	0.12				0.03
23					0.00					0.00	0.28				0.07
24					0.00					0.00					0.00
25					0.00	0.08				0.02	0.01				0.00
26					0.00	0.07				0.02					0.00
27					0.00					0.00	0.01				0.00
28					0.00					0.00					0.00
29					0.00					0.00	0.03		0.11		0.04
30					0.00					0.00	0.01				0.00
31					0.00					0.00					0.00
Sum	0.14	0.19	0.23	0.16		0.44	0.02	0.02	0.00		1.05	0.07	0.30	0.02	
Total	2.71	1.00	1.04	0.67		3.15	1.02	1.06	0.67		4.20	1.09	1.36	0.69	

Table B-2: Daily Rainfall for Monitoring Year 2015-2016 (inches) * (continued)

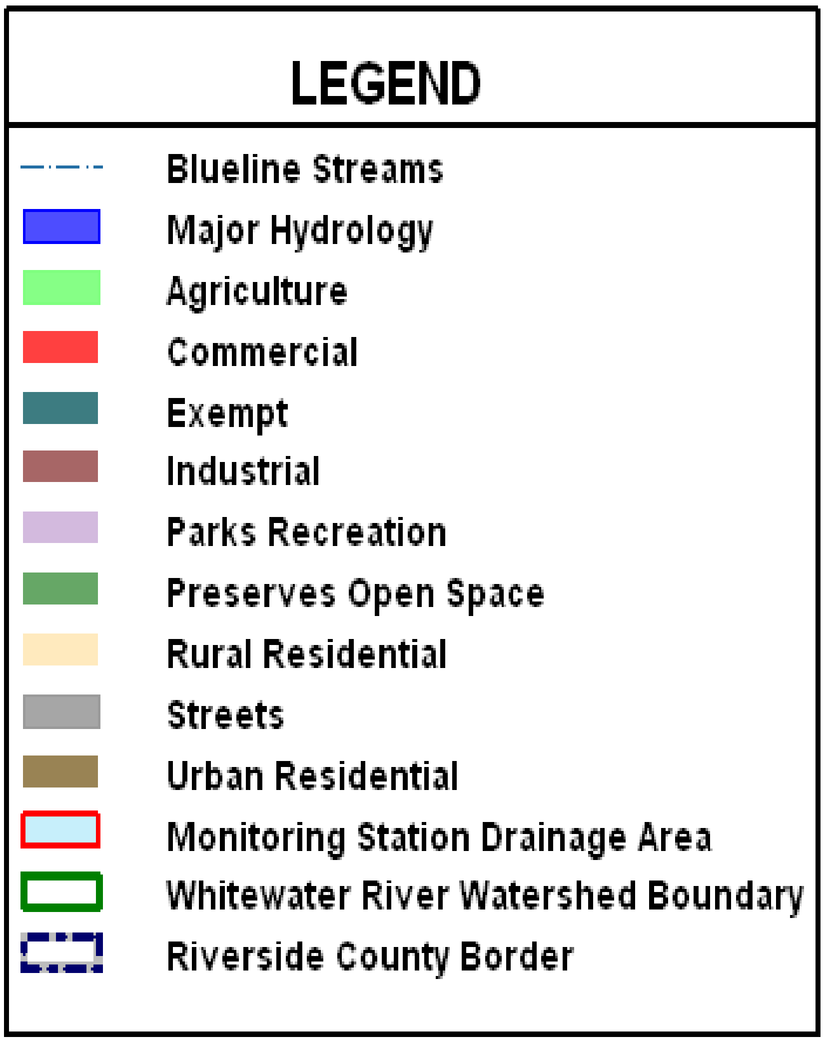
Day	January					February					March				
	Banning	Palm Springs	Desert Hot Springs	Cathedral City	Avg	Banning	Palm Springs	Desert Hot Springs	Cathedral City	Avg	Banning	Palm Springs	Desert Hot Springs	Cathedral City	Avg
1					0.00	0.24		0.20	0.04	0.12					0.00
2					0.00				0.01	0.00					0.00
3					0.00					0.00					0.00
4					0.00					0.00					0.00
5	0.01	1.16			0.29					0.00					0.00
6	1.43	1.36	1.03	0.88	1.18					0.00	0.03				0.01
7	1.64		0.90	1.02	0.89					0.00	0.16				0.04
8	0.05		0.01		0.02					0.00	0.25		0.06		0.08
9				0.01	0.00					0.00	0.01				0.00
10					0.00					0.00					0.00
11					0.00					0.00					0.00
12					0.00					0.00	0.23		0.15		0.10
13					0.00					0.00					0.00
14					0.00					0.00					0.00
15					0.00					0.00					0.00
16					0.00					0.00					0.00
17					0.00					0.00					0.00
18					0.00	0.17				0.04					0.00
19					0.00	0.01				0.00					0.00
20	0.02				0.01					0.00					0.00
21					0.00					0.00					0.00
22					0.00					0.00					0.00
23					0.00					0.00					0.00
24					0.00					0.00					0.00
25					0.00					0.00					0.00
26					0.00					0.00					0.00
27					0.00					0.00					0.00
28					0.00					0.00					0.00
29					0.00					0.00	0.03				0.01
30					0.00					0.00	0.09				0.02
31	0.01	0.28			0.07					0.00	0.03				0.01
Sum	3.16	2.80	1.94	1.91		0.42	0.00	0.20	0.05		0.83	0.00	0.21	0.00	
Total	7.36	3.89	3.30	2.60		7.78	3.89	3.50	2.65		8.61	3.89	3.71	2.65	

Table B-2: Daily Rainfall for Monitoring Year 2015-2016 (inches) * (continued)

Day	April					May					June				
	Banning	Palm Springs	Desert Hot Springs	Cathedral City	Avg	Banning	Palm Springs	Desert Hot Springs	Cathedral City	Avg	Banning	Palm Springs	Desert Hot Springs	Cathedral City	Avg
1	0.01				0.00					0.00					0.00
2					0.00					0.00					0.00
3					0.00					0.00					0.00
4					0.00					0.00					0.00
5					0.00					0.00					0.00
6					0.00					0.00					0.00
7					0.00	0.13				0.03					0.00
8	0.31	0.10	0.18	0.11	0.18	0.01				0.00					0.00
9	0.02	0.10	0.02	0.01	0.04					0.00					0.00
10	0.13			0.01	0.04					0.00					0.00
11	0.03				0.01					0.00					0.00
12	0.05				0.01					0.00					0.00
13					0.00					0.00					0.00
14					0.00					0.00					0.00
15					0.00					0.00					0.00
16					0.00					0.00					0.00
17					0.00					0.00					0.00
18					0.00	0.35				0.09					0.00
19					0.00					0.00					0.00
20					0.00					0.00					0.00
21					0.00					0.00					0.00
22					0.00					0.00					0.00
23					0.00					0.00					0.00
24					0.00					0.00					0.00
25					0.00					0.00					0.00
26	0.09	0.02	0.05		0.04					0.00					0.00
27	0.01				0.00					0.00					0.00
28					0.00					0.00					0.00
29					0.00					0.00					0.00
30					0.00					0.00					0.00
31					0.00					0.00					0.00
Sum	0.65	0.22	0.25	0.13		0.49	0.00	0.00	0.00		0.00	0.00	0.00	0.00	
Total	9.26	4.11	3.96	2.78		9.75	4.11	3.96	2.78		9.75	4.11	3.96	2.78	

*24 Hour Precipitation Period 8am to 8am.

The following Legend applies to all Land Use Maps presented in this Attachment.



Station Name: Ramsey Street Storm Drain, Banning

Site #: 719RMS782

Location:

Latitude	33° 55' 30.7" N
Longitude	116° 51' 30.6" W
Elevation	2,285 ft
Thomas Bros Pg	722 D3

Classification: Outfall

Receiving Water: Smith Creek

Sampling Frequency: 2 Wet Weather
2 Dry Weather

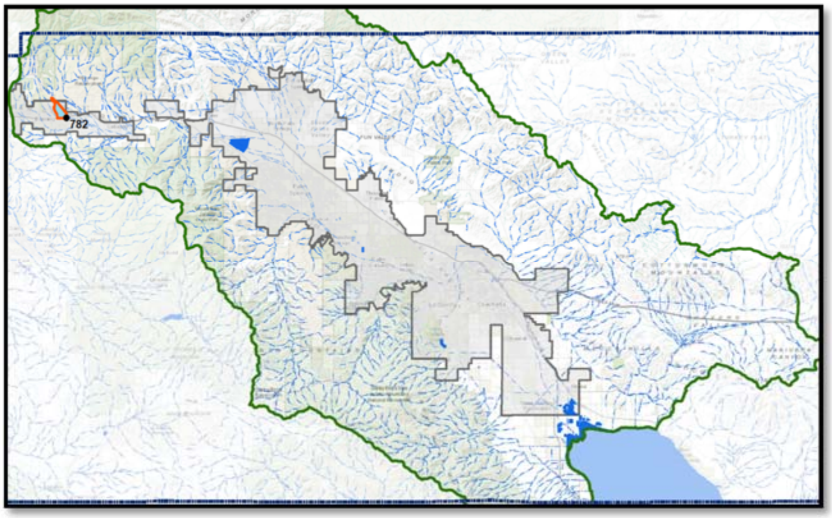
Directions to the site:
Drive east on the 60 Freeway from the District office. Connect with the eastbound I-10 Freeway. Exit at Hargrave Street in Banning going north. Turn right on Ramsey Street and drive just past Hathaway Street. Look toward the right for a culvert just north of the I-10 Freeway and collect the sample just south of Ramsey Street.

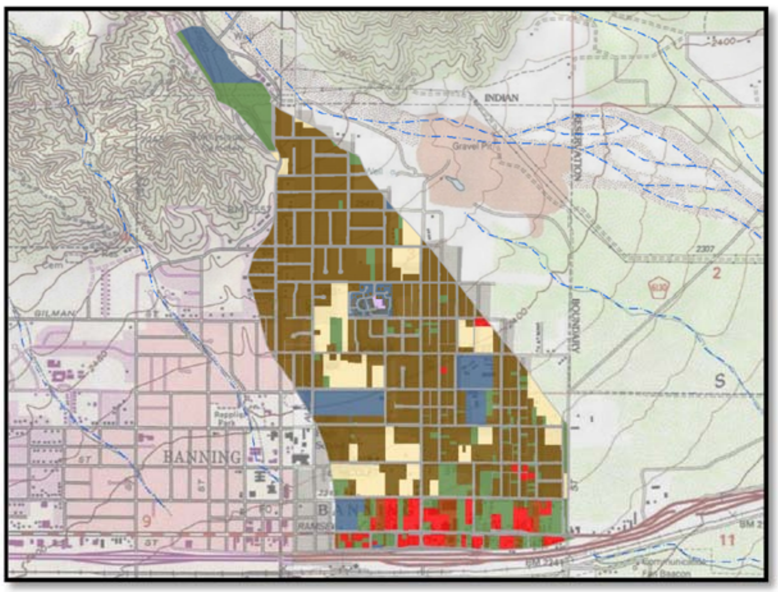
Other notes:
During dry and wet weather, park just south of Ramsey Street and just east of the culvert on the empty lot.

A pole sampler and/or the poly scoop can be used to gain a sample safely.

The site can be accessed by walking down a small slope and collecting the sample while standing on a concrete pad.

Station 719RMS782 - Ramsey Street Storm Drain, Banning





Total drainage area: 677.33 acres

Land uses:

Land Use		Percent (%)
Agricultural		0.00
Commercial		4.31
Exempt Public Properties		8.34
Industrial		1.32
Preserves Open Space		11.15
Parks & Recreation		0.10
Rural Residential		10.36
Streets		19.00
Urban Residential		45.42

Station Name: Coachella Valley Storm Channel (CVSC) at Avenue 52 Bridge

Site #: 719CVS884

Location:

Latitude	33 º 40' 20.9" N
Longitude	116 º 08' 57.8"W
Thomas Bros Pg	5471 F7

Classification: Receiving Water

Receiving Water: Coachella Valley Stormwater Channel

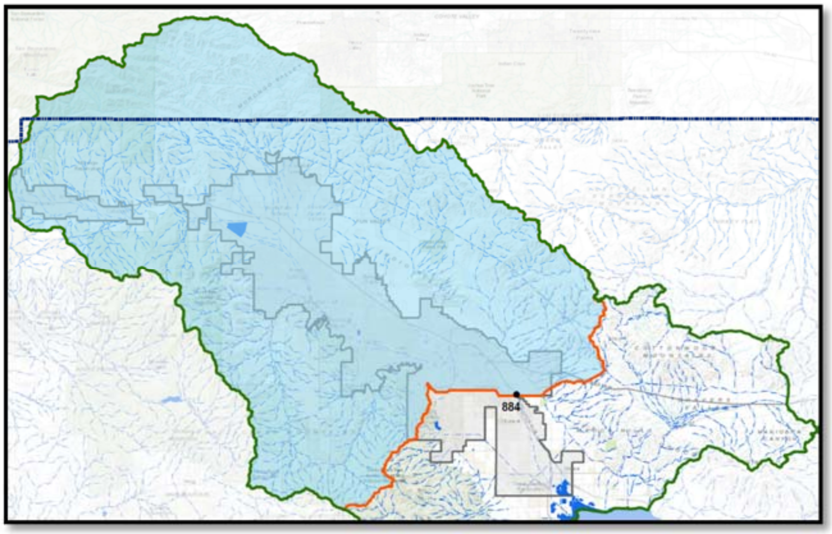
Sampling Frequency: 1 Wet Weather
2 Dry Weather

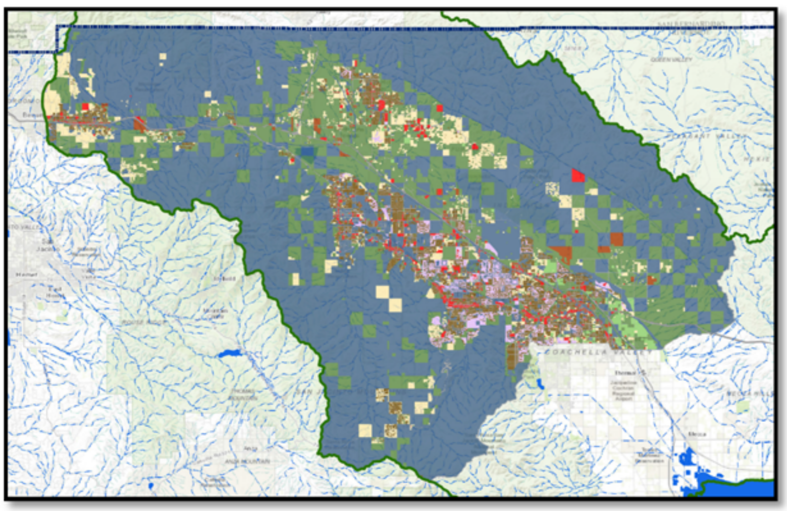
Directions to the site:
From CVWD's Coachella office, drive east on Avenue 52 until you reach the Avenue 52 Bridge just west of the State Highway 86S Expressway.

During dry weather sampling, drive to a sandy access road on the south side of the road on the west side of the Avenue 52 Bridge. Descend down southwest bank of CVSC to the pilot channel and collect samples directly beneath the south side of the bridge.

During wet weather sampling, lower sampling equipment from the Avenue 52 Bridge with a rope to the pilot channel to collect samples. Traffic control may be necessary. Exercise discretion during high flow events!

Station 719CVS884 – Coachella Valley Storm Channel (CVSC) at Avenue 52 Bridge





Total drainage area: 814,515.03 acres (703,308.98 acres within Riverside County boundary)

Land uses:

Land Use		Percent (%)
Agricultural		0.66
Commercial		1.19
Exempt Public Properties		61.90
Industrial		0.68
Preserves Open Space		21.27
Parks & Recreation		1.70
Rural Residential		5.12
Streets		3.17
Urban Residential		4.31

Station Name: Portola Avenue Storm Drain (Outfall), Palm Desert

Site #: 719POR817

Location:

Latitude	33 ° 44' 16.8"N
Longitude	116 ° 22' 24.6"W
Thomas Bros Pg	818 G6

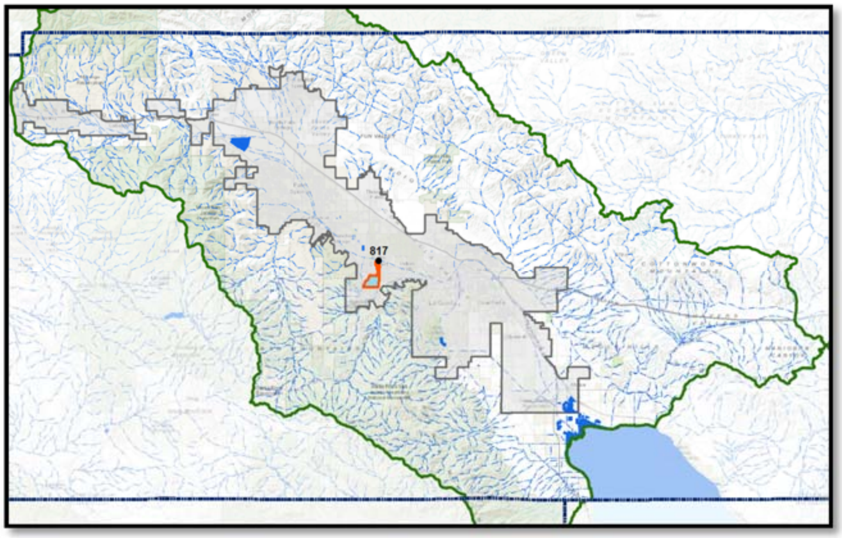
Classification: Outfall

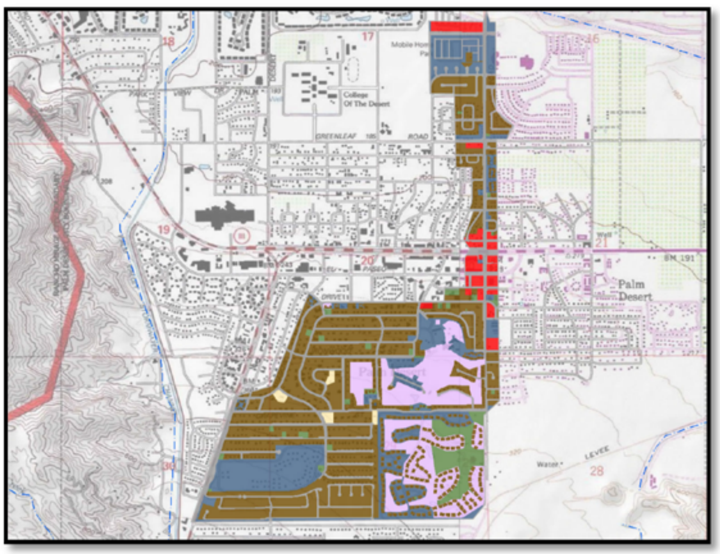
Receiving Water: Whitewater River

Sampling Frequency: 2 Wet Weather
2 Dry Weather

Directions to the site:
Take I-10 east to the Monterey exit and turn south on Monterey Avenue. Turn east on Country Club Drive. Turn south on Portola Avenue. The outfall is on the southeast side of the Portola Avenue Bridge on the south bank of the Whitewater River. Access to the collection point is through a gate located at the southeast side of the bridge, down concrete steps to the top of the outfall. The collection point is the discharge of the west culvert of the outfall right before it enters the concrete apron leading to the Whitewater River. ***For wet weather samples***, it is recommended to use a pole sampler with a poly scoop to obtain water samples safely.

Station 719POR817 – Portola Avenue Storm Drain, Palm Desert





Total drainage area: 929.53 acres

Land uses:

Land Use		Percent (%)
Agricultural		0.00
Commercial		3.27
Exempt Public Properties		17.95
Industrial		0.00
Preserves Open Space		4.42
Parks & Recreation		13.52
Rural Residential		0.58
Streets		16.70
Urban Residential		43.57

Attachment C

Lists of WWR Monitoring Program Parameters Analyzed and Planned

Attachment C.1 - WWR Monitoring Program Parameters Analyzed

Whitewater River Region Stations

Station Type	Site Name	Site Number	Sampling Agency
Outfall	Ramsey Street Storm Drain	719RMS782	RCFC
Outfall	Portola Avenue Outfall	719POR817	CVWD
Receiving Water Wet, Dry	CVSC at Avenue 52 Bridge	719CVS884	CVWD

Project Name WWR Outfalls Wet 1 & 2
FY2015-16

Constituent Count: 34
Source: 2013 ORDER WWR TABLE L-1

Constituent	Hydron #	Method	RL	unit
Total Metals				
Antimony	1065	EPA 200.8	0.5	ug/L
Arsenic	1070	EPA 200.8	0.3	ug/L
Barium	1090	EPA 200.8	1.0	ug/L
Beryllium	1120	EPA 200.8	0.5	ug/L
Cadmium	1145	EPA 200.8	0.01	ug/L
Chromium	1180	EPA 200.8	0.1	ug/L
Chromium (VI)	1185	EPA 218.6	0.1	ug/L
Copper	1210	EPA200.8	0.01	ug/L
Lead	1290	EPA 200.8	0.01	ug/L
Mercury	1310	EPA 200.8	0.0002	ug/L
Nickel	1320	EPA 200.8	0.02	ug/L
Selenium	1520	EPA 200.8	0.3	ug/L
Silver	1535	EPA 200.8	0.02	ug/L
Thallium	1665	EPA 200.8	1.0	ug/L
Zinc	1700	EPA 200.8	0.1	ug/L
Field Parameters (field crews)				
pH	1705	field meter	0-14	
Temperature	1655	field meter	NA	^oC
Dissolved Oxygen	1435	field meter	0.5	mg/L
Specific Conductivity	1200	field meter	1	umhos/cm
Turbidity	1690	field meter	0.2	NTU

Constituent	Hydron #	Method	RL	unit
Conventionals and Nutrients				
Nitrogen, Ammonia (as N)	1051	SM 4500 NH3H	0.1	mg/L
Nitrogen, Nitrite (as N)	1345	SM 4500 NO2 B	0.01	mg/L
Nitrogen, Nitrate (as N)	1340	EPA 300.0	0.01	mg/L
Nitrogen, Total	1355	Calculation	--	mg/L
Nitrogen, Total Kjeldahl (as N)	1360	EPA 351.2	0.5	mg/L
Phosphorus, ortho (as P)	1480	SM 4500 P E	0.01	mg/L
Phosphorus, total (as P)	1485	SM 4500 PBE	0.05	mg/L
Solids, Total Dissolved (TDS)	1625	SM 2540 C	10	mg/L
Solids, Total Suspended (TSS)	1630	SM 2540 D	0.5	mg/L
MBAS (Surfactants)	2345	SM 5540 C	--	mg/L
Ethylene-glycol	2300	EPA 8015 B	10	mg/L
Oil & Grease	1380	EPA 1664 A	--	mg/L
Petroleum Hydrocarbons, total	1452	EPA 8015 M	--	mg/L
Bacteriological				
E. coli	1077	SM 9221 E	2	MPN/100 mL

NOTES:
Reporting Limit (RL) based on State Board Minimum Levels or SWAMP Recommended RL (most conservative).

Attn: E.S. Babcock & Sons, Inc.
c/o Taylor Cariaga and Sushmitha Reddy

Project Name WWR Outfalls Dry 1, 2, 3 & 4 FY2015-16 Constituent Count: 6

(Conducted concurrently within Quarterly IC/ID)

Constituent	Hydron #	Method	RL	unit
		Bacteriological		
E. coli	1077	SM 9221 E	2	MPN/100 mL
		Field Parameters		
pH	1705	field meter	**0-14**	
Temperature	1655	field meter	**NA**	^{o}C
Dissolved Oxygen	1435	field meter	**0.5**	**mg/L**
Specific Conductivity	1200	field meter	1	umhos/cm
Turbidity	1690	field meter	0.2	NTU

NOTES:
Additional parameters may be collected if necessary to characterize or document a suspected IC/ID (e.g. oil and grease, etc.) or for use in follow-up enforcement actions against sources of an IC/ID.

Attn: E.S. Babcock & Sons, Inc.
c/o Taylor Cariaga and Sushmitha Reddy

Project Name WWR Receiving Wet 1
WWR Receiving Dry 1 & 2
FY2015-16

Constituent Count: 34
Source: 2013 ORDER WWR TABLE L-1

Constituent	Hydron #	Method	RL	unit
		Total Metals		
Antimony	1065	EPA 200.8	0.5	ug/L
Arsenic	1070	EPA 200.8	0.3	ug/L
Barium	1090	EPA 200.8	1.0	ug/L
Beryllium	1120	EPA 200.8	0.5	ug/L
Cadmium	1145	EPA 200.8	0.01	ug/L
Chromium	1180	EPA 200.8	0.1	ug/L
Chromium (VI)	1185	EPA 218.6	0.1	ug/L
Copper	1210	EPA200.8	0.01	ug/L
Lead	1290	EPA 200.8	0.01	ug/L
Mercury	1310	EPA 200.8	0.0002	ug/L
Nickel	1320	EPA 200.8	0.02	ug/L
Selenium	1520	EPA 200.8	0.3	ug/L
Silver	1535	EPA 200.8	0.02	ug/L
Thallium	1665	EPA 200.8	1.0	ug/L
Zinc	1700	EPA 200.8	0.1	ug/L
		Field Parameters (field crews)		
pH	1705	field meter	0-14	
Temperature	1655	field meter	NA	^{o}C
Dissolved Oxygen	1435	field meter	0.5	mg/L
Specific Conductivity	1200	field meter	1	umhos/cm
Turbidity	1690	field meter	0.2	NTU

Constituent	Hydron #	Method	RL	unit
		Conventionals and Nutrients		
Nitrogen, Ammonia (as N)	1051	SM 4500 NH3H	0.1	mg/L
Nitrogen, Nitrite (as N)	1345	SM 4500 NO2 B	0.01	mg/L
Nitrogen, Nitrate (as N)	1340	EPA 300.0	0.01	mg/L
Nitrogen, Total	1355	Calculation	--	mg/L
Nitrogen, Total Kjeldahl (as N)	1360	EPA 351.2	0.5	mg/L
Phosphorus, ortho (as P)	1480	SM 4500 P E	0.01	mg/L
Phosphorus, total (as P)	1485	SM 4500 PBE	0.05	mg/L
Solids, Total Dissolved (TDS)	1625	SM 2540 C	10	mg/L
Solids, Total Suspended (TSS)	1630	SM 2540 D	0.5	mg/L
MBAS (Surfactants)	2345	SM 5540 C	--	mg/L
Ethylene-glycol	2300	EPA 8015 B	10	mg/L
Oil & Grease	1380	EPA 1664 A	--	mg/L
Petroleum Hydrocarbons, total	1452	EPA 8015 M	--	mg/L
		Bacteriological		
E. coli	1077	SM 9221 E	2	MPN/100 mL

NOTES:
Reporting Limit (RL) based on State Board Minimum Levels or SWAMP Recommended RL (most conservative).

Attn: E.S. Babcock & Sons, Inc.
c/o Taylor Cariaga and Sushmitha Reddy

Attachment C.2 - WWR Monitoring Program Parameters Planned

Whitewater River Region Stations

Station Type	Site Name	Site Number	Sampling Agency
Outfall	Ramsey Street Storm Drain	719RMS782	RCFC
Outfall	Portola Avenue Outfall	719POR817	CVWD
Receiving Water Wet, Dry	CVSC at Avenue 52 Bridge	719CVS884	CVWD

Project Name WWR Outfalls Wet 1 & 2

FY2016-17 (Revised Nov 2016)

Constituent Count: 34

Source: 2013 ORDER WWR TABLE L-1

Constituent	Hydron #	Method	RL	unit
Total Metals				
Antimony	1065	EPA 200.8	0.2	ug/L
Arsenic	1070	EPA 200.8	0.3	ug/L
Barium	1090	EPA 200.8	1.0	ug/L
Beryllium	1120	EPA 200.8	0.5	ug/L
Cadmium	1145	EPA 200.8	0.03	ug/L
Chromium	1180	EPA 200.8	0.3	ug/L
Chromium (VI)	1185	EPA 218.6	0.9	ug/L
Copper	1210	EPA200.8	0.1	ug/L
Lead	1290	EPA 200.8	2.0	ug/L
Mercury	1310	EPA 200.8	0.002	ug/L
Nickel	1320	EPA 200.8	0.6	ug/L
Selenium	1520	EPA 200.8	1.0	ug/L
Silver	1535	EPA 200.8	0.45	ug/L
Thallium	1665	EPA 200.8	1.0	ug/L
Zinc	1700	EPA 200.8	0.7	ug/L
Field Parameters (field crews)				
pH	1705	field meter	0-14	
Temperature	1655	field meter	NA	^{o}C
Dissolved Oxygen	1435	field meter	0.5	mg/L
Specific Conductivity	1200	field meter	1	umhos/cm
Turbidity	1690	field meter	0.5	NTU

Constituent	Hydron #	Method	RL	unit
Conventionals and Nutrients				
Nitrogen, Ammonia (as N)	1051	SM 4500 NH3H	0.02	mg/L
Nitrogen, Nitrite (as N)	1345	SM 4500 NO2 B	0.01	mg/L
Nitrogen, Nitrate (as N)	1340	EPA 300.0	0.01	mg/L
Nitrogen, Total	1355	Calculation	0.2	mg/L
Nitrogen, Total Kjeldahl (as N)	1360	EPA 351.2	0.5	mg/L
Phosphorus, ortho (as P)	1480	SM 4500 P E	0.01	mg/L
Phosphorus, total (as P)	1485	SM 4500 PBE	0.05	mg/L
Solids, Total Dissolved (TDS)	1625	SM 2540 C	10	mg/L
Solids, Total Suspended (TSS)	1630	SM 2540 D	2	mg/L
MBAS (Surfactants)	2345	SM 5540 C	0.5	mg/L
Ethylene-glycol	2300	EPA 8015 B	10	mg/L
Oil & Grease	1380	EPA 1664 A	--	mg/L
Petroleum Hydrocarbons, total	1452	EPA 8015 M	--	mg/L
Bacteriological				
E. coli	1077	SM 9221 E	2	MPN/100 mL

NOTES:

Reporting Limit (RL) based on State Board Minimum Levels or SWAMP Recommended RL (most conservative).

Project Name WWR Outfalls Dry 1, 2, 3 & 4 Constituent Count: 6
FY2016-17 (Revised Nov 2016)
(Conducted concurrently within Quarterly IC/ID)

Constituent	Hydron #	Method	RL	unit
Bacteriological				
E. coli	1077	SM 9221 E	2	MPN/100 mL
Field Parameters				
pH	1705	field meter	0-14	
Temperature	1655	field meter	NA	^oC
Dissolved Oxygen	1435	field meter	0.5	mg/L
Specific Conductivity	1200	field meter	1	umhos/cm
Turbidity	1690	field meter	0.5	NTU

NOTES:
Additional parameters may be collected if necessary to characterize or document a suspected IC/ID (e.g. oil and grease, etc.) or for use in follow-up enforcement actions against sources of an IC/ID.

Project Name WWR Receiving Wet 1
WWR Receiving Dry 1 & 2
FY2016-17 (Revised Nov 2016)

Constituent Count: 34
Source: 2013 ORDER WWR TABLE L-1

Constituent	Hydron #	Method	RL	unit
Total Metals				
Antimony	1065	EPA 200.8	0.2	ug/L
Arsenic	1070	EPA 200.8	0.3	ug/L
Barium	1090	EPA 200.8	1.0	ug/L
Beryllium	1120	EPA 200.8	0.5	ug/L
Cadmium	1145	EPA 200.8	0.03	ug/L
Chromium	1180	EPA 200.8	0.3	ug/L
Chromium (VI)	1185	EPA 218.6	0.9	ug/L
Copper	1210	EPA200.8	0.1	ug/L
Lead	1290	EPA 200.8	2.0	ug/L
Mercury	1310	EPA 200.8	0.002	ug/L
Nickel	1320	EPA 200.8	0.6	ug/L
Selenium	1520	EPA 200.8	1.0	ug/L
Silver	1535	EPA 200.8	0.45	ug/L
Thallium	1665	EPA 200.8	1.0	ug/L
Zinc	1700	EPA 200.8	0.7	ug/L
Field Parameters (field crews)				
pH	1705	field meter	0-14	
Temperature	1655	field meter	NA	°C
Dissolved Oxygen	1435	field meter	0.5	mg/L
Specific Conductivity	1200	field meter	1	umhos/cm
Turbidity	1690	field meter	0.5	NTU

Constituent	Hydron #	Method	RL	unit
Conventionals and Nutrients				
Nitrogen, Ammonia (as N)	1051	SM 4500 NH3H	0.02	mg/L
Nitrogen, Nitrite (as N)	1345	SM 4500 NO2 B	0.01	mg/L
Nitrogen, Nitrate (as N)	1340	EPA 300.0	0.01	mg/L
Nitrogen, Total	1355	Calculation	0.2	mg/L
Nitrogen, Total Kjeldahl (as N)	1360	EPA 351.2	0.5	mg/L
Phosphorus, ortho (as P)	1480	SM 4500 P E	0.01	mg/L
Phosphorus, total (as P)	1485	SM 4500 PBE	0.05	mg/L
Solids, Total Dissolved (TDS)	1625	SM 2540 C	10	mg/L
Solids, Total Suspended (TSS)	1630	SM 2540 D	2	mg/L
MBAS (Surfactants)	2345	SM 5540 C	0.5	mg/L
Ethylene-glycol	2300	EPA 8015 B	10	mg/L
Oil & Grease	1380	EPA 1664 A	--	mg/L
Petroleum Hydrocarbons, total	1452	EPA 8015 M	--	mg/L
Bacteriological				
E. coli	1077	SM 9221 E	2	MPN/100 mL

NOTES:
Reporting Limit (RL) based on State Board Minimum Levels or SWAMP Recommended RL (most conservative).

Attachment D

2015-2016 Field Data Sheets and Laboratory Reports

FIELD DATA SHEET

WATER POLLUTION PREVENTION
FUNDED BY THE CITIES AND COUNTY OF RIVERSIDE

ONLY RAIN DOWN THE STORM DRAIN

QAp
01/11/2016

Rev 08/11/2015

STATION ID: 719RMS782 **SAMPLE DATE** (MM/DD/YYYY): 01/05/2016

STATION NAME: **782 - Ramsey Street Storm Drain** WATERSHED: ☐SAR ☐SMR ☑WWR

PROJECT NAME: **WWR Monitoring Program** Within: ☐Unincorp. or ☑City of Banning

CONVEYANCE TYPE: Rip Rap Channel ☐Receiving Water ☐Within IAH

GPS INFO: Lat 33° 55' 30.5" Long -116° 51' 31.5" GPS Unit: STD LOCATION ☑Outfall, Owner: Banning

PRINTED NAMES of Sampling Team: Mike Phipps / Mike Venable ☐Other:

SIGNATURE of lead sampler: [signature] Sampling AGENCY: RCFC & WCD

SAMPLE INFORMATION

☐ VISITED, NOT SAMPLED (TIME:______)

EVENT CATEGORY:
☑ Wet Weather (Storm) OR
☐ Dry Weather
☐1st ☑2nd ☐3rd ☐4th
☐ Recon, IC/ID, or Complaint
☐ Other ______

SAMPLE ID(s) [# of Bottles]: 1516-W2-782-01 [11], 1516-XX-XXXX-XX [ ], 1516-XX-XXXX-XX [ ]

STREAM FLOW:
Dry: ☐Yes ☑No Ponded: ☐Yes ☑No
Rising Groundwater: ☐Yes ☑No
Connects to Surface Receiving Water ☐Yes ☑No
Dry weather event u/s influence: ☐Yes ☐No

TYPE (check all that apply):
☑ **Grab** (-01) [SAMPLE TIME: 1110]
☐ **Composite**(-01-C) ______ (COC last aliquot)
☐ **Field DUP**(-02) ______ ☐ **Field Blank**(-03) ______
☐ **Travel Blank**(-04) ______ ☐ Other:______

FIELD PARAMETERS

Time Measured: 1130

	Result (primary/dup)	Units	Meter	Calibration Date
☑ **Water Temp**	11.49	°C	Quanta	1/4/16
☑ **pH**	6.19	units		
☑ **EC**	0.272	mS/cm	272 µS/cm	
☑ **Turbidity**	92.4	NTU		
☑ **DO**	9.84	mg/L		
☐				
☐				
☐				

FLOW ESTIMATION:

☐ USGS Gauge height/stage _____ ft Q (cfs) = _____

[Gauge Name/No.: __________]

☐ Calculation by visual measurement: Q (cfs) = 1.75

= [Coef(1, 2/3, ___)]*[depth .14 ft]*[width 2.5 ft]*[vel 5 fps]

Circular pipe: [vel____fps][depth____ft][width____ft][R=____ft]

SITE CONDITIONS

PRECIPITATION:
NOW: ☐ None ☐ Drizzle/Sprinkle ☑ Rain ☐ Hail/Snow
[APPROX. STORM START TIME: 0910]
Is there >72 hrs since previous rainfall event? ☑Yes ☐ No
(A measurable rainfall event is an event with >0.1 inch of rain)

ODOR: ☑ None ☐ Sulfides ☐ Sewage ☐ Smoke ☐ Petroleum ☐ Other: ______

☐ Floatables______ ☑ Settleables Silt
☑ Vegetation Tumble Weeds ☐ Staining ______

COLOR: ☐ Colorless ☐ Green ☐ Yellow ☑ Brown ☐ Other

CLARITY: ☐ Clear (see bottom) ☑ Cloudy ☐ Murky
Sheen Present: ☐ Yes ☑ No

TRASH: ☐ Yes ☑ No
From: ☐ Flows ☐ Litter ☐ Dumping ☐ Other______

COMPOSITE Samples: Auto/Grab, Flow/Time Weighted, ____Hrs

	Time	H(in.)	Flow(cfs)	%		Time	H(in.)	Flow(cfs)	%
1					13				
2					14				
3					15				
4					16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				
12					24				

Observations/Notes ☑ Photograph(s)

WIDTH: 2.5'
DEPTH: .1, .1, .25, .1 ≈ 0.14
VEL: 10FT/2SEC ≈ 5FT/S

- PICTURES TAKEN
- NO IC/ID CONCERNS
- LOTS OF TUMBLEWEEDS ABOVE SAMPLING LOCATION.

☐ **Associated monitoring u/s, d/s** *(circle one or both and complete required FDS(s))* **at:**

E.S. Babcock Sons, Inc. Environmental Laboratories
(951) 653-3351 FAX (951) 653-1662
www.babcocklabs.com

Chain of Custody Sample Information Record

Client:	RCFC & WCD	Contact:	Rebekah Guill / Penny Nanney	Phone No.	(951) 955.2901 / 955.1325
FAX No.	951.788.9965	Email:	rguill@rcflood.org pnanney@rcflood.org		

Project Name: WWR Outfalls Wet 2
Station ID: 719RMS782
Station Location: Ramsey Street Storm Drain

Turn Around Time: Routine / *3-5 Day Rush / *48 Hour Rush / *24 Hour Rush
*Lab TAT Approval: By: *Additional Charges May Apply

Additional Reporting Requests
Include QC Data Package: ☐ Yes ☐ No
FAX Results: ☐ Yes ☐ No
Email Results: ☐ Yes ☐ No
State EDT: ☐ Yes ☐ No
(Include Source Number in Notes)

Sampler Information
TEAM Names: MP/MW
Employer: RCFC & WCD
LEAD Signature: [signature]

Sample ID	Date	Time	Unpreserved	H_2SO_4	HCl	HNO_3	$Na_2S_2O_2$	NaOH	ZnAce/NaOH	NaOH / Zn Acetate	NH_4Cl	MCAA	Total # of Containers	Routine	Resample	Special	See Project List	Trip Blank	Matrix	Bottle #	Flow
1516-W2-782 -01	1/5/16	1110	3	2	4	1	1						11				X		SW		

Matrix: SW = Storm Water, NW = Nonstorm Water, GW = Groundwater, S = Soil, SG = Sludge, L = Liquid, M = Miscellaneous

Notes: * 4 HCL VOAs collected only if sheen observed

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
[signature]	Mike Phipps / RCFC&WCD	1/5/16		
		1/5/16 1210	[signature]	Nicole Greenwood / ESB

(For Lab Use Only) Sample Integrity Upon Receipt

Sample(s) Submitted on Ice?	Yes	No	
Custody Seal(s) Intact?	Yes	No	N/A
Sample(s) Intact?	Yes	No	

Temperature 9 °C
☐ Cooler Blank

Lab Notes

Lab No. _____

Page 1 of 1

719RMS782 – Ramsey Street Storm Drain – WWR Core Wet 2 – 1/5/16

Fig. 1 – Upstream view of sampling location

Fig. 2 – Downstream view of sampling location

Fig. 1 – Upstream view of receiving water (Smith Creek)

Fig. 2 – Downstream view of receiving water (Smith Creek)

BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years

QA g

Client Name:	Riverside County Flood Control	Analytical Report:	Page 1 of 1
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA, 92501	Project Number:	719RMS782
		Work Order Number:	**B6A0288**

Report Date: 26-Feb-2016   Received on Ice (Y/N Yes   Temp: 9 °C

Attached is the analytical report for the sample(s) received for your project. Below is a list of the individual sample descriptions with the corresponding laboratory number(s). Also, enclosed is a copy of the Chain of Custody document (if received with your sample(s)). Please note any unused portion of the sample(s) may be responsibly discarded after 30 days from the above report date, unless you have requested otherwise.

Thank you for the opportunity to serve your analytical needs. If you have any questions or concerns regarding this report please contact our client service department.

Sample Identification

Lab Sample #	Client Sample ID	Matrix	Date Sampled	By	Date Submitted	By
B6A0288-01	1516-W2-782-01	Liquid	1/5/16 11:10	MP/MV	1/5/16 16:10	Mike Phipps

Note: Requested EPA 8015 Ethylene Glycol analysis was subcontracted to Weck Laboratories.

GOOD

Approval

Babcock Laboratories certify that the information presented as part of this report meets the minimum quality standards in the analytical methods, if referenced. Exceptions have been noted. Babcock Laboratories and its officers and employees assume no responsibility and make no warranty, express or implied, for uses or interpretations made by any recipients, intended or unintended, of this report.

Amanda Porter

cc:

mailing
P.O. Box 432
Riverside, CA 92502-0432

location
6100 Quail Valley Court
Riverside, CA 92507-0704

P 951 653 3351
F 951 653 1662
www.babcocklabs.com

NELAP no. 02101CA
CA Elap no. 2698
EPA no. CA00102

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The Standard of Excellence for Over 100 Years

Client Name:	Riverside County Flood Control	Analytical Report:	Page 1 of 2
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA, 92501	Project Number:	719RMS782
		Work Order Number:	**B6A0288**

Report Date: 26-Feb-2016

Received on Ice (Y/N Yes Temp: 9 °C

E.S. Babcock Sons, Inc. Environmental Laboratories
(951) 653-3351 FAX (951) 653-1662
www.babcocklabs.com

Chain of Custody Sample Information Record

Client: RCFC & WCD
Contact: Rebekah Guill / Penny Nanney
Phone No. (951) 955.2901 / 955.1325
FAX No. 951.788.9965
Email: rguill@rcflood.org pnanney@rcflood.org

Project Name: WWR Outfalls Wet 2
Station ID: 719RMS782
Station Location: Ramsey Street Storm Drain

Turn Around Time: Routine *3-5 Day Rush *48 Hour Rush *24 Hour Rush
*Lab TAT Approval: By: *Additional Charges May Apply

Additional Reporting Requests
Include QC Data Package: ☐ Yes ☐ No
FAX Results: ☐ Yes ☐ No
Email Results: ☐ Yes ☐ No
State EDT: ☐ Yes ☐ No
(Include Source Number in Notes)

Sampler Information
TEAM Names: MP/WM
Employer: RCFC & WCD
LEAD Signature:

Sample ID	Date	Time	Unpreserved	H_2SO_4	HCl	HNO_3	$Na_2S_2O_3$	NaOH	ZnAce/NaOH	NaOH / Zn Acetate	NH_4Cl	MCAA	Total # of Containers	Routine	Resample	Special	See Project List	Trip Blank	Matrix
1516-W2-782 -01	1/5/16	1110	3	2	4	1	1						11				X		SW

Matrix: SW = Storm Water, NW = Nonstorm Water, GW = Groundwater, S = Soil, SG = Sludge, L = Liquid, M = Miscellaneous

Notes: * 4 HCL VOAs collected only if sheen observed
Subout
Bottle # Flow

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
	Mike Phipps / RCFC&WCD	1/5/16		
		1/5/16 1010	Nichol	Nicole Greenwood / ESB

(For Lab Use Only) Sample Integrity Upon Receipt
Sample(s) Submitted on Ice? Yes No
Custody Seal(s) Intact? Yes No N/A
Sample(s) Intact? Yes No
Temperature 9 °C ☐ Cooler Blank
Lab Notes

Lab No. B6A0288 AB
Page 1 of 1

JAN - 5 2016

mailing
P.O. Box 432
Riverside, CA 92502-0432

location
6100 Quail Valley Court
Riverside, CA 92507-0704

P 951 653 3351
F 951 653 1662
www.babcocklabs.com

NELAP no. 02101CA
CA Elap no. 2698
EPA no. CA00102

BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years

Client Name: Riverside County Flood Control
Contact: Rebekah Guill
Address: 1995 Market Street
Riverside, CA, 92501

Project Name: WWR Outfalls Wet 1&2 15-16
Project Number: 719RMS782
Work Order Number: B6A0288

Report Date: 26-Feb-2016

Received on Ice (Y/N Yes   Temp: 9 °C

Project Name WWR Outfalls Wet 1 & 2
FY2014-15

Constituent Count: 34
Source: 2013 ORDER WWR TABLE L-1

Constituent	Hydron #	Method	RL	unit
Total Metals				
Antimony	1065	EPA 200.8	0.5	ug/L
Arsenic	1070	EPA 200.8	0.3	ug/L
Barium	1090	EPA 200.8	1.0	ug/L
Beryllium	1120	EPA 200.8	0.5	ug/L
Cadmium	1145	EPA 200.8	0.01	ug/L
Chromium	1180	EPA 200.8	0.1	ug/L
Chromium (VI)	1185	EPA 218.6	0.1	ug/L
Copper	1210	EPA200.8	0.01	ug/L
Lead	1290	EPA 200.8	0.01	ug/L
Mercury	1310	EPA 200.8	0.0002	ug/L
Nickel	1320	EPA 200.8	0.02	ug/L
Selenium	1520	EPA 200.8	0.3	ug/L
Silver	1535	EPA 200.8	0.02	ug/L
Thallium	1665	EPA 200.8	1.0	ug/L
Zinc	1700	EPA 200.8	0.1	ug/L
Field Parameters (field crews)				
pH	1705	field meter	0-14	
Temperature	1655	field meter	NA	°C
Dissolved Oxygen	1435	field meter	0.5	mg/L
Specific Conductivity	1200	field meter	1	umhos/cm
Turbidity	1690	field meter	0.2	NTU

Constituent	Hydron #	Method	RL	unit
Conventionals and Nutrients				
Nitrogen, Ammonia (as N)	1051	SM 4500 NH3H	0.1	mg/L
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MBAS (Surfactants)	2345	SM 5540 C	--	mg/L
Ethylene-glycol	2300	EPA 8015 B	10	mg/L
Oil & Grease	1380	EPA 1664 A	--	mg/L
Petroleum Hydrocarbons, total	1452	EPA 8015 M	--	mg/L
Bacteriological				
E. coli	1077	SM 9221 E	2	MPN/100 mL

NOTES:
Reporting Limit (RL) based on State Board Minimum Levels or SWAMP Recommended RL (most conservative).

Attn: E.S. Babcock & Sons, Inc.
c/o Taylor Cariaga and Sushmitha Reddy

WWR OUTFALLS WET 1, 2

2015-2016

mailing
P.O. Box 432
Riverside, CA 92502-0432

location
6100 Quail Valley Court
Riverside, CA 92507-0704

P 951 653 3351
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www.babcocklabs.com

NELAP no. 02101CA
CA Elap no. 2698
EPA no. CA00102

Certificate of Analysis

Report Date: 01/15/16 17:05
Received Date: 01/07/16 13:30
Turnaround Time: Normal

Project: B6A0288

Phones: (951) 653-3351
Fax: (951) 653-1662

P.O. #:

Attn: Amanda C. Porter

Client: E.S. Babcock & Sons, Inc.
P.O. Box 432
Riverside, CA 92502-0432

Dear Amanda C. Porter :

Enclosed are the results of analyses for samples received 1/7/2016 with the Chain of Custody document. The samples were received in good condition, at 2.4 °C and on ice. All analysis met the method criteria except as noted below or in the report with data qualifiers.

Lab ID: 6A07057-01 **Sample ID: B6A0288-01** **Matrix:** Water
Sampled by: MP/MV **Sampled: 01/05/16 11:10** **Sample Note: 1516-W2-782-01**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
Ethylene glycol	ND		10	mg/l	1	EPA 8015B	1/12/16	1/13/16 0:40	W6A0559	

Certificate of Analysis

Quality Control Section

Glycols by EPA Method 8015B - Quality Control

Batch W6A0559 - EPA 8015B

Blank (W6A0559-BLK1) — **Prepared: 01/12/16 Analyzed: 01/12/16 16:31**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Ethylene glycol		ND		mg/l					

LCS (W6A0559-BS1) — **Prepared: 01/12/16 Analyzed: 01/12/16 16:59**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Ethylene glycol		87.4		mg/l	100	87	46-129		

Matrix Spike (W6A0559-MS1) — **Source: 6A07057-01** — **Prepared: 01/12/16 Analyzed: 01/12/16 17:26**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Ethylene glycol	5.05	112		mg/l	100	107	57-127		

Matrix Spike Dup (W6A0559-MSD1) — **Source: 6A07057-01** — **Prepared: 01/12/16 Analyzed: 01/12/16 17:53**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Ethylene glycol	5.05	109		mg/l	100	104	57-127	3	25

Weck Laboratories, Inc 14859 East Clark Avenue, City of Industry, California 91745-1396 (626) 336-2139 FAX (626) 336-2634
www.wecklabs.com

Certificate of Analysis

Notes:
The Chain of Custody document is part of the analytical report.
Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless otherwise specified.

An Absence of Total Coliform meets the drinking water standards as established by the State of California Department of Health Services.
The Reporting Limit (RL) is referenced as laboratory's Practical Quantitation Limit (PQL).
For Potable water analysis, the Reporting Limit (RL) is referenced as Detection Limit for reporting purposes (DLRs) defined by EPA.

If sample collected by Weck Laboratories, sampled in accordance to lab SOP MIS002

Authorized Signature

Contact: Kim G. Tu
(Project Manager)

ELAP # 1132
LACSD # 10143
NELAC #4047-002 ORELAP

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Weck Laboratories certifies that the test results meet all requirements of NELAC unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Flags for Data Qualifiers:

ND	NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL).
Sub	Subcontracted analysis, original report enclosed.
DL	Method Detection Limit
RL	Method Reporting Limit
MDA	Minimum Detectable Activity
NR	Not Reportable

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Printed: 1/5/2016 18:23

6A07057

SUBCONTRACT ORDER

Babcock Laboratories, Inc.

B6A0288

SENDING LABORATORY:	**RECEIVING LABORATORY:**
Babcock Laboratories, Inc.	Weck - Subcontract
6100 Quail Valley Court	14859 East Clark Avenue
Riverside, CA 92507-0704	Industry, CA 91745
Phone: (951) 653-3351	Phone :(626) 336-2139
Fax: (951) 653-1662	Fax: (626) 336-2634
Project Manager: Amanda C. Porter	

Copy/Relog from B6A0283.
Client: Riverside County Flood Control
Sampler: MP/MV

Analysis	**Due**	**Expires Regulatory Days Past Date Sampled**	**Laboratory ID**	**Comments**	
Sample ID: B6A0288-01 **Liquid**		**Sampled:** **01/05/16 11:10**	**1516-W2-782-01**		***Proj.No.:*****719RMS782**
Subout	01/29/16 17:00	01/12/16 11:10	Ethlyene Glycol		
Containers Supplied:					
Voa Vial -Unpres (A)	Voa Vial -Unpres (B)				

1/7/2016: As per Amanda Porter,
elevated temperature ok. KL 2:41

All Containers Intact: _____ Yes _____ No Samples Preserved Properly: _____ Yes _____ No

Samples Received at 10.4 oC Sample Lables / COC Agree: _____ Yes _____ No Custody Seals Present: _____ Yes _____ No

Please forward all acknowledgements of sample receipt, final reports and invoices to data@babcocklabs.com
NO HARDCOPIES PLEASE.

Released By	Date		Received By	Date
David Kelley FA	1/06/16		Fedex	
Fedex	1.7.16	1020	[illegible signature]	

Released By — Date — Received By — Date

Sample Receipt Acknowledgement

WECK LABORATORIES, INC.

WORK ORDER:	6A07057	**Printed:**	1/11/2016 12:37:25PM
Client:	E.S. Babcock & Sons, Inc.	**Project Manager:**	Kim G. Tu
Project:	8000 series	**Project Number:**	B6A0288

Report To:
E.S. Babcock & Sons, Inc.
Amanda C. Porter
P.O. Box 432
Riverside, CA 92502-0432
Phone: (951) 653-3351
Fax: (951) 653-1662

Invoice To:
E.S. Babcock & Sons, Inc.
Caroline Sangari
P.O. Box 432
Riverside, CA 92502-0432
Phone :(951) 653-3351
Fax: (951) 653-1662

Date Due:	01/21/16 15:00 (10 day TAT)		
Received By:	Algabriel T. Holanda	**Date Received:**	01/07/16 13:30
Logged In By:	Algabriel T. Holanda	**Date Logged In:**	01/07/16 15:42

Samples Received at:	**2.4°C**	Sample labels & COC agree	**Yes**	Sufficient holding time for all tests	**Yes**
All containers intact:	**Yes**	Samples preserved properly	**Yes**	Received on Ice	**Yes**
Custody Seals	**No**	Sample volume sufficient	**Yes**	Appropriate sample containers	**Yes**
Chain of custody completed	**Yes**				

Analysis	TAT	Expires	Comments
6A07057-01 B6A0288-01 [Water] Sampled 01/05/16 11:10 (GMT-08:00) Pacific Time (US &			**1516-W2-782-01**
8015B Water EG	10	01/19/16 11:10	

Comments:

1/11/2016

Authorized Signature — Date

Note:
If any of the information included in this sample receipt acknowledgement is incorrect (sample information, analysis, etc), please contact the lab at (626) 336-2139. Thank you.

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www.wecklabs.com

E S B
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QAp
11/01/2016

Client Name:	Riverside County Flood Control	Analytical Report:	Page 1 of 19
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	01-Nov-2016	**Work Order Number:**	**B6A0283**

Received on Ice (Y/N): Yes Temp: 9 °C

Attached is the analytical report for the sample(s) received for your project. Below is a list of the individual sample descriptions with the corresponding laboratory number(s). Also, enclosed is a copy of the Chain of Custody document (if received with your sample(s)). Please note any unused portion of the sample(s) may be responsibly discarded after 30 days from the above report date, unless you have requested otherwise.

Thank you for the opportunity to serve your analytical needs. If you have any questions or concerns regarding this report please contact our client service department.

Sample Identification

Lab Sample #	Client Sample ID	Matrix	Date Sampled	By	Date Submitted	By
B6A0283-01	1516-W2-782-01	Liquid	01/05/16 11:10	MP/MV	01/05/16 16:10	Mike Phipps

GOOD

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Client Name: Riverside County Flood Control
Contact: Rebekah Guill
Address: 1995 Market Street
Riverside, CA 92501

Report Date: 01-Nov-2016

Project Name: WWR Outfalls Wet 1&2 15-16

Project Number: 719RMS782

Work Order Number: B6A0283

Received on Ice (Y/N): Yes Temp: 9 °C

Laboratory Reference Number

B6A0283-01

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
1516-W2-782-01	Liquid	01/05/16 11:10	01/05/16 16:10

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Anions								
Nitrate as N	1.3	0.10	0.10	mg/L	EPA 300.0	01/06/16 02:27	DCB	NRLrcf
Solids								
Total Dissolved Solids	120	10	5.8	mg/L	SM 2540C	01/07/16 14:30	nhb	
Total Suspended Solids	53	10	7	mg/L	SM 2540D	01/08/16 18:40	slp	NRLrcf
Aggregate Organic Compounds								
Oil & Grease (HEM)	1.9	1.4	0.9	mg/L	EPA 1664A	01/14/16 16:35	krv	
Surfactants								
MBAS	ND	0.66	0.66	mg/L	SM 5540C	01/06/16 16:25	cdcs	
Nutrients								
Nitrite as N	0.069	0.010	0.0046	mg/L	SM 4500NO2 B	01/06/16 19:21	nc	
Ammonia-Nitrogen	0.67	0.10	0.059	mg/L	SM4500NH3H	01/06/16 14:59	sll	
Kjeldahl Nitrogen	2.6	1.0	0.13	mg/L	EPA 351.2	01/07/16 01:35	jma	NRLrcf
Total Nitrogen	4.0	1.0	0.13	mg/L	Calculation			
Ortho Phosphate Phosphorus	0.23	0.050	0.0028	mg/L	SM 4500P E	01/06/16 00:20	jma	NRLrcf
Total Phosphorus	0.42	0.10	0.02	mg/L	SM 4500P B E	01/20/16 12:20	krv	NRLrcf
Metals and Metalloids								
Antimony	1.7	0.5	0.2	ug/L	EPA 200.8	01/12/16 17:48	ERA	
Arsenic	1.2	1.0	0.5	ug/L	EPA 200.8	01/12/16 17:48	ERA	NRLrcf
Barium	27	1.0	1.0	ug/L	EPA 200.8	01/12/16 17:48	ERA	
Beryllium	ND	0.5	0.2	ug/L	EPA 200.8	01/12/16 17:48	ERA	
Cadmium	0.15	0.50	0.12	ug/L	EPA 200.8	01/12/16 17:48	ERA	NRLrcf, J
Total Chromium	4.0	1.0	0.4	ug/L	EPA 200.8	01/12/16 17:48	ERA	NRLrcf
Hexavalent Chromium	0.84	0.10	0.013	ug/L	EPA 218.6	01/07/16 17:09	DCB	
Copper	20	0.5	0.2	ug/L	EPA 200.8	01/12/16 17:48	ERA	NRLrcf
Lead	6.2	1.0	0.2	ug/L	EPA 200.8	01/12/16 17:48	ERA	NRLrcf
Mercury	ND	0.20	0.055	ug/L	EPA 200.8 ATP	01/06/16 21:47	AP	NRLrcf
Nickel	4.0	1.0	0.5	ug/L	EPA 200.8	01/12/16 17:48	ERA	NRLrcf
Selenium	ND	1.0	0.5	ug/L	EPA 200.8	01/12/16 17:48	ERA	NRLrcf
Silver	ND	0.25	0.12	ug/L	EPA 200.8	01/12/16 17:48	ERA	NRLrcf

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Client Name:	Riverside County Flood Control	Analytical Report:	Page 3 of 19
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	01-Nov-2016	**Work Order Number:**	**B6A0283**

Received on Ice (Y/N): Yes Temp: 9 °C

Laboratory Reference Number

B6A0283-01

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
1516-W2-782-01	Liquid	01/05/16 11:10	01/05/16 16:10

Analyte(s)	Result		RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Metals and Metalloids									
Thallium	ND		1.0	0.5	ug/L	EPA 200.8	01/12/16 17:48	ERA	
Zinc	140		1.0	0.7	ug/L	EPA 200.8	01/12/16 17:48	ERA	NRLrcf
Diesel Range Organics by EPA 8015									
Diesel Range Hydrocarbons	ND		5.0	0.46	mg/L	EPA 8015B	01/09/16 19:48	naa	
Surrogate: Decachlorobiphenyl	74.3	%	35-120			EPA 8015B	01/09/16 19:48	naa	
Gasoline Range Organics by EPA 8015									
Gasoline Range Organics	ND		0.050	0.024	mg/L	EPA 8015B	01/08/16 01:50	jes	
Surrogate: a,a,a-Trifluorotoluene	38.6	%	10-110			EPA 8015B	01/08/16 01:50	jes	
Multiple Tube Fermentation - Multiple Dilution - SM 9221 B, E, F series									
E. Coli	2000		2000	2000	MPN/100ml	SM 9221F	01/05/16 16:45	aac	NRLrcf

ESB

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Client Name: Riverside County Flood Control
Contact: Rebekah Guill
Address: 1995 Market Street
Riverside, CA 92501

Report Date: 01-Nov-2016

Project Name: WWR Outfalls Wet 1&2 15-16

Project Number: 719RMS782

Work Order Number: B6A0283

Received on Ice (Y/N): Yes Temp: 9 °C

Anions - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A05145 - Analyzed as Received IC											
Blank (6A05145-BLK1)				Prepared & Analyzed: 01/05/16							
Nitrate as N	ND	0.10	0.020	mg/L							
LCS (6A05145-BS1)				Prepared & Analyzed: 01/05/16							
Nitrate as N	11.7	0.10	0.020	mg/L	11.3		103	90-110			
Duplicate (6A05145-DUP1)		**Source: B6A0233-01**		Prepared & Analyzed: 01/06/16							
Nitrate as N	0.710	0.10	0.020	mg/L		0.759			6.64	20	
Matrix Spike (6A05145-MS1)		**Source: B6A0233-01**		Prepared & Analyzed: 01/06/16							
Nitrate as N	4.39	0.10	0.020	mg/L	4.52	0.759	80.3	75-131			
Matrix Spike (6A05145-MS2)		**Source: B6A0292-01**		Prepared & Analyzed: 01/06/16							
Nitrate as N	5.15	0.10	0.020	mg/L	4.52	0.975	92.4	75-131			
Matrix Spike Dup (6A05145-MSD1)		**Source: B6A0233-01**		Prepared & Analyzed: 01/06/16							
Nitrate as N	4.52	0.10	0.020	mg/L	4.52	0.759	83.3	75-131	2.96	20	

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Client Name: Riverside County Flood Control
Contact: Rebekah Guill
Address: 1995 Market Street
Riverside, CA 92501

Report Date: 01-Nov-2016

Project Name: WWR Outfalls Wet 1&2 15-16

Project Number: 719RMS782

Work Order Number: B6A0283

Received on Ice (Y/N): Yes Temp: 9 °C

Solids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A07029 - Analyzed as received											
Blank (6A07029-BLK1)				Prepared & Analyzed: 01/07/16							
Total Dissolved Solids	8.50	10	5.8	mg/L							J
LCS (6A07029-BS1)				Prepared & Analyzed: 01/07/16							
Total Dissolved Solids	754	20	12	mg/L	746		101	90-110			
Duplicate (6A07029-DUP1)		**Source: B6A0272-02**		Prepared & Analyzed: 01/07/16							
Total Dissolved Solids	482	20	12	mg/L		504			4.46	20	
Duplicate (6A07029-DUP2)		**Source: B6A0282-01**		Prepared & Analyzed: 01/07/16							
Total Dissolved Solids	509	20	12	mg/L		525			3.09	20	
Batch 6A08062 - Analyzed as received											
Blank (6A08062-BLK1)				Prepared & Analyzed: 01/08/16							
Total Suspended Solids	ND	5	4	mg/L							
LCS (6A08062-BS1)				Prepared & Analyzed: 01/08/16							
Total Suspended Solids	507	10	7	mg/L	500		101	90-110			
Duplicate (6A08062-DUP1)		**Source: B6A0266-02**		Prepared & Analyzed: 01/08/16							
Total Suspended Solids	144	10	7	mg/L		133			7.94	25	
Duplicate (6A08062-DUP2)		**Source: B6A0290-09**		Prepared & Analyzed: 01/08/16							
Total Suspended Solids	107	10	7	mg/L		110			2.76	25	

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Client Name: Riverside County Flood Control
Contact: Rebekah Guill
Address: 1995 Market Street
Riverside, CA 92501

Report Date: 01-Nov-2016

Project Name: WWR Outfalls Wet 1&2 15-16

Project Number: 719RMS782

Work Order Number: B6A0283

Received on Ice (Y/N): Yes Temp: 9 °C

Aggregate Organic Compounds - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A14024 - Solvent Extraction.											
Blank (6A14024-BLK1)					Prepared & Analyzed: 01/14/16						
Oil & Grease (HEM)	ND	1.4	0.9	mg/L							
LCS (6A14024-BS1)					Prepared & Analyzed: 01/14/16						
Oil & Grease (HEM)	39.4	1.4	0.9	mg/L	40.0		98.5	78-114			
LCS Dup (6A14024-BSD1)					Prepared & Analyzed: 01/14/16						
Oil & Grease (HEM)	41.1	1.4	0.9	mg/L	40.0		103	78-114	4.22	18	
Duplicate (6A14024-DUP1)		**Source: B6A0199-01**			Prepared & Analyzed: 01/14/16						
Oil & Grease (HEM)	1.58	1.4	0.9	mg/L		ND				18	
Matrix Spike (6A14024-MS1)		**Source: B6A0208-01**			Prepared & Analyzed: 01/14/16						
Oil & Grease (HEM)	29.5	1.3	0.9	mg/L	37.6	1.50	74.5	78-114			QMint

mailing
P.O Box 432
Riverside, CA 92502-0432

location
6100 Quail Valley Court
Riverside, CA 92507-0704

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CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035

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Client Name: Riverside County Flood Control
Contact: Rebekah Guill
Address: 1995 Market Street
Riverside, CA 92501

Report Date: 01-Nov-2016

Analytical Report: Page 7 of 19
Project Name: WWR Outfalls Wet 1&2 15-16
Project Number: 719RMS782

Work Order Number: B6A0283

Received on Ice (Y/N): Yes Temp: 9 °C

Surfactants - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A05122 - Solvent Extraction.											
Blank (6A05122-BLK1)					Prepared & Analyzed: 01/05/16						
MBAS	ND	0.08	0.08	mg/L							
LCS (6A05122-BS1)					Prepared & Analyzed: 01/05/16						
MBAS	0.256	0.08	0.08	mg/L	0.320		80.0	80-120			
Duplicate (6A05122-DUP1)		**Source: B6A0208-01**			Prepared & Analyzed: 01/05/16						
MBAS	0.764	0.66	0.66	mg/L		0.706			7.91	20	
Matrix Spike (6A05122-MS1)		**Source: B6A0317-03**			Prepared & Analyzed: 01/06/16						
MBAS	0.458	0.20	0.20	mg/L	0.400	ND	114	80-120			
Matrix Spike Dup (6A05122-MSD1)		**Source: B6A0317-03**			Prepared & Analyzed: 01/06/16						
MBAS	0.462	0.20	0.20	mg/L	0.400	ND	116	80-120	1.09	20	

Client Name:	Riverside County Flood Control	Analytical Report:	Page 8 of 19
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	01-Nov-2016	**Work Order Number:**	**B6A0283**

Received on Ice (Y/N): Yes Temp: 9 °C

Nutrients - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A05126 - Filter if turbid.											
LCS (6A05126-BS1)				Prepared & Analyzed: 01/05/16							
Ortho Phosphate Phosphorus	0.483	0.050	0.0028	mg/L	0.500		96.6	90-110			
Duplicate (6A05126-DUP1)		**Source: B6A0233-01**		Prepared & Analyzed: 01/05/16							
Ortho Phosphate Phosphorus	0.188	0.050	0.0028	mg/L		0.192			2.11	20	
Matrix Spike (6A05126-MS1)		**Source: B6A0168-01**		Prepared & Analyzed: 01/05/16							
Ortho Phosphate Phosphorus	0.516	0.050	0.0028	mg/L	0.500	0.0250	98.2	80-120			
Matrix Spike Dup (6A05126-MSD1)		**Source: B6A0168-01**		Prepared & Analyzed: 01/05/16							
Ortho Phosphate Phosphorus	0.524	0.050	0.0028	mg/L	0.500	0.0250	99.8	80-120	1.54	20	
Batch 6A06069 - Distillation											
Blank (6A06069-BLK1)				Prepared & Analyzed: 01/06/16							
Ammonia-Nitrogen	ND	0.10	0.059	mg/L							
LCS (6A06069-BS1)				Prepared & Analyzed: 01/06/16							
Ammonia-Nitrogen	0.721	0.10	0.059	mg/L	0.780		92.4	90-110			
Duplicate (6A06069-DUP1)		**Source: B6A0233-01**		Prepared & Analyzed: 01/06/16							
Ammonia-Nitrogen	1.58	0.10	0.059	mg/L		1.76			10.5	20	
Matrix Spike (6A06069-MS1)		**Source: B6A0233-01**		Prepared & Analyzed: 01/06/16							
Ammonia-Nitrogen	2.47	0.10	0.059	mg/L	0.780	1.76	90.4	80-120			
Matrix Spike Dup (6A06069-MSD1)		**Source: B6A0233-01**		Prepared & Analyzed: 01/06/16							
Ammonia-Nitrogen	2.45	0.10	0.059	mg/L	0.780	1.76	87.9	80-120	0.806	20	

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Nutrients - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A06088 - Acid Digest											
Blank (6A06088-BLK1)					Prepared: 01/06/16 Analyzed: 01/07/16						
Kjeldahl Nitrogen	ND	0.10	0.063	mg/L							
LCS (6A06088-BS1)					Prepared: 01/06/16 Analyzed: 01/07/16						
Kjeldahl Nitrogen	0.980	0.10	0.063	mg/L	1.00		98.0	80-120			
Duplicate (6A06088-DUP1)		**Source: B6A0199-01**			Prepared: 01/06/16 Analyzed: 01/07/16						
Kjeldahl Nitrogen	2.80	0.20	0.13	mg/L		3.16			12.2	20	
Matrix Spike (6A06088-MS1)		**Source: B6A0139-01**			Prepared: 01/06/16 Analyzed: 01/07/16						
Kjeldahl Nitrogen	82.2	4.0	2.5	mg/L	40.0	43.0	98.2	70-130			
Matrix Spike (6A06088-MS2)		**Source: B6A0199-01**			Prepared: 01/06/16 Analyzed: 01/07/16						
Kjeldahl Nitrogen	5.09	0.20	0.13	mg/L	2.00	3.16	96.6	70-130			
Matrix Spike Dup (6A06088-MSD1)		**Source: B6A0139-01**			Prepared: 01/06/16 Analyzed: 01/07/16						
Kjeldahl Nitrogen	79.9	4.0	2.5	mg/L	40.0	43.0	92.2	70-130	2.95	25	
Batch 6A06131 - Filter if turbid.											
LCS (6A06131-BS1)					Prepared & Analyzed: 01/06/16						
Nitrite as N	0.104	0.010	0.0046	mg/L	0.100		104	90-110			
Duplicate (6A06131-DUP1)		**Source: B6A0350-01**			Prepared & Analyzed: 01/06/16						
Nitrite as N	0.0160	0.010	0.0046	mg/L		0.0170			6.06	20	
Matrix Spike (6A06131-MS1)		**Source: B6A0205-01**			Prepared & Analyzed: 01/06/16						
Nitrite as N	0.151	0.012	0.0058	mg/L	0.125	0.0190	106	80-120			

Client Name:	Riverside County Flood Control	Analytical Report:	
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	01-Nov-2016	**Work Order Number:**	**B6A0283**

Received on Ice (Y/N): Yes Temp: 9 °C

Nutrients - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A06131 - Filter if turbid.											
Matrix Spike Dup (6A06131-MSD1)		**Source: B6A0205-01**			Prepared & Analyzed: 01/06/16						
Nitrite as N	0.151	0.012	0.0058	mg/L	0.125	0.0190	106	80-120	0.00	20	
Batch 6A18079 - Acid Digest											
LCS (6A18079-BS1)					Prepared: 01/18/16 Analyzed: 01/20/16						
Total Phosphorus	0.538	0.05	0.02	mg/L	0.525		102	85-115			
Matrix Spike (6A18079-MS1)		**Source: B6A1435-04**			Prepared: 01/18/16 Analyzed: 01/20/16						
Total Phosphorus	1.91	0.05	0.02	mg/L	0.525	1.31	113	80-120			
Matrix Spike Dup (6A18079-MSD1)		**Source: B6A1435-04**			Prepared: 01/18/16 Analyzed: 01/20/16						
Total Phosphorus	1.91	0.05	0.02	mg/L	0.525	1.31	114	80-120	0.157	20	

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Client Name:	Riverside County Flood Control	Analytical Report:	Page 11 of 19
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	01-Nov-2016	**Work Order Number:**	**B6A0283**

Received on Ice (Y/N): Yes Temp: 9 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A06072 - EPA 200.2 SOP M02C											
Blank (6A06072-BLK1)				Prepared & Analyzed: 01/06/16							
Mercury	ND	0.20	0.055	ug/L							
LCS (6A06072-BS1)				Prepared & Analyzed: 01/06/16							
Mercury	3.66	0.20	0.055	ug/L	3.34		110	85-115			
LCS Dup (6A06072-BSD1)				Prepared & Analyzed: 01/06/16							
Mercury	3.52	0.20	0.055	ug/L	3.34		105	85-115	4.10	20	
Duplicate (6A06072-DUP1)		**Source: B6A0169-01**		Prepared & Analyzed: 01/06/16							
Mercury	0.195	0.20	0.055	ug/L		0.107			58.3	20	QRPDI, J
Matrix Spike (6A06072-MS1)		**Source: B6A0169-01**		Prepared & Analyzed: 01/06/16							
Mercury	3.73	0.20	0.055	ug/L	3.34	0.107	109	70-130			
Matrix Spike (6A06072-MS2)		**Source: B6A0368-01**		Prepared & Analyzed: 01/06/16							
Mercury	3.37	0.40	0.11	ug/L	3.34	ND	101	70-130			
Matrix Spike Dup (6A06072-MSD1)		**Source: B6A0169-01**		Prepared & Analyzed: 01/06/16							
Mercury	3.58	0.20	0.055	ug/L	3.34	0.107	104	70-130	3.97	20	
Batch 6A07036 - Filter if turbid.-IC											
Blank (6A07036-BLK1)				Prepared & Analyzed: 01/07/16							
Hexavalent Chromium	ND	0.10	0.013	ug/L							
LCS (6A07036-BS1)				Prepared & Analyzed: 01/07/16							
Hexavalent Chromium	4.92	0.10	0.013	ug/L	5.00		98.3	90-110			

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Client Name:	Riverside County Flood Control	Analytical Report:	Page 12 of 19
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	01-Nov-2016	**Work Order Number:**	**B6A0283**

Received on Ice (Y/N): Yes Temp: 9 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A07036 - Filter if turbid.-IC											
LCS Dup (6A07036-BSD1)				Prepared & Analyzed: 01/07/16							
Hexavalent Chromium	4.85	0.10	0.013	ug/L	5.00		97.0	90-110	1.41	20	
Duplicate (6A07036-DUP1)		**Source: B6A0199-01**		Prepared & Analyzed: 01/07/16							
Hexavalent Chromium	0.558	0.10	0.013	ug/L		0.589			5.40	20	
Matrix Spike (6A07036-MS1)		**Source: B6A0292-03**		Prepared & Analyzed: 01/07/16							
Hexavalent Chromium	5.42	0.10	0.013	ug/L	5.00	0.610	96.2	84-122			
Matrix Spike Dup (6A07036-MSD1)		**Source: B6A0292-03**		Prepared & Analyzed: 01/07/16							
Hexavalent Chromium	5.42	0.10	0.013	ug/L	5.00	0.610	96.1	84-122	0.0314	20	
Batch 6A11081 - EPA 200.2 SOP M02C											
Blank (6A11081-BLK1)				Prepared & Analyzed: 01/12/16							
Antimony	ND	0.5	0.2	ug/L							
Arsenic	ND	1.0	0.5	ug/L							
Barium	ND	1.0	1.0	ug/L							
Beryllium	ND	0.5	0.2	ug/L							
Cadmium	ND	0.25	0.12	ug/L							
Total Chromium	ND	0.5	0.4	ug/L							
Copper	ND	0.5	0.2	ug/L							
Lead	ND	0.5	0.2	ug/L							
Nickel	ND	1.0	0.5	ug/L							
Selenium	ND	1.0	0.5	ug/L							
Silver	ND	0.25	0.12	ug/L							
Thallium	ND	1.0	0.5	ug/L							
Zinc	ND	1.0	0.7	ug/L							

Client Name:	Riverside County Flood Control	Analytical Report:	Page 13 of 19
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	01-Nov-2016	**Work Order Number:**	**B6A0283**

Received on Ice (Y/N): Yes Temp: 9 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A11081 - EPA 200.2 SOP M02C											
LCS (6A11081-BS1)				Prepared & Analyzed: 01/12/16							
Antimony	38.8	0.5	0.2	ug/L	40.0		96.9	85-115			
Arsenic	40.3	1.0	0.5	ug/L	40.0		101	85-115			
Barium	38.7	1.0	1.0	ug/L	40.0		96.7	85-115			
Beryllium	38.0	0.5	0.2	ug/L	40.0		94.9	85-115			
Cadmium	39.3	0.25	0.12	ug/L	40.0		98.2	85-115			
Total Chromium	39.2	0.5	0.4	ug/L	40.0		97.9	85-115			
Copper	39.4	0.5	0.2	ug/L	40.0		98.5	85-115			
Lead	39.8	0.5	0.2	ug/L	40.0		99.4	85-115			
Nickel	39.4	1.0	0.5	ug/L	40.0		98.4	85-115			
Selenium	40.0	1.0	0.5	ug/L	40.0		100	85-115			
Silver	36.1	0.25	0.12	ug/L	40.0		90.2	85-115			
Thallium	38.0	1.0	0.5	ug/L	40.0		95.1	85-115			
Zinc	41.0	1.0	0.7	ug/L	40.0		102	85-115			
LCS Dup (6A11081-BSD1)				Prepared & Analyzed: 01/12/16							
Antimony	39.1	0.5	0.2	ug/L	40.0		97.7	85-115	0.743	20	
Arsenic	40.2	1.0	0.5	ug/L	40.0		101	85-115	0.172	20	
Barium	39.3	1.0	1.0	ug/L	40.0		98.2	85-115	1.53	20	
Beryllium	38.2	0.5	0.2	ug/L	40.0		95.5	85-115	0.673	20	
Cadmium	38.8	0.25	0.12	ug/L	40.0		97.0	85-115	1.16	20	
Total Chromium	39.0	0.5	0.4	ug/L	40.0		97.4	85-115	0.514	20	
Copper	39.1	0.5	0.2	ug/L	40.0		97.7	85-115	0.802	20	
Lead	39.8	0.5	0.2	ug/L	40.0		99.5	85-115	0.0594	20	
Nickel	38.7	1.0	0.5	ug/L	40.0		96.9	85-115	1.57	20	
Selenium	39.6	1.0	0.5	ug/L	40.0		99.0	85-115	0.925	20	
Silver	35.6	0.25	0.12	ug/L	40.0		89.0	85-115	1.36	20	
Thallium	38.3	1.0	0.5	ug/L	40.0		95.7	85-115	0.599	20	
Zinc	40.8	1.0	0.7	ug/L	40.0		102	85-115	0.507	20	

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Client Name:	Riverside County Flood Control	Analytical Report:	Page 14 of 19
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	01-Nov-2016	**Work Order Number:**	**B6A0283**

Received on Ice (Y/N): Yes Temp: 9 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A11081 - EPA 200.2 SOP M02C											
Duplicate (6A11081-DUP1)		**Source: B6A0350-01**		Prepared & Analyzed: 01/12/16							
Antimony	0.830	0.5	0.2	ug/L		0.528			44.5	20	QRPDI
Arsenic	1.03	1.0	0.5	ug/L		1.08			5.47	20	
Barium	18.5	1.0	1.0	ug/L		19.7			6.41	20	
Beryllium	ND	0.5	0.2	ug/L		ND				20	
Cadmium	ND	0.25	0.12	ug/L		ND				20	
Total Chromium	1.69	0.5	0.4	ug/L		1.81			6.74	20	
Copper	3.92	0.5	0.2	ug/L		4.15			5.82	20	
Lead	0.349	0.5	0.2	ug/L		0.365			4.55	20	J
Nickel	0.921	1.0	0.5	ug/L		0.993			7.55	20	J
Selenium	ND	1.0	0.5	ug/L		ND				20	
Silver	ND	0.25	0.12	ug/L		ND				20	
Thallium	ND	1.0	0.5	ug/L		ND				20	
Zinc	13.8	1.0	0.7	ug/L		15.1			8.79	20	
Matrix Spike (6A11081-MS1)		**Source: B6A0510-01**		Prepared & Analyzed: 01/12/16							
Antimony	38.0	0.5	0.2	ug/L	40.0	0.461	93.9	70-130			
Arsenic	42.2	1.0	0.5	ug/L	40.0	1.51	102	70-130			
Barium	59.4	1.0	1.0	ug/L	40.0	21.8	94.0	70-130			
Beryllium	39.0	0.5	0.2	ug/L	40.0	ND	97.4	70-130			
Cadmium	39.3	0.25	0.12	ug/L	40.0	ND	98.3	70-130			
Total Chromium	40.7	0.5	0.4	ug/L	40.0	1.78	97.3	70-130			
Copper	41.3	0.5	0.2	ug/L	40.0	3.50	94.6	70-130			
Lead	38.6	0.5	0.2	ug/L	40.0	0.375	95.5	70-130			
Nickel	39.4	1.0	0.5	ug/L	40.0	1.24	95.4	70-130			
Selenium	39.2	1.0	0.5	ug/L	40.0	ND	98.0	70-130			
Silver	35.1	0.25	0.12	ug/L	40.0	ND	87.8	70-130			
Thallium	36.5	1.0	0.5	ug/L	40.0	ND	91.3	70-130			
Zinc	49.3	1.0	0.7	ug/L	40.0	9.96	98.2	70-130			

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Client Name:	Riverside County Flood Control	Analytical Report:	Page 15 of 19
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	01-Nov-2016	**Work Order Number:**	**B6A0283**

Received on Ice (Y/N): Yes Temp: 9 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A11081 - EPA 200.2 SOP M02C											
Matrix Spike (6A11081-MS2)		**Source: B6A0534-01**		Prepared & Analyzed: 01/12/16							
Antimony	36.3	0.5	0.2	ug/L	40.0	0.738	88.9	70-130			
Arsenic	41.4	1.0	0.5	ug/L	40.0	1.44	99.9	70-130			
Barium	57.2	1.0	1.0	ug/L	40.0	18.4	97.1	70-130			
Beryllium	38.6	0.5	0.2	ug/L	40.0	ND	96.4	70-130			
Cadmium	39.3	0.25	0.12	ug/L	40.0	ND	98.2	70-130			
Total Chromium	40.9	0.5	0.4	ug/L	40.0	2.63	95.8	70-130			
Copper	46.4	0.5	0.2	ug/L	40.0	8.14	95.7	70-130			
Lead	39.8	0.5	0.2	ug/L	40.0	1.21	96.5	70-130			
Nickel	39.0	1.0	0.5	ug/L	40.0	1.17	94.6	70-130			
Selenium	39.1	1.0	0.5	ug/L	40.0	ND	97.8	70-130			
Silver	35.5	0.25	0.12	ug/L	40.0	ND	88.8	70-130			
Thallium	36.7	1.0	0.5	ug/L	40.0	ND	91.7	70-130			
Zinc	71.8	1.0	0.7	ug/L	40.0	31.4	101	70-130			
Matrix Spike Dup (6A11081-MSD1)		**Source: B6A0510-01**		Prepared & Analyzed: 01/12/16							
Antimony	38.3	0.5	0.2	ug/L	40.0	0.461	94.6	70-130	0.775	20	
Arsenic	42.3	1.0	0.5	ug/L	40.0	1.51	102	70-130	0.296	20	
Barium	61.3	1.0	1.0	ug/L	40.0	21.8	98.7	70-130	3.09	20	
Beryllium	38.1	0.5	0.2	ug/L	40.0	ND	95.2	70-130	2.32	20	
Cadmium	39.5	0.25	0.12	ug/L	40.0	ND	98.8	70-130	0.570	20	
Total Chromium	40.8	0.5	0.4	ug/L	40.0	1.78	97.6	70-130	0.281	20	
Copper	41.8	0.5	0.2	ug/L	40.0	3.50	95.7	70-130	1.11	20	
Lead	38.8	0.5	0.2	ug/L	40.0	0.375	96.1	70-130	0.601	20	
Nickel	39.5	1.0	0.5	ug/L	40.0	1.24	95.7	70-130	0.329	20	
Selenium	39.3	1.0	0.5	ug/L	40.0	ND	98.2	70-130	0.210	20	
Silver	35.4	0.25	0.12	ug/L	40.0	ND	88.4	70-130	0.673	20	
Thallium	36.8	1.0	0.5	ug/L	40.0	ND	92.0	70-130	0.802	20	
Zinc	50.3	1.0	0.7	ug/L	40.0	9.96	101	70-130	2.18	20	

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CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035

Client Name:	Riverside County Flood Control	Analytical Report:	Page 16 of 19
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	01-Nov-2016	**Work Order Number:**	**B6A0283**

Received on Ice (Y/N): Yes Temp: 9 °C

Diesel Range Organics by EPA 8015 - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A09065 - Microextraction											
Blank (6A09065-BLK1)				Prepared & Analyzed: 01/09/16							
Diesel Range Hydrocarbons	ND	5.0	0.46	mg/L							
Surrogate: Decachlorobiphenyl	*0.85*			mg/L	*1.14*		*74.4*	*35-120*			
LCS (6A09065-BS1)				Prepared & Analyzed: 01/09/16							
Diesel Range Hydrocarbons	41.0	5.0	0.46	mg/L	45.7		89.7	61-128			
Surrogate: Decachlorobiphenyl	*0.86*			mg/L	*1.14*		*75.2*	*35-120*			
LCS Dup (6A09065-BSD1)				Prepared & Analyzed: 01/09/16							
Diesel Range Hydrocarbons	40.2	5.0	0.46	mg/L	45.7		87.9	61-128	1.99	20	
Surrogate: Decachlorobiphenyl	*0.85*			mg/L	*1.14*		*74.8*	*35-120*			
Matrix Spike (6A09065-MS1)		**Source: B6A0417-03**		Prepared & Analyzed: 01/09/16							
Diesel Range Hydrocarbons	39.2	5.0	0.46	mg/L	45.7	ND	85.7	44-132			
Surrogate: Decachlorobiphenyl	*0.89*			mg/L	*1.14*		*78.0*	*35-120*			
Matrix Spike Dup (6A09065-MSD1)		**Source: B6A0417-03**		Prepared & Analyzed: 01/09/16							
Diesel Range Hydrocarbons	36.3	5.0	0.46	mg/L	45.7	ND	79.5	44-132	7.59	40	
Surrogate: Decachlorobiphenyl	*0.86*			mg/L	*1.14*		*75.6*	*35-120*			

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Client Name: Riverside County Flood Control
Contact: Rebekah Guill
Address: 1995 Market Street
Riverside, CA 92501

Report Date: 01-Nov-2016

Project Name: WWR Outfalls Wet 1&2 15-16

Project Number: 719RMS782

Work Order Number: B6A0283

Received on Ice (Y/N): Yes Temp: 9 °C

Gasoline Range Organics by EPA 8015 - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A07055 - Purge and Trap											
Blank (6A07055-BLK1)				Prepared & Analyzed: 01/07/16							
Gasoline Range Organics	0.0242	0.050	0.024	mg/L							J
Surrogate: a,a,a-Trifluorotoluene	*0.10*			mg/L	*0.215*		*47.4*	*10-110*			
LCS (6A07055-BS1)				Prepared & Analyzed: 01/07/16							
Gasoline Range Organics	2.44	0.050	0.024	mg/L	2.32		105	69-145			
Surrogate: a,a,a-Trifluorotoluene	*0.21*			mg/L	*0.215*		*95.9*	*10-110*			
LCS Dup (6A07055-BSD1)				Prepared & Analyzed: 01/07/16							
Gasoline Range Organics	2.38	0.050	0.024	mg/L	2.32		103	69-145	2.40	40	
Surrogate: a,a,a-Trifluorotoluene	*0.20*			mg/L	*0.215*		*92.8*	*10-110*			
Matrix Spike (6A07055-MS1)		**Source: B6A0233-01**		Prepared & Analyzed: 01/07/16							
Gasoline Range Organics	2.99	0.050	0.024	mg/L	2.50	ND	120	63-140			
Surrogate: a,a,a-Trifluorotoluene	*0.22*			mg/L	*0.215*		*101*	*10-110*			
Matrix Spike Dup (6A07055-MSD1)		**Source: B6A0233-01**		Prepared & Analyzed: 01/07/16							
Gasoline Range Organics	2.32	0.050	0.024	mg/L	2.50	ND	92.7	63-140	25.3	40	
Surrogate: a,a,a-Trifluorotoluene	*0.19*			mg/L	*0.215*		*88.4*	*10-110*			

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Client Name:	Riverside County Flood Control	Analytical Report:	Page 18 of 19
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	01-Nov-2016	**Work Order Number:**	**B6A0283**

Received on Ice (Y/N): Yes Temp: 9 °C

Multiple Tube Fermentation - Multiple Dilution - SM 9221 B, E, F series - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A05142 - BT-Analyzed as rec											
Duplicate (6A05142-DUP1)		**Source: B6A0205-01**		Prepared & Analyzed: 01/05/16							
Total Coliform	>16000	20	20	MPN/100ml		ND				259	

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CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035

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Client Name: Riverside County Flood Control
Contact: Rebekah Guill
Address: 1995 Market Street
Riverside, CA 92501

Report Date: 01-Nov-2016

Project Name: WWR Outfalls Wet 1&2 15-16

Project Number: 719RMS782

Work Order Number: B6A0283

Received on Ice (Y/N): Yes Temp: 9 °C

Notes and Definitions

J	Estimated value
NRLrcf	RL for analyte does not meet the SWAMP/ CTR required RL.
QMint	Due to matrix interference, the MS and/or MSD did not meet laboratory acceptance criteria.
QRPDl	Analyte concentration was below range for valid RPD determination.
ND:	Analyte NOT DETECTED at or above the Method Detection Limit **(if MDL is reported)**, otherwise at or above the Reportable Detection Limit (RDL)
NR:	Not Reported
RDL:	Reportable Detection Limit
MDL:	Method Detection Limit
* / "' :	NELAP does not offer accreditation for this analyte/method/matrix combination

Approval

Enclosed are the analytical results for the submitted sample(s). Babcock Laboratories certify the data presented as part of this report meet the minimum quality standards in the referenced analytical methods. Any exceptions have been noted. Babcock Laboratories and its officers and employees assume no responsibility and make no warranty, express or implied, for uses or interpretations made by any recipients, intended or unintended, of this report.

Amanda Porter

cc:

e-Standard_No Alias.rpt

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Client Name:	Riverside County Flood Control	Analytical Report:	Page 1 of 2
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	01-Nov-2016	**Work Order Number:**	**B6A0283**

Received on Ice (Y/N): Yes   Temp: 9 °C

E.S. Babcock Sons, Inc. Environmental Laboratories
(951) 653-3351 FAX (951) 653-1662
www.babcocklabs.com

Chain of Custody Sample Information Record

Client: RCFC & WCD   Contact: Rebekah Guill / Penny Nanney   Phone No. (951) 955.2901 / 955.1325

FAX No. 951.788.9965   Email: rguill@rcflood.org pnanney@rcflood.org

Project Name: WWR Outfalls Wet 2
Station ID: 719RMS782
Station Location: Ramsey Street Storm Drain

Turn Around Time: Routine *3-5 Day Rush *48 Hour Rush *24 Hour Rush
*Lab TAT Approval: By: *Additional Charges May Apply

Additional Reporting Requests
Include QC Data Package: ☐ Yes ☐ No
FAX Results: ☐ Yes ☐ No
Email Results: ☐ Yes ☐ No
State EDT: ☐ Yes ☐ No
(Include Source Number in Notes)

Sampler Information
TEAM Names: MP/MW
Employer: RCFC & WCD
LEAD Signature:

Sample ID	Date	Time	Unpreserved	H_2SO_4	HCl	HNO_3	$Na_2S_2O_3$	NaOH	ZnAce/NaOH	NaOH / Zn Acetate	NH_4Cl	MCAA	Total # of Containers	Routine	Resample	Special	See Project List	Trip Blank	Matrix	Notes (Bottle # / Flow)
1516-W2-782 -01	1/5/16	1110	3	2	4	1	1						11				X		SW	

Matrix: SW = Storm Water, NW = Nonstorm Water, GW = Groundwater, S = Soil, SG = Sludge, L = Liquid, M = Miscellaneous

Notes: * 4 HCL VOAs collected only if sheen observed

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
	Mike Phipps / RCFC&WCD	1/5/16		
		1/5/16 1010	Nichole	Nicole Greenwood / ESB

(For Lab Use Only) Sample Integrity Upon Receipt
Sample(s) Submitted on Ice? Yes No
Custody Seal(s) Intact? Yes No N/A
Sample(s) Intact? Yes No
Temperature 9 °C ☐ Cooler Blank
Lab Notes

Lab No. B6A0283 AB
Page 1 of 1

JAN - 5 2016

ESB
BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years

Client Name: Riverside County Flood Control
Contact: Rebekah Guill
Address: 1995 Market Street
Riverside, CA 92501

Report Date: 01-Nov-2016

Project Name: WWR Outfalls Wet 1&2 15-16

Project Number: 719RMS782

Work Order Number: B6A0283

Received on Ice (Y/N): Yes Temp: 9 °C

Project Name WWR Outfalls Wet 1 & 2
FY2014-15

Constituent Count: 34
Source: 2013 ORDER WWR TABLE L-1

Constituent	Hydron #	Method	RL	unit
Total Metals				
Antimony	1065	EPA 200.8	0.5	ug/L
Arsenic	1070	EPA 200.8	0.3	ug/L
Barium	1090	EPA 200.8	1.0	ug/L
Beryllium	1120	EPA 200.8	0.5	ug/L
Cadmium	1145	EPA 200.8	0.01	ug/L
Chromium	1180	EPA 200.8	0.1	ug/L
Chromium (VI)	1185	EPA 218.6	0.1	ug/L
Copper	1210	EPA200.8	0.01	ug/L
Lead	1290	EPA 200.8	0.01	ug/L
Mercury	1310	EPA 200.8	0.0002	ug/L
Nickel	1320	EPA 200.8	0.02	ug/L
Selenium	1520	EPA 200.8	0.3	ug/L
Silver	1535	EPA 200.8	0.02	ug/L
Thallium	1665	EPA 200.8	1.0	ug/L
Zinc	1700	EPA 200.8	0.1	ug/L
Field Parameters (field crews)				
pH	1705	field meter	0-14	
Temperature	1655	field meter	NA	°C
Dissolved Oxygen	1435	field meter	0.5	mg/L
Specific Conductivity	1200	field meter	1	umhos/cm
Turbidity	1690	field meter	0.2	NTU

Constituent	Hydron #	Method	RL	unit
Conventionals and Nutrients				
Nitrogen, Ammonia (as N)	1051	SM 4500 NH3H	0.1	mg/L
Nitrogen, Nitrite (as N)	1345	SM 4500 NO2 B	0.01	mg/L
Nitrogen, Nitrate (as N)	1340	EPA 300.0	0.01	mg/L
Nitrogen, Total	1355	Calculation	--	mg/L
Nitrogen, Total Kjeldahl (as N)	1360	EPA 351.2	0.5	mg/L
Phosphorus, ortho (as P)	1480	SM 4500 P E	0.01	mg/L
Phosphorus, total (as P)	1485	SM 4500 PBE	0.05	mg/L
Solids, Total Dissolved (TDS)	1625	SM 2540 C	10	mg/L
Solids, Total Suspended (TSS)	1630	SM 2540 D	0.5	mg/L
MBAS (Surfactants)	2345	SM 5540 C	--	mg/L
Ethylene-glycol	2300	EPA 8015 B	10	mg/L
Oil & Grease	1380	EPA 1664 A	--	mg/L
Petroleum Hydrocarbons, total	1452	EPA 8015 M	--	mg/L
Bacteriological				
E. coli	1077	SM 9221 E	2	MPN/100 mL

NOTES:
Reporting Limit (RL) based on State Board Minimum Levels or SWAMP Recommended RL (most conservative).

Attn: E.S. Babcock & Sons, Inc.
c/o Taylor Cariaga and Sushmitha Reddy

WWR OUTFALLS WET 1, 2 *2015-2016*

mailing
P.O Box 432
Riverside, CA 92502-0432

location
6100 Quail Valley Court
Riverside, CA 92507-0704

P 951 653 3351
F 951 653 1662
www.babcocklabs.com

CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119

WATER POLLUTION PREVENTION
FUNDED BY THE CITIES AND COUNTY OF RIVERSIDE

FIELD DATA SHEET

Rev 08/11/2015

QAp 10/14/2015

STATION ID: 719RMS782 **SAMPLE DATE** (MM/DD/YYYY): 10/04/2015

STATION NAME: 782 - Ramsey Street Storm Drain WATERSHED: ☐SAR ☐SMR ☑WWR

PROJECT NAME: WWR Monitoring Program Within: ☐Unincorp. or ☑City of Banning

CONVEYANCE TYPE: Rip Rap Channel ☐Receiving Water ☐Within IAH

GPS INFO: Lat 33° 55' 30.5" Long -116° 51' 31.5" GPS Unit: NA Standard Location ☑Outfall, Owner: Banning

PRINTED NAMES of Sampling Team: Mike Phipps / Kevin Cunningham ☐Other:

SIGNATURE of lead sampler: [signature] Sampling AGENCY: RCFC

SAMPLE INFORMATION

☐ VISITED, NOT SAMPLED (TIME:______)

EVENT CATEGORY:
☑ Wet Weather (Storm) OR
☐ Dry Weather
☑1st ☐2nd ☐3rd ☐4th
☐ Recon, IC/ID, or Complaint
☐ Other

SAMPLE ID(s) [# of Bottles]: 1516-W1-782-01 [11], 1516-XX-XXXX-01-C [__], 1516-XX-XXXX-XX [__]

STREAM FLOW:
Dry: ☐Yes ☑No Ponded: ☐Yes ☑No
Rising Groundwater: ☐Yes ☑No
Connects to Surface Receiving Water ☐Yes ☐No
Dry weather event u/s influence: ☐Yes ☐No

TYPE (check all that apply):
☑ **Grab** (-01) [SAMPLE TIME: 13:45]
☐ **Composite**(-01-C) (COC last aliquot)
☐ **Field DUP**(-02) ☐ **Field Blank**(-03)
☐ **Travel Blank**(-04) ☐ Other:

FIELD PARAMETERS

Time Measured: 14:15

	Result (primary/dup)	Units	Meter	Calibration Date
☑ Water Temp	23.00	°C	Quanta	10/1/15
☑ pH	6.24	units	↓	↓
☑ EC	0.179	mS/cm	179 µS/cm	
☑ Turbidity	20.4	NTU		
☑ DO	5.23	mg/L		
☐				
☐				
☐				

FLOW ESTIMATION:

☐ USGS Gauge height/stage ____ ft Q (cfs) = ____

[Gauge Name/No.: ____]

☑ Calculation by visual measurement: Q (cfs) = 0.267

= [Coef(1,2/3, 1)]*[depth 0.1 ft]*[width 0.8 ft]*[vel 3.34 fps]

Circular pipe: [vel___fps][depth___ft][width___ft][R=___ft]

SITE CONDITIONS

PRECIPITATION:
NOW: ☐ None ☑ Drizzle/Sprinkle ☐ Rain ☐ Hail/Snow
[APPROX. STORM START TIME: 07:55]
Is there >72 hrs since previous rainfall event? ☑Yes ☐ No
(A measurable rainfall event is an event with >0.1 inch of rain)

ODOR: ☑None ☐ Sulfides ☐ Sewage ☐ Smoke
☐ Petroleum ☐ Other:

☑Floatables Some trash ☑Settleables silt
☐ Vegetation ☐ Staining

COLOR: ☐ Colorless ☐ Green ☑ Yellow ☐ Brown ☐ Other

CLARITY: ☑Clear (see bottom) ☐ Cloudy ☐ Murky
Sheen Present: ☐ Yes ☑No

TRASH: ☑Yes ☐ No
From: ☑Flows ☐ Litter ☐ Dumping ☐ Other

COMPOSITE Samples: Auto/Grab, Flow/Time Weighted, ___Hrs

	Time	H(in.)	Flow(cfs)	%		Time	H(in.)	Flow(cfs)	%
1					13				
2					14				
3					15				
4					16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				
12					24				

Observations/Notes

☑ Photograph(s)

- No IC/ID concerns
- Some trash around outfall area
- Periods of drizzle during sampling

☐ **Associated monitoring u/s, d/s** *(circle one or both and complete required FDS(s))* **at:**

E.S. Babcock Sons, Inc. Environmental Laboratories
(951) 653-3351 FAX (951) 653-1662
www.babcocklabs.com

Chain of Custody Sample Information Record

Client: RCFC & WCD
Contact: Rebekah Guill / Penny Nanney
Phone No. (951) 955.2901 / 955.1325
FAX No. 951.788.9965
Email: rguill@rcflood.org pnanney@rcflood.org

Project Name: WWR Outfalls Wet 1
Station ID: 719RMS782
Station Location: Ramsey Street Storm Drain

Turn Around Time: Routine / *3-5 Day Rush / *48 Hour Rush / *24 Hour Rush
*Lab TAT Approval: By: *Additional Charges May Apply

Additional Reporting Requests
Include QC Data Package: ☐ Yes ☐ No
FAX Results: ☐ Yes ☐ No
Email Results: ☐ Yes ☐ No
State EDT: ☐ Yes ☐ No
(Include Source Number in Notes)

Sampler Information
TEAM Names: MP / KF
Employer: RCFC & WCD
LEAD Signature: [signature]

Sample ID	Date	Time	Unpreserved	H_2SO_4	HCl	HNO_3	$Na_2S_2O_2$	NaOH	ZnAce/NaOH	NaOH / Zn Acetate	NH_4Cl	MCAA	Total # of Containers	Routine	Resample	Special	See Project List	Trip Blank	Matrix	Bottle #	Flow
1516-W1-782 -01	10/4/15	13:45	3	2	4	1	1						11				X		SW		

Matrix: SW = Storm Water, NW = Nonstorm Water, GW = Groundwater, S = Soil, SG = Sludge, L = Liquid, M = Miscellaneous

Notes: * 4 HCL VOAs collected only if sheen observed

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
[signature]	MIKE PHIPPS / RCFC&WCD	10/4/15/15:20	[signature] 10/4/15	Liezel Saad @ 15:20

(For Lab Use Only) Sample Integrity Upon Receipt				Temperature	Lab Notes
Sample(s) Submitted on Ice?	Yes	No		15.9 °C	
Custody Seal(s) Intact?	Yes	No	N/A	☐ Cooler Blank	
Sample(s) Intact?	Yes	No			

Lab No. ____

719RMS782 –Ramsey Street Storm Drain- WWR Core Wet 1 Event - 10/04/15

Photo 1: Upstream view of sampling location (arrival).

Photo 2: Downstream view from outfall (arrival).

719RMS782 –Ramsey Street Storm Drain- WWR Core Wet 1 Event - 10/04/15

Photo 3: Upstream view of sampling location (departure).

Photo 4: Downstream view from outfall (departure).

719RMS782 –Ramsey Street Storm Drain- WWR Core Wet 1 Event - 10/04/15

Photo 5: Upstream view of Smith Creek.

Photo 6: Downstream view of Smith Creek.

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QAp
11/17/2015

Client Name:	Riverside County Flood Control	Analytical Report:	Page 1 of 1
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA, 92501	Project Number:	719RMS782
		Work Order Number:	**B5J0255**

Report Date: 31-Oct-2015 Received on Ice (Y/N Yes Temp: 16 °C

Attached is the analytical report for the sample(s) received for your project. Below is a list of the individual sample descriptions with the corresponding laboratory number(s). Also, enclosed is a copy of the Chain of Custody document (if received with your sample(s)). Please note any unused portion of the sample(s) may be responsibly discarded after 30 days from the above report date, unless you have requested otherwise.

Thank you for the opportunity to serve your analytical needs. If you have any questions or concerns regarding this report please contact our client service department.

Sample Identification

Lab Sample #	Client Sample ID	Matrix	Date Sampled	By	Date Submitted	By
B5J0255-01	1516-W1-782-01	Liquid	10/4/15 13:45	MP/KC	10/4/15 15:20	Mike Phipps

GOOD

Approval

Babcock Laboratories certify that the information presented as part of this report meets the minimum quality standards in the analytical methods, if referenced. Exceptions have been noted. Babcock Laboratories and its officers and employees assume no responsibility and make no warranty, express or implied, for uses or interpretations made by any recipients, intended or unintended, of this report.

cc:

mailing
P.O. Box 432
Riverside, CA 92502-0432

location
6100 Quail Valley Court
Riverside, CA 92507-0704

P 951 653 3351
F 951 653 1662
www.babcocklabs.com

NELAP no. 02101CA
CA Elap no. 2698
EPA no. CA00102

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Client Name:	Riverside County Flood Control	Analytical Report:	Page 1 of 2
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA, 92501	Project Number:	719RMS782
		Work Order Number:	**B5J0255**

Report Date: 31-Oct-2015

Received on Ice (Y/N Yes Temp: 16 °C

E.S. Babcock Sons, Inc. Environmental Laboratories
(951) 653-3351 FAX (951) 653-1662
www.babcocklabs.com

Chain of Custody Sample Information Record

Client:	RCFC & WCD
FAX No.	951.788.9965
Contact:	Rebekah Guill / Penny Nanney
Email:	rguill@rcflood.org pnanney@rcflood.org
Phone No.	(951) 955.2901 / 955.1325
Project Name:	WWR Outfalls Wet 1
Station ID:	719RMS782
Station Location:	Ramsey Street Storm Drain
Turn Around Time:	Routine / *3-5 Day Rush / *48 Hour Rush / *24 Hour Rush
*Lab TAT Approval:	By: *Additional Charges May Apply

Additional Reporting Requests
Include QC Data Package: ☐ Yes ☐ No
FAX Results: ☐ Yes ☐ No
Email Results: ☐ Yes ☐ No
State EDT: ☐ Yes ☐ No
(Include Source Number in Notes)

Sampler Information
TEAM Names: MP/ KC
Employer: RCFC & WCD
LEAD Signature: [signature]

Sample ID	Date	Time	Unpreserved	H_2SO_4	HCl	HNO_3	$Na_2S_2O_3$	NaOH	ZnAce/NaOH	NaOH / Zn Acetate	NH_4Cl	MCAA	Total # of Containers	Routine	Resample	Special	See Project List	Trip Blank	Matrix	Bottle #	Flow
1516-W1-782 -01	10/4/15	13:45	3	2	4	1	1						11				X		SW		

Matrix: SW = Storm Water, NW = Nonstorm Water, GW = Groundwater, S = Soil, SG = Sludge, L = Liquid, M = Miscellaneous

Notes: * 4 HCL VOAs collected only if sheen observed

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
[signature]	MIKE PHIPPS / RCFC&WCD	10/4/15/15:20	Saad 10/4/15	Liezel Saad @ 15:20

(For Lab Use Only) Sample Integrity Upon Receipt

Sample(s) Submitted on Ice?	Yes	No	
Custody Seal(s) Intact?	Yes	No	N/A
Sample(s) Intact?	Yes	No	

Temperature 15.9 °C ☐ Cooler Blank

Lab Notes

Lab No. B5J0255
Page 1 of 1 AB

OCT - 5 2015

mailing P.O. Box 432 Riverside, CA 92502-0432 | *location* 6100 Quail Valley Court Riverside, CA 92507-0704 | P 951 653 3351 F 951 653 1662 www.babcocklabs.com | NELAP no. 02101CA CA Elap no. 2698 EPA no. CA00102

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The Standard of Excellence for Over 100 Years

Client Name: Riverside County Flood Control
Contact: Rebekah Guill
Address: 1995 Market Street
Riverside, CA, 92501

Project Name: WWR Outfalls Wet 1&2 15-16
Project Number: 719RMS782
Work Order Number: B5J0255

Report Date: 31-Oct-2015

Received on Ice (Y/N Yes

Temp: 16 °C

Project Name WWR Outfalls Wet 1 & 2
FY2014-15

Constituent Count: 34
Source: 2013 ORDER WWR TABLE L-1

Constituent	Hydron #	Method	RL	unit
Total Metals				
Antimony	1065	EPA 200.8	0.5	ug/L
Arsenic	1070	EPA 200.8	0.3	ug/L
Barium	1090	EPA 200.8	1.0	ug/L
Beryllium	1120	EPA 200.8	0.5	ug/L
Cadmium	1145	EPA 200.8	0.01	ug/L
Chromium	1180	EPA 200.8	0.1	ug/L
Chromium (VI)	1185	EPA 218.6	0.1	ug/L
Copper	1210	EPA200.8	0.01	ug/L
Lead	1290	EPA 200.8	0.01	ug/L
Mercury	1310	EPA 200.8	0.0002	ug/L
Nickel	1320	EPA 200.8	0.02	ug/L
Selenium	1520	EPA 200.8	0.3	ug/L
Silver	1535	EPA 200.8	0.02	ug/L
Thallium	1665	EPA 200.8	1.0	ug/L
Zinc	1700	EPA 200.8	0.1	ug/L
Field Parameters (field crews)				
pH	1705	field meter	0-14	
Temperature	1655	field meter	NA	°C
Dissolved Oxygen	1435	field meter	0.5	mg/L
Specific Conductivity	1200	field meter	1	umhos/cm
Turbidity	1690	field meter	0.2	NTU

Constituent	Hydron #	Method	RL	unit
Conventionals and Nutrients				
Nitrogen, Ammonia (as N)	1051	SM 4500 NH3H	0.1	mg/L
Nitrogen, Nitrite (as N)	1345	SM 4500 NO2 B	0.01	mg/L
Nitrogen, Nitrate (as N)	1340	EPA 300.0	0.01	mg/L
Nitrogen, Total	1355	Calculation	--	mg/L
Nitrogen, Total Kjeldahl (as N)	1360	EPA 351.2	0.5	mg/L
Phosphorus, ortho (as P)	1480	SM 4500 P E	0.01	mg/L
Phosphorus, total (as P)	1485	SM 4500 PBE	0.05	mg/L
Solids, Total Dissolved (TDS)	1625	SM 2540 C	10	mg/L
Solids, Total Suspended (TSS)	1630	SM 2540 D	0.5	mg/L
MBAS (Surfactants)	2345	SM 5540 C	--	mg/L
Ethylene-glycol	2300	EPA 8015 B	10	mg/L
Oil & Grease	1380	EPA 1664 A	--	mg/L
Petroleum Hydrocarbons, total	1452	EPA 8015 M	--	mg/L
Bacteriological				
E. coli	1077	SM 9221 E	2	MPN/100 mL

NOTES:
Reporting Limit (RL) based on State Board Minimum Levels or SWAMP Recommended RL (most conservative).

Attn: E.S. Babcock & Sons, Inc.
c/o Taylor Cariaga and Sushmitha Reddy

WWR OUTFALLS WET 1, 2 *2015-2016*

mailing
P.O. Box 432
Riverside, CA 92502-0432

location
6100 Quail Valley Court
Riverside, CA 92507-0704

P 951 653 3351
F 951 653 1662
www.babcocklabs.com

NELAP no. 02101CA
CA Elap no. 2698
EPA no. CA00102

Certificate of Analysis

Report Date: 10/13/15 16:04
Received Date: 10/07/15 10:20
Turnaround Time: Normal

Project: B5J0255

Phones: (951) 653-3351
Fax: (951) 653-1662

P.O. #:

Attn: Taylor Cariaga

Client: E.S. Babcock & Sons, Inc.
P.O. Box 432
Riverside, CA 92502-0432

Dear Taylor Cariaga :

Enclosed are the results of analyses for samples received 10/7/2015 with the Chain of Custody document. The samples were received in good condition, at 4.3 °C and on ice. All analysis met the method criteria except as noted below or in the report with data qualifiers.

Lab ID: 5J07029-01 **Sample ID: B5J0255-01** **Matrix:** Water
Sampled by: MP/KC **Sampled: 10/04/15 13:45**

Analyte	Result	MDL	MRL	Units	Dil	Method	Prepared	Analyzed	Batch	Qualifier
Ethylene glycol	**140**		50	mg/l	5	EPA 8015B	10/9/15	10/12/15 11:29	W5J0472	

Weck Laboratories, Inc 14859 East Clark Avenue, City of Industry, California 91745-1396 (626) 336-2139 FAX (626) 336-2634
www.wecklabs.com

Certificate of Analysis

Quality Control Section

Glycols by EPA Method 8015B - Quality Control

Batch W5J0472 - EPA 8015B

Blank (W5J0472-BLK1) — **Prepared: 10/09/15 Analyzed: 10/09/15 19:52**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Ethylene glycol		ND		mg/l					

Blank (W5J0472-BLK2) — **Prepared: 10/09/15 Analyzed: 10/12/15 11:03**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Ethylene glycol		ND	QC-2	mg/l					

LCS (W5J0472-BS1) — **Prepared: 10/09/15 Analyzed: 10/09/15 18:04**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Ethylene glycol		91.7		mg/l	100	92	46-129		

LCS (W5J0472-BS2) — **Prepared: 10/09/15 Analyzed: 10/12/15 10:10**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Ethylene glycol		87.9	QC-2	mg/l	100	88	46-129		

Matrix Spike (W5J0472-MS1) — **Source: 5I29007-01** — **Prepared: 10/09/15 Analyzed: 10/09/15 18:31**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Ethylene glycol	ND	110		mg/l	100	110	57-127		

Matrix Spike Dup (W5J0472-MSD1) — **Source: 5I29007-01** — **Prepared: 10/09/15 Analyzed: 10/09/15 18:58**

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Ethylene glycol	ND	86.5		mg/l	100	87	57-127	24	25

Weck Laboratories, Inc 14859 East Clark Avenue, City of Industry, California 91745-1396 (626) 336-2139 FAX (626) 336-2634
www.wecklabs.com

Certificate of Analysis

Notes:
The Chain of Custody document is part of the analytical report.
Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless otherwise specified.

An Absence of Total Coliform meets the drinking water standards as established by the State of California Department of Health Services.
The Reporting Limit (RL) is referenced as laboratory's Practical Quantitation Limit (PQL).
For Potable water analysis, the Reporting Limit (RL) is referenced as Detection Limit for reporting purposes (DLRs) defined by EPA.

If sample collected by Weck Laboratories, sampled in accordance to lab SOP MIS002

Authorized Signature
Contact: Kim G. Tu
(Project Manager)

ELAP # 1132
LACSD # 10143
NELAC #4047-002 ORELAP

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Weck Laboratories certifies that the test results meet all requirements of NELAC unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Flags for Data Qualifiers:

QC-2	This QC sample was reanalyzed to complement samples that require re-analysis on different date. See analysis date.
ND	NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL).
Sub	Subcontracted analysis, original report enclosed.
DL	Method Detection Limit
RL	Method Reporting Limit
MDA	Minimum Detectable Activity
NR	Not Reportable

Weck Laboratories, Inc 14859 East Clark Avenue, City of Industry, California 91745-1396 (626) 336-2139 FAX (626) 336-2634
www.wecklabs.com

SUBCONTRACT ORDER

Printed: 10/5/2015 13:35

Babcock Laboratories, Inc.

B5J0255 5J07029

SENDING LABORATORY:

Babcock Laboratories, Inc.
6100 Quail Valley Court
Riverside, CA 92507-0704
Phone: (951) 653-3351
Fax: (951) 653-1662
Project Manager: Taylor D. Cariaga

RECEIVING LABORATORY:

Weck - Subcontract
14859 East Clark Avenue
Industry, CA 91745
Phone :(626) 336-2139
Fax: (626) 336-2634

Copy/Relog from B5J0252.
Client: Riverside County Flood Control
Sampler: MP/KC

Analysis	Due	Expires Regulatory Days Past Date Sampled	Laboratory ID	Comments	
Sample ID: B5J0255-01 **Liquid**		**Sampled: 10/04/15 13:45**	**1516-W1-782-01**		***Proj.No.:*****719RMS782**
Subout	10/29/15 17:00	10/11/15 13:45	Ethlyene Glycol		
Containers Supplied:					
Voa Vial -Unpres (A)	Voa Vial -Unpres (B)				

All Containers Intact: _____ Yes _____ No Samples Preserved Properly: _____ Yes _____ No

Samples Received at 4.3 oC Sample Lables / COC Agree: _____ Yes _____ No Custody Seals Present: _____ Yes _____ No

Please forward all acknowledgements of sample receipt, final reports and invoices to data@babcocklabs.com
NO HARDCOPIES PLEASE.

Released By	Date	Received By	Date
David Kelley	10/6/15	Fedex	
Fedex	10.7.15 1020	[illegible signature]	

WECK LABORATORIES, INC.

Sample Receipt Acknowledgement

WORK ORDER:	5J07029	**Printed:**	10/13/2015 3:55:21PM
Client:	E.S. Babcock & Sons, Inc.	**Project Manager:**	Kim G. Tu
Project:	8000 series	**Project Number:**	B5J0255

Report To:
E.S. Babcock & Sons, Inc.
Taylor Cariaga
P.O. Box 432
Riverside, CA 92502-0432
Phone: (951) 653-3351
Fax: (951) 653-1662

Invoice To:
E.S. Babcock & Sons, Inc.
Caroline Sangari
P.O. Box 432
Riverside, CA 92502-0432
Phone :(951) 653-3351
Fax: (951) 653-1662

Date Due:	10/21/15 15:00 (10 day TAT)		
Received By:	Algabriel T. Holanda	**Date Received:**	10/07/15 10:20
Logged In By:	Algabriel T. Holanda	**Date Logged In:**	10/07/15 13:06

Samples Received at:	**4.3°C**	Sample labels & COC agree	**Yes**	Sufficient holding time for all tests	**Yes**
All containers intact:	**Yes**	Samples preserved properly	**Yes**	Received on Ice	**Yes**
Custody Seals	**No**	Sample volume sufficient	**Yes**	Appropriate sample containers	**Yes**
Chain of custody completed	**Yes**				

Analysis	TAT	Expires	Comments
5J07029-01 B5J0255-01 [Water] Sampled 10/04/15 13:45 (GMT-08:00) Pacific Time (US &			
8015B Water EG	10	10/18/15 13:45	

Comments:

10/13/2015

Authorized Signature Date

Note:
If any of the information included in this sample receipt acknowledgement is incorrect (sample information, analysis, etc), please contact the lab at (626) 336-2139. Thank you.

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Client Name:	Riverside County Flood Control	Analytical Report:	Page 1 of 19
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	28-Oct-2015	**Work Order Number:**	**B5J0252**
		Received on Ice (Y/N):	Yes Temp: 16 °C

Attached is the analytical report for the sample(s) received for your project. Below is a list of the individual sample descriptions with the corresponding laboratory number(s). Also, enclosed is a copy of the Chain of Custody document (if received with your sample(s)). Please note any unused portion of the sample(s) may be responsibly discarded after 30 days from the above report date, unless you have requested otherwise.

Thank you for the opportunity to serve your analytical needs. If you have any questions or concerns regarding this report please contact our client service department.

Sample Identification

Lab Sample #	Client Sample ID	Matrix	Date Sampled	By	Date Submitted	By
B5J0252-01	1516-W1-782-01	Liquid	10/04/15 13:45	MP/KC	10/04/15 15:20	Mike Phipps

GOOD

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Riverside, CA 92502-0432

location
6100 Quail Valley Court
Riverside, CA 92507-0704

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F 951 653 1662
www.babcocklabs.com

CA ELAP No. 2698
EPA no. CA00102
LACSD No., 10119

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Client Name: Riverside County Flood Control
Contact: Rebekah Guill
Address: 1995 Market Street
Riverside, CA 92501

Report Date: 28-Oct-2015

Project Name: WWR Outfalls Wet 1&2 15-16

Project Number: 719RMS782

Work Order Number: B5J0252

Received on Ice (Y/N): Yes Temp: 16 °C

Laboratory Reference Number

B5J0252-01

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
1516-W1-782-01	Liquid	10/04/15 13:45	10/04/15 15:20

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Anions								
Nitrate as N	1.6	0.11	0.11	mg/L	EPA 300.0	10/06/15 01:17	ams	NRLrcf
Solids								
Total Dissolved Solids	170	10	5.8	mg/L	SM 2540C	10/06/15 12:50	cdcs	
Total Suspended Solids	13	10	7	mg/L	SM 2540D	10/06/15 15:20	kl	NRLrcf
Aggregate Organic Compounds								
Oil & Grease (HEM)	2.0	1.4	0.9	mg/L	EPA 1664A	10/12/15 10:30	mcm	
Surfactants								
MBAS	0.94	0.66	0.66	mg/L	SM 5540C	10/06/15 11:45	slp	
Nutrients								
Nitrite as N	0.24	0.010	0.0046	mg/L	SM 4500NO2 B	10/06/15 00:30	lfs	
Ammonia-Nitrogen	1.5	0.10	0.059	mg/L	SM4500NH3H	10/06/15 19:56	jma	
Kjeldahl Nitrogen	4.4	1.0	0.13	mg/L	EPA 351.2	10/08/15 00:30	jma	NRLrcf
Total Nitrogen	6.2	1.0	0.13	mg/L	Calculation			
Ortho Phosphate Phosphorus	0.52	0.050	0.0028	mg/L	SM 4500P E	10/06/15 09:27	jma	NRLrcf
Total Phosphorus	0.80	0.20	0.04	mg/L	SM 4500P B E	10/08/15 23:30	jma	NRLrcf
Metals and Metalloids								
Antimony	1.6	0.5	0.2	ug/L	EPA 200.8	10/08/15 18:36	MEL	
Arsenic	0.9	1.0	0.5	ug/L	EPA 200.8	10/08/15 18:36	MEL	J, NRLrcf
Barium	19	1.0	1.0	ug/L	EPA 200.8	10/08/15 18:36	MEL	
Beryllium	ND	0.5	0.2	ug/L	EPA 200.8	10/08/15 18:36	MEL	
Cadmium	ND	0.50	0.12	ug/L	EPA 200.8	10/08/15 18:36	MEL	NRLrcf
Total Chromium	2.3	1.0	0.4	ug/L	EPA 200.8	10/08/15 18:36	MEL	NRLrcf
Hexavalent Chromium	0.34	0.10	0.013	ug/L	EPA 218.6	10/08/15 18:57	DCB	
Copper	22	0.5	0.2	ug/L	EPA 200.8	10/08/15 18:36	MEL	NRLrcf
Lead	3.1	1.0	0.2	ug/L	EPA 200.8	10/08/15 18:36	MEL	NRLrcf
Mercury	ND	0.20	0.055	ug/L	EPA 200.8	10/07/15 16:42	MEL	NRLrcf
Nickel	4.9	1.0	0.5	ug/L	EPA 200.8	10/08/15 18:36	MEL	NRLrcf
Selenium	0.5	1.0	0.5	ug/L	EPA 200.8	10/08/15 18:36	MEL	J, NRLrcf

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CA ELAP No. 2698
EPA no. CA00102
LACSD No., 10119

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Client Name:	Riverside County Flood Control	Analytical Report:	Page 3 of 19
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	28-Oct-2015	**Work Order Number:**	**B5J0252**
		Received on Ice (Y/N):	Yes Temp: 16 °C

Laboratory Reference Number

B5J0252-01

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
1516-W1-782-01	Liquid	10/04/15 13:45	10/04/15 15:20

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Metals and Metalloids								
Silver	ND	0.25	0.12	ug/L	EPA 200.8	10/08/15 18:36	MEL	NRLrcf
Thallium	ND	1.0	0.5	ug/L	EPA 200.8	10/08/15 18:36	MEL	
Zinc	93	1.0	0.7	ug/L	EPA 200.8	10/08/15 18:36	MEL	NRLrcf
Diesel Range Organics by EPA 8015								
Diesel Range Hydrocarbons	ND	5.0	0.46	mg/L	EPA 8015B	10/06/15 14:08	naa	
Surrogate: Decachlorobiphenyl	60.7	% 35-120			EPA 8015B	10/06/15 14:08	naa	
Gasoline Range Organics by EPA 8015								
Gasoline Range Organics	ND	0.050	0.024	mg/L	EPA 8015B	10/09/15 22:15	eec	
Surrogate: a,a,a-Trifluorotoluene	57.7	% 10-110			EPA 8015B	10/09/15 22:15	eec	
Multiple Tube Fermentation - Multiple Dilution - SM 9221 B, E, F series								
E. Coli	30000	200	200	MPN/100ml	SM 9221F	10/04/15 16:15	aac	NRLrcf

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Client Name: Riverside County Flood Control
Contact: Rebekah Guill
Address: 1995 Market Street
Riverside, CA 92501

Report Date: 28-Oct-2015

Project Name: WWR Outfalls Wet 1&2 15-16

Project Number: 719RMS782

Work Order Number: B5J0252

Received on Ice (Y/N): Yes Temp: 16 °C

Anions - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5J05147 - Analyzed as Received IC											
Blank (5J05147-BLK1)				Prepared & Analyzed: 10/05/15							
Nitrate as N	ND	0.10	0.10	mg/L							
LCS (5J05147-BS1)				Prepared & Analyzed: 10/05/15							
Nitrate as N	10.9	0.10	0.10	mg/L	11.3		96.2	90-110			
Duplicate (5J05147-DUP1)		**Source: B5J0252-01**		Prepared & Analyzed: 10/06/15							
Nitrate as N	1.73	0.10	0.10	mg/L		1.60			7.64	20	
Matrix Spike (5J05147-MS1)		**Source: B5J0344-01**		Prepared & Analyzed: 10/06/15							
Nitrate as N	33.1	0.21	0.21	mg/L	9.03	23.6	105	75-131			
Matrix Spike (5J05147-MS2)		**Source: B5J0287-01**		Prepared & Analyzed: 10/06/15							
Nitrate as N	11.6	0.10	0.10	mg/L	4.52	7.03	100	75-131			
Matrix Spike Dup (5J05147-MSD1)		**Source: B5J0344-01**		Prepared & Analyzed: 10/06/15							
Nitrate as N	33.0	0.21	0.21	mg/L	9.03	23.6	104	75-131	0.203	20	

Client Name:	Riverside County Flood Control	Analytical Report:	
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	28-Oct-2015	**Work Order Number:**	**B5J0252**
		Received on Ice (Y/N):	Yes Temp: 16 °C

Solids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5J06098 - Analyzed as received											
Blank (5J06098-BLK1)					Prepared & Analyzed: 10/06/15						
Total Dissolved Solids	ND	10	5.8	mg/L							
LCS (5J06098-BS1)					Prepared & Analyzed: 10/06/15						
Total Dissolved Solids	720	20	12	mg/L	746		96.5	90-110			
Duplicate (5J06098-DUP1)		**Source: B5J0233-02**			Prepared & Analyzed: 10/06/15						
Total Dissolved Solids	370	10	5.8	mg/L		374			1.21	20	
Duplicate (5J06098-DUP2)		**Source: B5J0250-04**			Prepared & Analyzed: 10/06/15						
Total Dissolved Solids	ND	10	5.8	mg/L		ND				20	
Batch 5J06115 - Analyzed as received											
Blank (5J06115-BLK1)					Prepared & Analyzed: 10/06/15						
Total Suspended Solids	ND	5	4	mg/L							
LCS (5J06115-BS1)					Prepared & Analyzed: 10/06/15						
Total Suspended Solids	485	10	7	mg/L	500		97.0	90-110			
Duplicate (5J06115-DUP1)		**Source: B5J0242-02**			Prepared & Analyzed: 10/06/15						
Total Suspended Solids	596	40	30	mg/L		632			5.86	25	
Duplicate (5J06115-DUP2)		**Source: B5J0252-01**			Prepared & Analyzed: 10/06/15						
Total Suspended Solids	11.0	10	7	mg/L		13.0			16.7	25	

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Client Name:	Riverside County Flood Control	Analytical Report:	Page 6 of 19
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	28-Oct-2015	**Work Order Number:**	**B5J0252**
		Received on Ice (Y/N):	Yes Temp: 16 °C

Aggregate Organic Compounds - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5J12091 - Solvent Extraction											
Blank (5J12091-BLK1)					Prepared & Analyzed: 10/12/15						
Oil & Grease (HEM)	ND	1.4	0.9	mg/L							
LCS (5J12091-BS1)					Prepared & Analyzed: 10/12/15						
Oil & Grease (HEM)	34.3	1.4	0.9	mg/L	40.0		85.8	80-114			
LCS Dup (5J12091-BSD1)					Prepared & Analyzed: 10/12/15						
Oil & Grease (HEM)	44.8	1.4	0.9	mg/L	40.0		112	80-114	26.5	18	QRPDa
Duplicate (5J12091-DUP1)		**Source: B5J0242-01**			Prepared & Analyzed: 10/12/15						
Oil & Grease (HEM)	2.07	1.5	1.0	mg/L		1.25			49.1	18	QRPDl
Matrix Spike (5J12091-MS1)		**Source: B5J0357-01RE**			Prepared & Analyzed: 10/12/15						
Oil & Grease (HEM)	81.0	2.8	1.8	mg/L	78.4	3.40	98.9	80-114			
Matrix Spike Dup (5J12091-MSD1)		**Source: B5J0357-01RE**			Prepared & Analyzed: 10/12/15						
Oil & Grease (HEM)	73.5	2.7	1.8	mg/L	80.0	3.40	87.6	80-114	9.71	18	

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Client Name:	Riverside County Flood Control	Analytical Report:	Page 7 of 19
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	28-Oct-2015	**Work Order Number:**	**B5J0252**
		Received on Ice (Y/N):	Yes Temp: 16 °C

Surfactants - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5J05143 - Solvent Extraction.											
Blank (5J05143-BLK1)					Prepared & Analyzed: 10/05/15						
MBAS	ND	0.10	0.08	mg/L							
LCS (5J05143-BS1)					Prepared & Analyzed: 10/05/15						
MBAS	0.342	0.10	0.08	mg/L	0.320		107	80-120			
Duplicate (5J05143-DUP1)		**Source: B5J0242-02**			Prepared & Analyzed: 10/05/15						
MBAS	ND	1.0	0.80	mg/L		ND				20	N_RLm
Matrix Spike (5J05143-MS1)		**Source: B5J0251-02**			Prepared & Analyzed: 10/06/15						
MBAS	0.139	0.10	0.08	mg/L	0.160	ND	86.9	80-120			
Matrix Spike Dup (5J05143-MSD1)		**Source: B5J0251-02**			Prepared & Analyzed: 10/06/15						
MBAS	0.150	0.10	0.08	mg/L	0.160	ND	93.8	80-120	7.61	25	

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Client Name: Riverside County Flood Control
Contact: Rebekah Guill
Address: 1995 Market Street
Riverside, CA 92501

Report Date: 28-Oct-2015

Project Name: WWR Outfalls Wet 1&2 15-16

Project Number: 719RMS782

Work Order Number: B5J0252

Received on Ice (Y/N): Yes Temp: 16 °C

Nutrients - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5J05153 - Filter if turbid.											
LCS (5J05153-BS1)				Prepared & Analyzed: 10/06/15							
Nitrite as N	0.0990	0.010	0.0046	mg/L	0.100		99.0	90-110			
Duplicate (5J05153-DUP1)		**Source: B5J0233-02**		Prepared & Analyzed: 10/06/15							
Nitrite as N	0.0160	0.010	0.0046	mg/L		0.0160			0.00	20	
Matrix Spike (5J05153-MS1)		**Source: B5J0250-04**		Prepared & Analyzed: 10/06/15							
Nitrite as N	0.102	0.010	0.0046	mg/L	0.100	ND	102	80-120			
Matrix Spike Dup (5J05153-MSD1)		**Source: B5J0250-04**		Prepared & Analyzed: 10/06/15							
Nitrite as N	0.102	0.010	0.0046	mg/L	0.100	ND	102	80-120	0.00	20	
Batch 5J06066 - Filter if turbid.											
LCS (5J06066-BS1)				Prepared & Analyzed: 10/06/15							
Ortho Phosphate Phosphorus	0.495	0.050	0.0028	mg/L	0.500		99.0	90-110			
Duplicate (5J06066-DUP1)		**Source: B5J0250-04**		Prepared & Analyzed: 10/06/15							
Ortho Phosphate Phosphorus	0.00900	0.050	0.0028	mg/L		0.00900			0.00	20	J
Matrix Spike (5J06066-MS1)		**Source: B5J0250-04**		Prepared & Analyzed: 10/06/15							
Ortho Phosphate Phosphorus	0.522	0.050	0.0028	mg/L	0.500	0.00900	103	80-120			
Matrix Spike Dup (5J06066-MSD1)		**Source: B5J0250-04**		Prepared & Analyzed: 10/06/15							
Ortho Phosphate Phosphorus	0.527	0.050	0.0028	mg/L	0.500	0.00900	104	80-120	0.953	20	
Batch 5J06083 - Analyzed as received											
Blank (5J06083-BLK1)				Prepared & Analyzed: 10/06/15							
Ammonia-Nitrogen	ND	0.10	0.059	mg/L							

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Client Name: Riverside County Flood Control
Contact: Rebekah Guill
Address: 1995 Market Street
Riverside, CA 92501

Report Date: 28-Oct-2015

Project Name: WWR Outfalls Wet 1&2 15-16

Project Number: 719RMS782

Work Order Number: B5J0252

Received on Ice (Y/N): Yes Temp: 16 °C

Nutrients - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5J06083 - Analyzed as received											
LCS (5J06083-BS1)					Prepared & Analyzed: 10/06/15						
Ammonia-Nitrogen	0.684	0.10	0.059	mg/L	0.780		87.7	90-110			QL-MS
Duplicate (5J06083-DUP1)		**Source: B5J0233-02**			Prepared & Analyzed: 10/06/15						
Ammonia-Nitrogen	ND	0.10	0.059	mg/L		ND				20	
Matrix Spike (5J06083-MS1)		**Source: B5J0238-01**			Prepared & Analyzed: 10/06/15						
Ammonia-Nitrogen	67.6	5.0	3.0	mg/L	39.0	30.3	95.6	80-120			
Matrix Spike Dup (5J06083-MSD1)		**Source: B5J0238-01**			Prepared & Analyzed: 10/06/15						
Ammonia-Nitrogen	66.7	5.0	3.0	mg/L	39.0	30.3	93.2	80-120	1.40	20	
Batch 5J07071 - Acid Digest											
Blank (5J07071-BLK1)					Prepared: 10/07/15 Analyzed: 10/08/15						
Kjeldahl Nitrogen	ND	0.50	0.063	mg/L							
LCS (5J07071-BS1)					Prepared: 10/07/15 Analyzed: 10/08/15						
Kjeldahl Nitrogen	1.08	0.50	0.063	mg/L	1.00		108	80-120			
Duplicate (5J07071-DUP1)		**Source: B5J0233-02**			Prepared: 10/07/15 Analyzed: 10/08/15						
Kjeldahl Nitrogen	0.946	1.0	0.13	mg/L		1.14			18.3	20	J
Matrix Spike (5J07071-MS1)		**Source: B5J0540-01**			Prepared: 10/07/15 Analyzed: 10/08/15						
Kjeldahl Nitrogen	2.00	0.50	0.063	mg/L	1.00	1.11	89.0	70-130			
Matrix Spike (5J07071-MS2)		**Source: B5J0549-04**			Prepared: 10/07/15 Analyzed: 10/08/15						
Kjeldahl Nitrogen	192	40	5.0	mg/L	80.0	90.9	126	70-130			

ESB

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Client Name:	Riverside County Flood Control	Analytical Report:	Page 10 of 19
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	28-Oct-2015	**Work Order Number:**	**B5J0252**
		Received on Ice (Y/N):	Yes Temp: 16 °C

Nutrients - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5J07071 - Acid Digest											
Matrix Spike Dup (5J07071-MSD1)		**Source: B5J0540-01**		Prepared: 10/07/15		Analyzed: 10/08/15					
Kjeldahl Nitrogen	1.75	0.50	0.063	mg/L	1.00	1.11	63.8	70-130	13.4	25	QMSD
Batch 5J07080 - Acid Digest											
LCS (5J07080-BS1)				Prepared: 10/07/15		Analyzed: 10/08/15					
Total Phosphorus	0.533	0.05	0.02	mg/L	0.500		107	85-115			
Duplicate (5J07080-DUP1)		**Source: B5J0233-02**		Prepared: 10/07/15		Analyzed: 10/08/15					
Total Phosphorus	0.368	0.05	0.02	mg/L		0.378			2.68	20	
Matrix Spike (5J07080-MS1)		**Source: B5J0347-01**		Prepared: 10/07/15		Analyzed: 10/08/15					
Total Phosphorus	1.20	0.05	0.02	mg/L	0.500	0.661	108	80-120			
Matrix Spike Dup (5J07080-MSD1)		**Source: B5J0347-01**		Prepared: 10/07/15		Analyzed: 10/08/15					
Total Phosphorus	1.19	0.05	0.02	mg/L	0.500	0.661	106	80-120	0.837	20	

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Client Name: Riverside County Flood Control
Contact: Rebekah Guill
Address: 1995 Market Street
Riverside, CA 92501

Report Date: 28-Oct-2015

Project Name: WWR Outfalls Wet 1&2 15-16

Project Number: 719RMS782

Work Order Number: B5J0252

Received on Ice (Y/N): Yes Temp: 16 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5J06096 - EPA 200.2 SOP M02C											
Blank (5J06096-BLK1)				Prepared & Analyzed: 10/08/15							
Antimony	ND	0.5	0.2	ug/L							
Arsenic	ND	1.0	0.5	ug/L							
Barium	ND	1.0	1.0	ug/L							
Beryllium	ND	0.5	0.2	ug/L							
Cadmium	ND	0.25	0.12	ug/L							
Total Chromium	ND	0.5	0.4	ug/L							
Copper	ND	0.5	0.2	ug/L							
Lead	ND	0.5	0.2	ug/L							
Nickel	ND	1.0	0.5	ug/L							
Selenium	ND	1.0	0.5	ug/L							
Silver	ND	0.25	0.12	ug/L							
Thallium	ND	1.0	0.5	ug/L							
Zinc	ND	1.0	0.7	ug/L							
LCS (5J06096-BS1)				Prepared & Analyzed: 10/08/15							
Antimony	15.7	0.5	0.2	ug/L	16.0		98.2	85-115			
Arsenic	15.3	1.0	0.5	ug/L	16.0		95.5	85-115			
Barium	15.9	1.0	1.0	ug/L	16.0		99.4	85-115			
Beryllium	16.3	0.5	0.2	ug/L	16.0		102	85-115			
Cadmium	15.8	0.25	0.12	ug/L	16.0		98.5	85-115			
Total Chromium	15.1	0.5	0.4	ug/L	16.0		94.5	85-115			
Copper	15.3	0.5	0.2	ug/L	16.0		95.4	85-115			
Lead	15.7	0.5	0.2	ug/L	16.0		98.1	85-115			
Nickel	15.5	1.0	0.5	ug/L	16.0		96.8	85-115			
Selenium	16.5	1.0	0.5	ug/L	16.0		103	85-115			
Silver	15.7	0.25	0.12	ug/L	16.0		97.8	85-115			
Thallium	15.0	1.0	0.5	ug/L	16.0		93.6	85-115			
Zinc	16.1	1.0	0.7	ug/L	16.0		101	85-115			

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Client Name:	Riverside County Flood Control	Analytical Report:	Page 12 of 19
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	28-Oct-2015	**Work Order Number:**	**B5J0252**

Received on Ice (Y/N): Yes Temp: 16 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5J06096 - EPA 200.2 SOP M02C											
LCS Dup (5J06096-BSD1)					Prepared & Analyzed: 10/08/15						
Antimony	16.0	0.5	0.2	ug/L	16.0		100	85-115	2.05	20	
Arsenic	15.4	1.0	0.5	ug/L	16.0		96.6	85-115	1.10	20	
Barium	16.3	1.0	1.0	ug/L	16.0		102	85-115	2.30	20	
Beryllium	17.0	0.5	0.2	ug/L	16.0		106	85-115	4.37	20	
Cadmium	16.4	0.25	0.12	ug/L	16.0		102	85-115	3.79	20	
Total Chromium	15.7	0.5	0.4	ug/L	16.0		98.2	85-115	3.82	20	
Copper	16.0	0.5	0.2	ug/L	16.0		99.8	85-115	4.56	20	
Lead	16.1	0.5	0.2	ug/L	16.0		101	85-115	2.74	20	
Nickel	16.2	1.0	0.5	ug/L	16.0		101	85-115	4.46	20	
Selenium	16.5	1.0	0.5	ug/L	16.0		103	85-115	0.00	20	
Silver	16.2	0.25	0.12	ug/L	16.0		101	85-115	3.29	20	
Thallium	15.4	1.0	0.5	ug/L	16.0		96.4	85-115	2.96	20	
Zinc	17.0	1.0	0.7	ug/L	16.0		106	85-115	5.57	20	
Duplicate (5J06096-DUP1)		**Source: B5J0250-04**			Prepared & Analyzed: 10/08/15						
Antimony	ND	0.5	0.2	ug/L		ND				20	
Arsenic	ND	1.0	0.5	ug/L		ND				20	
Barium	ND	1.0	1.0	ug/L		ND				20	
Beryllium	ND	0.5	0.2	ug/L		ND				20	
Cadmium	ND	0.25	0.12	ug/L		ND				20	
Total Chromium	ND	0.5	0.4	ug/L		ND				20	
Copper	1.56	0.5	0.2	ug/L		2.01			25.3	20	QRPDI
Lead	ND	0.5	0.2	ug/L		ND				20	
Nickel	ND	1.0	0.5	ug/L		ND				20	
Selenium	ND	1.0	0.5	ug/L		ND				20	
Silver	ND	0.25	0.12	ug/L		ND				20	
Thallium	ND	1.0	0.5	ug/L		ND				20	
Zinc	ND	1.0	0.7	ug/L		ND				20	

Client Name:	Riverside County Flood Control	Analytical Report:	Page 13 of 19
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	28-Oct-2015	**Work Order Number:**	**B5J0252**

Received on Ice (Y/N): Yes Temp: 16 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5J06096 - EPA 200.2 SOP M02C											
Matrix Spike (5J06096-MS1)		**Source: B5J0567-01**		Prepared & Analyzed: 10/08/15							
Antimony	15.6	0.5	0.2	ug/L	16.0	0.466	94.9	70-130			
Arsenic	18.1	1.0	0.5	ug/L	16.0	1.94	101	70-130			
Barium	81.1	1.0	1.0	ug/L	16.0	72.1	56.7	70-130			QM-3x
Beryllium	14.8	0.5	0.2	ug/L	16.0	ND	92.3	70-130			
Cadmium	14.8	0.25	0.12	ug/L	16.0	0.159	91.7	70-130			
Total Chromium	17.5	0.5	0.4	ug/L	16.0	3.56	87.2	70-130			
Copper	84.1	0.5	0.2	ug/L	16.0	67.8	102	70-130			
Lead	17.0	0.5	0.2	ug/L	16.0	2.46	90.6	70-130			
Nickel	17.8	1.0	0.5	ug/L	16.0	3.30	90.9	70-130			
Selenium	17.5	1.0	0.5	ug/L	16.0	1.44	101	70-130			
Silver	14.5	0.25	0.12	ug/L	16.0	0.308	88.8	70-130			
Thallium	14.1	1.0	0.5	ug/L	16.0	ND	88.1	70-130			
Zinc	171	1.0	0.7	ug/L	16.0	155	102	70-130			
Matrix Spike (5J06096-MS2)		**Source: B5J0576-06**		Prepared & Analyzed: 10/08/15							
Antimony	16.1	0.5	0.2	ug/L	16.0	0.362	98.3	70-130			
Arsenic	17.5	1.0	0.5	ug/L	16.0	0.857	104	70-130			
Barium	31.5	1.0	1.0	ug/L	16.0	17.0	90.9	70-130			
Beryllium	14.6	0.5	0.2	ug/L	16.0	ND	91.5	70-130			
Cadmium	14.8	0.25	0.12	ug/L	16.0	ND	92.8	70-130			
Total Chromium	14.5	0.5	0.4	ug/L	16.0	0.534	87.5	70-130			
Copper	16.9	0.5	0.2	ug/L	16.0	2.80	87.9	70-130			
Lead	14.7	0.5	0.2	ug/L	16.0	ND	91.9	70-130			
Nickel	16.6	1.0	0.5	ug/L	16.0	1.99	91.5	70-130			
Selenium	17.7	1.0	0.5	ug/L	16.0	0.551	107	70-130			
Silver	14.7	0.25	0.12	ug/L	16.0	ND	91.7	70-130			
Thallium	14.0	1.0	0.5	ug/L	16.0	ND	87.8	70-130			
Zinc	39.2	1.0	0.7	ug/L	16.0	23.9	95.3	70-130			

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Client Name:	Riverside County Flood Control	Analytical Report:	Page 14 of 19
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	28-Oct-2015	**Work Order Number:**	**B5J0252**

Received on Ice (Y/N): Yes Temp: 16 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5J06096 - EPA 200.2 SOP M02C											
Matrix Spike Dup (5J06096-MSD1)		**Source: B5J0567-01**			Prepared & Analyzed: 10/08/15						
Antimony	15.8	0.5	0.2	ug/L	16.0	0.466	95.8	70-130	0.891	20	
Arsenic	18.8	1.0	0.5	ug/L	16.0	1.94	105	70-130	3.36	20	
Barium	80.8	1.0	1.0	ug/L	16.0	72.1	54.5	70-130	0.438	20	QM-3x
Beryllium	14.7	0.5	0.2	ug/L	16.0	ND	92.1	70-130	0.176	20	
Cadmium	14.8	0.25	0.12	ug/L	16.0	0.159	91.6	70-130	0.0877	20	
Total Chromium	17.6	0.5	0.4	ug/L	16.0	3.56	87.6	70-130	0.336	20	
Copper	82.5	0.5	0.2	ug/L	16.0	67.8	92.0	70-130	1.86	20	
Lead	17.4	0.5	0.2	ug/L	16.0	2.46	93.3	70-130	2.50	20	
Nickel	17.7	1.0	0.5	ug/L	16.0	3.30	89.8	70-130	0.957	20	
Selenium	18.1	1.0	0.5	ug/L	16.0	1.44	104	70-130	3.18	20	
Silver	14.6	0.25	0.12	ug/L	16.0	0.308	89.4	70-130	0.680	20	
Thallium	14.4	1.0	0.5	ug/L	16.0	ND	89.9	70-130	1.94	20	
Zinc	175	1.0	0.7	ug/L	16.0	155	124	70-130	1.99	20	
Batch 5J07063 - EPA 200.2 SOP M02C											
Blank (5J07063-BLK1)					Prepared & Analyzed: 10/07/15						
Mercury	ND	0.20	0.055	ug/L							
LCS (5J07063-BS1)					Prepared & Analyzed: 10/07/15						
Mercury	3.59	0.20	0.055	ug/L	3.34		108	85-115			
LCS Dup (5J07063-BSD1)					Prepared & Analyzed: 10/07/15						
Mercury	3.86	0.20	0.055	ug/L	3.34		116	85-115	7.22	20	QMSD
Duplicate (5J07063-DUP1)		**Source: B5J0233-02**			Prepared & Analyzed: 10/07/15						
Mercury	ND	0.20	0.055	ug/L		ND				20	

Client Name: Riverside County Flood Control
Contact: Rebekah Guill
Address: 1995 Market Street
Riverside, CA 92501

Report Date: 28-Oct-2015

Project Name: WWR Outfalls Wet 1&2 15-16

Project Number: 719RMS782

Work Order Number: B5J0252

Received on Ice (Y/N): Yes   Temp: 16 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5J07063 - EPA 200.2 SOP M02C											
Matrix Spike (5J07063-MS1)		**Source: B5J0233-02**		Prepared & Analyzed: 10/07/15							
Mercury	3.41	0.20	0.055	ug/L	3.34	ND	102	70-130			
Matrix Spike (5J07063-MS2)		**Source: B5J0488-01**		Prepared & Analyzed: 10/07/15							
Mercury	3.42	0.20	0.055	ug/L	3.34	ND	102	70-130			
Matrix Spike Dup (5J07063-MSD1)		**Source: B5J0233-02**		Prepared & Analyzed: 10/07/15							
Mercury	3.48	0.20	0.055	ug/L	3.34	ND	104	70-130	2.09	20	
Batch 5J08036 - Filter if turbid.-IC											
Blank (5J08036-BLK1)				Prepared & Analyzed: 10/08/15							
Hexavalent Chromium	ND	0.10	0.013	ug/L							
LCS (5J08036-BS1)				Prepared & Analyzed: 10/08/15							
Hexavalent Chromium	4.76	0.10	0.013	ug/L	5.00		95.1	90-110			
LCS Dup (5J08036-BSD1)				Prepared & Analyzed: 10/08/15							
Hexavalent Chromium	4.81	0.10	0.013	ug/L	5.00		96.2	90-110	1.11	20	
Duplicate (5J08036-DUP1)		**Source: B5J0233-02**		Prepared & Analyzed: 10/08/15							
Hexavalent Chromium	0.494	0.10	0.013	ug/L		0.483			2.23	20	
Matrix Spike (5J08036-MS1)		**Source: B5J0242-02**		Prepared & Analyzed: 10/08/15							
Hexavalent Chromium	6.04	0.10	0.013	ug/L	5.00	1.02	100	84-122			
Matrix Spike Dup (5J08036-MSD1)		**Source: B5J0242-02**		Prepared & Analyzed: 10/08/15							
Hexavalent Chromium	6.19	0.10	0.013	ug/L	5.00	1.02	103	84-122	2.45	20	

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Client Name: Riverside County Flood Control
Contact: Rebekah Guill
Address: 1995 Market Street
Riverside, CA 92501

Report Date: 28-Oct-2015

Project Name: WWR Outfalls Wet 1&2 15-16

Project Number: 719RMS782

Work Order Number: B5J0252

Received on Ice (Y/N): Yes Temp: 16 °C

Diesel Range Organics by EPA 8015 - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5J06077 - Microextraction											
Blank (5J06077-BLK1)				Prepared & Analyzed: 10/06/15							
Diesel Range Hydrocarbons	ND	5.0	0.46	mg/L							
Surrogate: Decachlorobiphenyl	*0.74*			mg/L	*1.14*		*65.0*	*35-120*			
LCS (5J06077-BS1)				Prepared & Analyzed: 10/06/15							
Diesel Range Hydrocarbons	34.3	5.0	0.46	mg/L	45.7		74.9	61-128			
Surrogate: Decachlorobiphenyl	*0.82*			mg/L	*1.14*		*71.8*	*35-120*			
LCS Dup (5J06077-BSD1)				Prepared & Analyzed: 10/06/15							
Diesel Range Hydrocarbons	31.5	5.0	0.46	mg/L	45.7		69.0	61-128	8.22	20	
Surrogate: Decachlorobiphenyl	*0.68*			mg/L	*1.14*		*59.6*	*35-120*			
Matrix Spike (5J06077-MS1)		**Source: B5J0250-01**		Prepared & Analyzed: 10/06/15							
Diesel Range Hydrocarbons	34.7	5.0	0.46	mg/L	45.7	ND	75.9	44-132			
Surrogate: Decachlorobiphenyl	*0.85*			mg/L	*1.14*		*74.5*	*35-120*			
Matrix Spike Dup (5J06077-MSD1)		**Source: B5J0250-01**		Prepared & Analyzed: 10/06/15							
Diesel Range Hydrocarbons	33.2	5.0	0.46	mg/L	45.7	ND	72.6	44-132	4.42	40	
Surrogate: Decachlorobiphenyl	*0.78*			mg/L	*1.14*		*68.6*	*35-120*			

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Client Name: Riverside County Flood Control
Contact: Rebekah Guill
Address: 1995 Market Street
Riverside, CA 92501

Report Date: 28-Oct-2015

Analytical Report: Page 17 of 19
Project Name: WWR Outfalls Wet 1&2 15-16

Project Number: 719RMS782

Work Order Number: B5J0252

Received on Ice (Y/N): Yes Temp: 16 °C

Gasoline Range Organics by EPA 8015 - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5J09048 - Purge and Trap											
Blank (5J09048-BLK1)				Prepared & Analyzed: 10/09/15							
Gasoline Range Organics	ND	0.050	0.024	mg/L							
Surrogate: a,a,a-Trifluorotoluene	*0.13*			mg/L	*0.215*		*61.4*	*10-110*			
LCS (5J09048-BS1)				Prepared & Analyzed: 10/09/15							
Gasoline Range Organics	2.97	0.050	0.024	mg/L	2.32		128	69-145			
Surrogate: a,a,a-Trifluorotoluene	*0.24*			mg/L	*0.215*		*113*	*10-110*			QSout
LCS Dup (5J09048-BSD1)				Prepared & Analyzed: 10/09/15							
Gasoline Range Organics	2.79	0.050	0.024	mg/L	2.32		120	69-145	6.22	40	
Surrogate: a,a,a-Trifluorotoluene	*0.24*			mg/L	*0.215*		*110*	*10-110*			
Matrix Spike (5J09048-MS1)			**Source: B5J0250-04**	Prepared & Analyzed: 10/09/15							
Gasoline Range Organics	2.83	0.050	0.024	mg/L	2.50	ND	113	63-140			
Surrogate: a,a,a-Trifluorotoluene	*0.24*			mg/L	*0.215*		*111*	*10-110*			QSout
Matrix Spike Dup (5J09048-MSD1)			**Source: B5J0250-04**	Prepared & Analyzed: 10/09/15							
Gasoline Range Organics	2.62	0.050	0.024	mg/L	2.50	ND	105	63-140	7.66	40	
Surrogate: a,a,a-Trifluorotoluene	*0.23*			mg/L	*0.215*		*107*	*10-110*			

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EPA no. CA00102
LACSD No., 10119

Client Name:	Riverside County Flood Control	Analytical Report:	Page 18 of 19
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	28-Oct-2015	**Work Order Number:**	**B5J0252**
		Received on Ice (Y/N):	Yes Temp: 16 °C

Multiple Tube Fermentation - Multiple Dilution - SM 9221 B, E, F series - Batch Quality Control

Analyte(s)	Result	RDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5J11063 - BT-Analyzed as rec										
Duplicate (5J11063-DUP1)		**Source: B5J0220-02**	Prepared & Analyzed: 10/04/15							
Total Coliform	ND	2.0	2.0 MPN/100ml		ND				259	
Duplicate (5J11063-DUP2)		**Source: B5J0312-03**	Prepared & Analyzed: 10/05/15							
Total Coliform	13.0	2.0	2.0 MPN/100ml		8.00			47.6	259	

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Client Name:	Riverside County Flood Control	Analytical Report:	Page 19 of 19
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	28-Oct-2015	**Work Order Number:**	**B5J0252**
		Received on Ice (Y/N):	Yes Temp: 16 °C

Notes and Definitions

J	Estimated value
N_RLm	Due to sample matrix, the reporting limit has been raised.
NRLrcf	RL for analyte does not meet the SWAMP/ CTR required RL.
QL-MS	Batch acceptance based on MS and/or MSD recovery within LCS criteria. The LCS recovery did not meet laboratory acceptance criteria.
QM-3x	Due to analyte concentration greater than or equal to 3 times the spike concentration, recoveries for the metal MS and/or MSD did not meet laboratory acceptance criteria.
QMSD	The MS recovery and MS/MSD RPD met laboratory acceptance criteria. MSD recovery was not within range. MSD performed to assess precision data only.
QRPDa	Both percent recoveries were acceptable, however, the RPD result was above laboratory acceptance criteria.
QRPDl	Analyte concentration was below range for valid RPD determination.
QSout	Surrogate recoveries did not meet laboratory acceptance criteria.
ND:	Analyte NOT DETECTED at or above the Method Detection Limit **(if MDL is reported)**, otherwise at or above the Reportable Detection Limit (RDL)
NR:	Not Reported
RDL:	Reportable Detection Limit
MDL:	Method Detection Limit
* / "' :	NELAP does not offer accreditation for this analyte/method/matrix combination

Approval

Enclosed are the analytical results for the submitted sample(s). Babcock Laboratories certify the data presented as part of this report meet the minimum quality standards in the referenced analytical methods. Any exceptions have been noted. Babcock Laboratories and its officers and employees assume no responsibility and make no warranty, express or implied, for uses or interpretations made by any recipients, intended or unintended, of this report.

cc:

e-Standard_No Alias.rpt

BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years

Client Name:	Riverside County Flood Control	Analytical Report:	Page 1 of 2
Contact:	Rebekah Guill	Project Name:	WWR Outfalls Wet 1&2 15-16
Address:	1995 Market Street Riverside, CA 92501	Project Number:	719RMS782
Report Date:	28-Oct-2015	**Work Order Number:**	**B5J0252**

Received on Ice (Y/N): Yes Temp: 16 °C

E.S. Babcock Sons, Inc. Environmental Laboratories
(951) 653-3351 FAX (951) 653-1662
www.babcocklabs.com

Chain of Custody Sample Information Record

Client: RCFC & WCD Contact: Rebekah Guill / Penny Nanney Phone No. (951) 955.2901 / 955.1325

FAX No. 951.788.9965 Email: rguill@rcflood.org pnanney@rcflood.org

Project Name: WWR Outfalls Wet 1

Station ID: 719RMS782

Station Location: Ramsey Street Storm Drain

Turn Around Time: Routine / *3-5 Day Rush / *48 Hour Rush / *24 Hour Rush

*Lab TAT Approval: By *Additional Charges May Apply

Additional Reporting Requests: Include QC Data Package: ☐ Yes ☐ No; FAX Results: ☐ Yes ☐ No; Email Results: ☐ Yes ☐ No; State EDT: ☐ Yes ☐ No (Include Source Number in Notes)

Sampler Information: TEAM Names: MP / KC; Employer: RCFC & WCD; LEAD Signature:

Sample ID	Date	Time	Unpreserved	H_2SO_4	HCl	HNO_3	$Na_2S_2O_3$	NaOH	ZnAc/NaOH	NaOH / Zn Acetate	NH_4Cl	MCAA	Total # of Containers	Sample Type	See Project List	Matrix	Notes
1516-W1-782 -01	10/4/15	13:45	3	2	4	1	1						11		X	SW	1 Vial w/ Headspace AB

Notes: * 4 HCL VOAs collected only if sheen observed. Bottle # / Flow

Sample Type: Routine / Resample / Special. Analysis Requested: See Project List / Trip Blank

Matrix: SW = Storm Water, NW = Nonstorm Water, GW = Groundwater, S = Soil, SG = Sludge, L = Liquid, M = Miscellaneous

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
[signature]	MIKE PHIPPS / RCFC&WCD	10/4/15 15:20	[signature] 10/4/15	Liezel Saad @ ESB

(For Lab Use Only) Sample Integrity Upon Receipt

Sample(s) Submitted on Ice?	Yes	No	
Custody Seal(s) Intact?	Yes	No	N/A
Sample(s) Intact?	Yes	No	

Temperature: 15.9 °C ☐ Cooler Blank

Lab Notes

Lab No. B5J0252 Page 1 of 1 AB

OCT - 5 2015

BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years

Client Name: Riverside County Flood Control
Contact: Rebekah Guill
Address: 1995 Market Street
Riverside, CA 92501

Report Date: 28-Oct-2015

Project Name: WWR Outfalls Wet 1&2 15-16

Project Number: 719RMS782

Work Order Number: B5J0252

Received on Ice (Y/N): Yes Temp: 16 °C

Project Name WWR Outfalls Wet 1 & 2
FY2014-15

Constituent Count: 34
Source: 2013 ORDER WWR TABLE L-1

Constituent	Hydron #	Method	RL	unit
Total Metals				
Antimony	1065	EPA 200.8	0.5	ug/L
Arsenic	1070	EPA 200.8	0.3	ug/L
Barium	1090	EPA 200.8	1.0	ug/L
Beryllium	1120	EPA 200.8	0.5	ug/L
Cadmium	1145	EPA 200.8	0.01	ug/L
Chromium	1180	EPA 200.8	0.1	ug/L
Chromium (VI)	1185	EPA 218.6	0.1	ug/L
Copper	1210	EPA200.8	0.01	ug/L
Lead	1290	EPA 200.8	0.01	ug/L
Mercury	1310	EPA 200.8	0.0002	ug/L
Nickel	1320	EPA 200.8	0.02	ug/L
Selenium	1520	EPA 200.8	0.3	ug/L
Silver	1535	EPA 200.8	0.02	ug/L
Thallium	1665	EPA 200.8	1.0	ug/L
Zinc	1700	EPA 200.8	0.1	ug/L
Field Parameters (field crews)				
pH	1705	field meter	0-14	
Temperature	1655	field meter	NA	°C
Dissolved Oxygen	1435	field meter	0.5	mg/L
Specific Conductivity	1200	field meter	1	umhos/cm
Turbidity	1690	field meter	0.2	NTU

Constituent	Hydron #	Method	RL	unit
Conventionals and Nutrients				
Nitrogen, Ammonia (as N)	1051	SM 4500 NH3H	0.1	mg/L
Nitrogen, Nitrite (as N)	1345	SM 4500 NO2 B	0.01	mg/L
Nitrogen, Nitrate (as N)	1340	EPA 300.0	0.01	mg/L
Nitrogen, Total	1355	Calculation	--	mg/L
Nitrogen, Total Kjeldahl (as N)	1360	EPA 351.2	0.5	mg/L
Phosphorus, ortho (as P)	1480	SM 4500 P E	0.01	mg/L
Phosphorus, total (as P)	1485	SM 4500 PBE	0.05	mg/L
Solids, Total Dissolved (TDS)	1625	SM 2540 C	10	mg/L
Solids, Total Suspended (TSS)	1630	SM 2540 D	0.5	mg/L
MBAS (Surfactants)	2345	SM 5540 C	--	mg/L
Ethylene-glycol	2300	EPA 8015 B	10	mg/L
Oil & Grease	1380	EPA 1664 A	--	mg/L
Petroleum Hydrocarbons, total	1452	EPA 8015 M	--	mg/L
Bacteriological				
E. coli	1077	SM 9221 E	2	MPN/100 mL

NOTES:
Reporting Limit (RL) based on State Board Minimum Levels or SWAMP Recommended RL (most conservative).

Attn: E.S. Babcock & Sons, Inc.
c/o Taylor Cariaga and Sushmitha Reddy

WWR OUTFALLS WET 1, 2 *2015-2016*

WATER POLLUTION PREVENTION
FUNDED BY THE CITIES AND COUNTY OF RIVERSIDE

ONLY RAIN DOWN THE STORM DRAIN

FIELD DATA SHEET

QAp
05/19/2016

Rev 08/11/2015

STATION ID: 719RMS782 SAMPLE DATE (MM/DD/YYYY): 5/4/16

STATION NAME: 782 - Ramsey Street Storm Drain WATERSHED: ☐SAR ☐SMR ☒WWR

PROJECT NAME: WWR Monitoring Program Within: ☐Unincorp. or ☒City of Banning

CONVEYANCE TYPE: rip rap / concrete channel ☐Receiving Water ☐Within IAH

GPS INFO: Lat 33°55' 30.5' Long 116°51' 31.5" GPS Unit: std site ☒Outfall, Owner: City of Banning

PRINTED NAMES of Sampling Team: Robert Lang ☐Other:

SIGNATURE of lead sampler: [signature] Sampling AGENCY: RCFC

SAMPLE INFORMATION

☒ VISITED, NOT SAMPLED (TIME: 1618)

EVENT CATEGORY:
☐ Wet Weather (Storm) OR
☐ Dry Weather
☐1st ☐2nd ☐3rd ☐4th
☐ Recon, IC/ID, or Complaint
☒ Other ~~3rd~~ 4th Q DW/ICID

SAMPLE ID(s) [# of Bottles]: 1516-D3-782-01 [ ], 1516-XX-XXXX-01-C [ ], 1516-XX-XXXX-XX [ ]

STREAM FLOW:
Dry: ☒Yes ☐No Ponded: ☐Yes ☒No
Rising Groundwater: ☐Yes ☒No
Connects to Surface Receiving Water ☐Yes ☒No
Dry weather event u/s influence: ☐Yes ☐No

TYPE (check all that apply):
☐ **Grab** (-01) [SAMPLE TIME:]
☐ **Composite**(-01-C) (COC last aliquot)
☐ **Field DUP**(-02) ☐ **Field Blank**(-03)
☐ **Travel Blank**(-04) ☐ Other:

FIELD PARAMETERS

Time Measured:

	Result (primary/dup)	Units	Meter	Calibration Date
☐ **Water Temp**				
☐ **pH**				
☐ **EC**				
☐ **Turbidity**				
☐ **DO**				
☐				
☐				
☐				

FLOW ESTIMATION:

☐ USGS Gauge height/stage ____ ft Q (cfs) = ____

[Gauge Name/No.:]

☒ Calculation by visual measurement: Q (cfs) = Ø

= [Coef(1,2/3, ____)]*[depth ____ ft]*[width ____ ft]*[vel ____ fps]

Circular pipe: [vel ____ fps][depth ____ ft][width ____ ft][R= ____ ft]

SITE CONDITIONS

PRECIPITATION:
NOW: ☐ None ☐ Drizzle/Sprinkle ☐ Rain ☐ Hail/Snow
[APPROX. STORM START TIME:]
Is there >72 hrs since previous rainfall event? ☐Yes ☐ No
(A measurable rainfall event is an event with >0.1 inch of rain)

ODOR: ☐ None ☐ Sulfides ☐ Sewage ☐ Smoke ☐ Petroleum ☐ Other:

☐ Floatables ☐ Settleables
☐ Vegetation ☐ Staining

COLOR: ☐ Colorless ☐ Green ☐ Yellow ☐ Brown ☐ Other

CLARITY: ☐ Clear (see bottom) ☐ Cloudy ☐ Murky
Sheen Present: ☐ Yes ☐ No

TRASH: ☐ Yes ☐ No
From: ☐ Flows ☐ Litter ☐ Dumping ☐ Other

COMPOSITE Samples: Auto/Grab, Flow/Time Weighted, ____Hrs

	Time	H(in.)	Flow(cfs)	%		Time	H(in.)	Flow(cfs)	%
1					13				
2					14				
3					15				
4					16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				
12					24				

Observations/Notes

☒ Photograph(s)

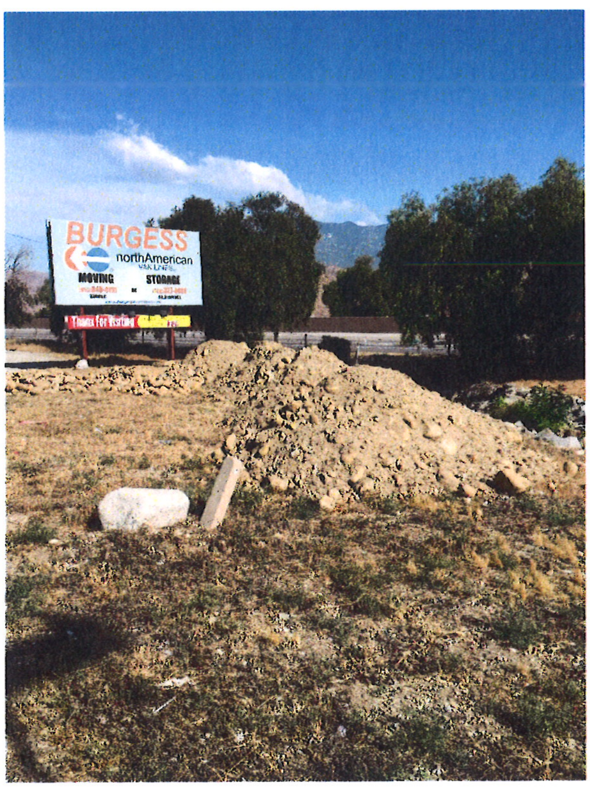
No Flow
Photos Taken
Dumped Piles of Dirt next To channel
No BMPs installed

☐ **Associated monitoring u/s, d/s** *(circle one or both and complete required FDS(s))* **at:**

PHOTOGRAPHS

Photo 1 – Dry in channel facing d/s

Photo 2 - Dry in channel facing u/s



Photos 3 & 4 – Dirt piles dumped next to riprap channel

WATER POLLUTION PREVENTION
FUNDED BY THE CITIES AND COUNTY OF RIVERSIDE

FIELD DATA SHEET

QAp
03/01/2016

Rev 08/11/2015

STATION ID: 719RMS782 **SAMPLE DATE** (MM/DD/YYYY): 02/16/16

STATION NAME: 782 - Ramsey Street Storm Drain — WATERSHED: ☐SAR ☐SMR ☒WWR

PROJECT NAME: WWR Monitoring Program — Within: ☐Unincorp. or ☒City of Banning

CONVEYANCE TYPE: rip rap/concrete channel — ☐Receiving Water ☐Within IAH

GPS INFO: Lat 33°55' 30.5' Long 116°51' 31.5" GPS Unit: std site — ☒Outfall, Owner: City of Banning

PRINTED NAMES of Sampling Team: Robert Lang — ☐Other:

SIGNATURE of lead sampler: [signature] — Sampling AGENCY: RCFC

SAMPLE INFORMATION

☒ VISITED, NOT SAMPLED (TIME: 1145)

EVENT CATEGORY:
- ☐ Wet Weather (Storm) OR
- ☒ Dry Weather
  - ☐1st ☐2nd ☐3rd ☐4th
- ☐ Recon, IC/ID, or Complaint
- ☒ Other 3rd Q DW/ICID

SAMPLE ID(s) [# of Bottles]: 1516-D3-782-01 [__], 1516-XX-XXXX-01-C [__], 1516-XX-XXXX-XX [__]

STREAM FLOW:
- Dry: ☐Yes ☒No — Ponded: ☐Yes ☒No
- Rising Groundwater: ☐Yes ☒No
- Connects to Surface Receiving Water ☐Yes ☒No
- Dry weather event u/s influence: ☐Yes ☐No

TYPE (check all that apply):
- ☐ **Grab** (-01) [SAMPLE TIME: ______]
- ☐ **Composite**(-01-C) ______ (COC last aliquot)
- ☐ **Field DUP**(-02) ______ ☐ **Field Blank**(-03) ______
- ☐ **Travel Blank**(-04) ______ ☐ Other: ______

FIELD PARAMETERS

Time Measured: ______

	Result (primary/dup)	Units	Meter	Calibration Date
☐ **Water Temp**				
☐ **pH**				
☐ **EC**				
☐ **Turbidity**				
☐ **DO**				
☐				
☐				
☐				

FLOW ESTIMATION:

☐ USGS Gauge height/stage ______ ft Q (cfs) = ~~>0.01~~ RL

[Gauge Name/No.: ______]

☒ Calculation by visual measurement: Q (cfs) = >0.01

= [Coef(1,$^2/_3$,______)]*[depth______ft]*[width______ft]*[vel______fps]

Circular pipe: [vel______fps][depth______ft][width______ft][R=______ft]

SITE CONDITIONS

PRECIPITATION:

NOW: ☒ None ☐ Drizzle/Sprinkle ☐ Rain ☐ Hail/Snow

[APPROX. STORM START TIME: ______]

Is there >72 hrs since previous rainfall event? ☒Yes ☐ No
(A measurable rainfall event is an event with >0.1 inch of rain)

ODOR: ☒ None ☐ Sulfides ☐ Sewage ☐ Smoke ☐ Petroleum ☐ Other: ______

☐ Floatables______ ☐ Settleables ______
☐ Vegetation______ ☐ Staining ______

COLOR: ☐ Colorless ☐ Green ☐ Yellow ☐ Brown ☐ Other

CLARITY: ☐ Clear (see bottom) ☐ Cloudy ☐ Murky
Sheen Present: ☐ Yes ☐ No

TRASH: ☒Yes ☐ No
From: ☐ Flows ☒ Litter ☐ Dumping ☐ Other______

COMPOSITE Samples: Auto/Grab, Flow/Time Weighted, ____Hrs

	Time	H(in.)	Flow(cfs)	%		Time	H(in.)	Flow(cfs)	%
1					13				
2					14				
3					15				
4					16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				
12					24				

Observations/Notes

☒ Photograph(s)

Small amount of Sheet Flow Then Ponded in rip rap channel section

Trickle flow Evaporated near Fwy undercrossing.

Not enough water to sample

☐ **Associated monitoring u/s, d/s** *(circle one or both and complete required FDS(s))* **at:**

PHOTOGRAPHS

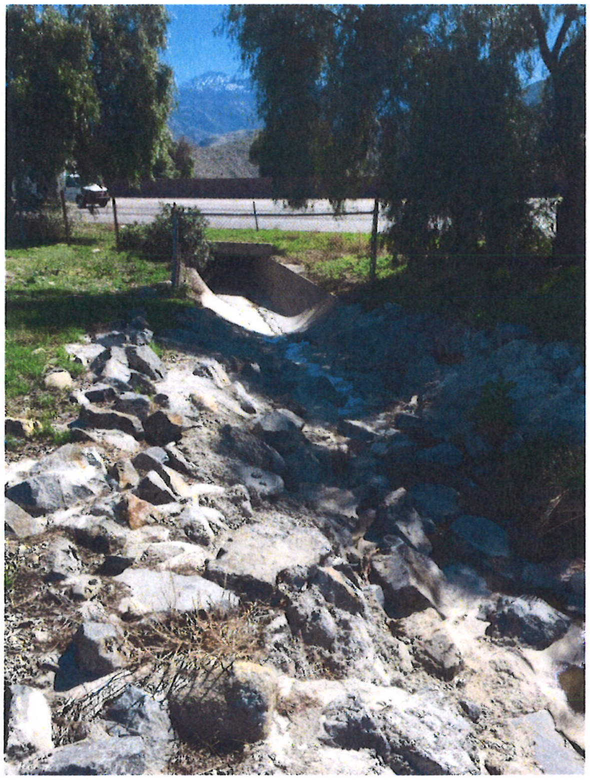


Photo 1 – Trickle flow in channel facing d/s


Photo 2 - Trickle flow in channel facing u/s


Photo 3 - Trickle flow in concrete channel u/s of rip-rap; not enough water to sample

FIELD DATA SHEET

WATER POLLUTION PREVENTION
FUNDED BY THE CITIES AND COUNTY OF RIVERSIDE
ONLY RAIN DOWN THE STORM DRAIN

QAp 10/14/2015

Rev 08/11/2015

STATION ID: 719RMS782 **SAMPLE DATE** (MM/DD/YYYY): 10/1/15

STATION NAME: **782 - Ramsey Street Storm Drain** WATERSHED: ☐SAR ☐SMR ☒WWR

PROJECT NAME: **WWR Monitoring Program** Within: ☐Unincorp. or ☒City of Banning

CONVEYANCE TYPE: concrete / rip rap channel ☐Receiving Water ☐Within IAH

GPS INFO: Lat ______ Long ______ GPS Unit: ______ ☒Outfall, Owner: City of Banning

PRINTED NAMES of Sampling Team: Robert Laag ☐Other: ______

SIGNATURE of lead sampler: Robert E Laag Sampling AGENCY: RCFC+WCD

SAMPLE INFORMATION

☒ VISITED, NOT SAMPLED (TIME: 1048)

EVENT CATEGORY:

- ☐ Wet Weather (Storm) OR
- ☐ Dry Weather
  - ☐1st ☐2nd ☐3rd ☐4th
- ☐ Recon, IC/ID, or Complaint
- ☒ Other 2nd Q DW/ICID

SAMPLE ID(s) [# of Bottles]: 1516-D2-782-01 [__], 1516-XX-XXXX-01-C [__], 1516-XX-XXXX-XX [__]

STREAM FLOW:

Dry: ☒Yes ☐No	Ponded: ☐Yes ☐No
Rising Groundwater:	☐Yes ☐No
Connects to Surface Receiving Water	☐Yes ☐No
Dry weather event u/s influence:	☐Yes ☐No

TYPE (check all that apply):

- ☐ **Grab** (-01) [SAMPLE TIME: ______]
- ☐ **Composite**(-01-C) ______ (COC last aliquot)
- ☐ **Field DUP**(-02) ______ ☐ **Field Blank**(-03) ______
- ☐ **Travel Blank**(-04) ______ ☐ Other: ______

FIELD PARAMETERS

Time Measured: ______

	Result (primary/dup)	Units	Meter	Calibration Date
☐ **Water Temp**				
☐ **pH**				
☐ **EC**				
☐ **Turbidity**				
☐ **DO**				
☐				
☐				
☐				

FLOW ESTIMATION:

☐ USGS Gauge height/stage ______ ft Q (cfs) = ______

[Gauge Name/No.: ______]

☒ Calculation by visual measurement: Q (cfs) = 0

= [Coef(1,$^2/_3$,______)]*[depth______ft]*[width______ft]*[vel______fps]

Circular pipe: [vel______fps][depth______ft][width______ft][R=______ft]

SITE CONDITIONS

PRECIPITATION:

NOW: ☒ None ☐ Drizzle/Sprinkle ☐ Rain ☐ Hail/Snow

[APPROX. STORM START TIME: ______]

Is there >72 hrs since previous rainfall event? ☒Yes ☐ No
(A measurable rainfall event is an event with >0.1 inch of rain)

ODOR: ☐ None ☐ Sulfides ☐ Sewage ☐ Smoke ☐ Petroleum ☐ Other: ______

☐ Floatables______ ☐ Settleables ______
☐ Vegetation______ ☐ Staining ______

COLOR: ☐ Colorless ☐ Green ☐ Yellow ☐ Brown ☐ Other

CLARITY: ☐ Clear (see bottom) ☐ Cloudy ☐ Murky
Sheen Present: ☐ Yes ☐ No

TRASH: ☐ Yes ☐ No
From: ☐ Flows ☐ Litter ☐ Dumping ☐ Other______

COMPOSITE Samples: Auto/Grab, Flow/Time Weighted, ____Hrs

	Time	H(in.)	Flow(cfs)	%		Time	H(in.)	Flow(cfs)	%
1					13				
2					14				
3					15				
4					16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				
12					24				

Observations/Notes

☒ Photograph(s)

Dry, No Flow

1001151048

☐ **Associated monitoring u/s, d/s** *(circle one or both and complete required FDS(s))* **at:**

PHOTOGRAPHS

Photo 1 – Dry channel facing d/s

Photo 2 - Dry channel facing d/s

Photo 3 - Dry concrete channel u/s of rip-rap

WATER POLLUTION PREVENTION
FUNDED BY THE CITIES AND COUNTY OF RIVERSIDE

ONLY RAIN DOWN THE STORM DRAIN

FIELD DATA SHEET

QAp

Rev 07/13/2015

STATION ID: 719RMS782 **SAMPLE DATE** (MM/DD/YYYY): 7/14/15

STATION NAME: **782 - Ramsey Street Storm Drain** WATERSHED: ☐SAR ☐SMR ☒WWR

PROJECT NAME: **WWR Monitoring Program** Within: ☐Unincorp. or ☒City of Banning

CONVEYANCE TYPE: rip rap channel ☐Receiving Water ☐Within IAH

GPS INFO: Lat 33° 55' 30.5" Long 116° 51' 31.5" GPS Unit: std site ☒Outfall, Owner: ____

PRINTED NAMES of Sampling Team: Robert Lang ☐Other: ____

SIGNATURE of lead sampler: [signature] Sampling AGENCY: RCFC & WCD

SAMPLE INFORMATION

☒ VISITED, NOT SAMPLED (TIME: 1936)

EVENT CATEGORY:
- ☐ Wet Weather (Storm) OR
- ☒ Dry Weather
  - ☐1st ☐2nd ☐3rd ☐4th
- ☐ Recon, IC/ID, or Complaint
- ☒ Other 1st Q ICID/Dry

SAMPLE ID(s) [# of Bottles]: 1516-D1-782-01 [__], 1516-XX-XXXX-01-C [__], 1516-XX-XXXX-XX [__]

STREAM FLOW:
- Dry: ☒Yes ☐No Ponded: ☐Yes ☐No
- Rising Groundwater: ☐Yes ☐No
- Connects to Surface Receiving Water ☐Yes ☐No
- Dry weather event u/s influence: ☐Yes ☐No

TYPE (check all that apply):
- ☐ **Grab** [SAMPLE TIME: ____]
- ☐ **Composite**(-01-C) [SAMPLE TIME: ____] COC last aliquot
- ☐ Field DUP(-02) ☐ Field Blank(-03) ☐ Travel Blank(-04)
- ☐ Other:

FIELD PARAMETERS

Time Measured: ____

	Result (primary/dup)	Units	Meter	Calibration Date
☐ **Water Temp**				
☐ **pH**				
☐ **EC**				
☐ **Turbidity**				
☐ **DO**				
☐				
☐				
☐				

FLOW ESTIMATION:

☐ USGS Gauge height/stage ____ ft Q (cfs) = ____

[Gauge Name/No.: ____]

☒ Calculation by visual measurement: Q (cfs) = 0

= [Coef(1,2/3,____)]*[depth____ft]*[width____ft]*[vel____fps]

Circular pipe: [vel____fps][depth____ft][width____ft][R=____ft]

SITE CONDITIONS

PRECIPITATION:

NOW: ☒ None ☐ Drizzle/Sprinkle ☐ Rain ☐ Hail/Snow

[APPROX. STORM START TIME: ____]

Is there >72 hrs since previous rainfall event? ☐Yes ☐ No
(A measurable rainfall event is an event with >0.1 inch of rain)

ODOR: ☒ None ☐ Sulfides ☐ Sewage ☐ Smoke ☐ Petroleum ☐ Other: ____

☐ Floatables____ ☐ Settleables ____
☐ Vegetation____ ☐ Staining ____

COLOR: ☐ Colorless ☐ Green ☐ Yellow ☐ Brown ☐ Other

CLARITY: ☐ Clear (see bottom) ☐ Cloudy ☐ Murky
Sheen Present: ☐ Yes ☐ No

TRASH: ☐ Yes ☐ No
From: ☐ Flows ☐ Litter ☐ Dumping ☐ Other____

COMPOSITE Samples: Auto/Grab, Flow/Time Weighted, ____Hrs

	Time	H(in.)	Flow(cfs)	%		Time	H(in.)	Flow(cfs)	%
1					13				
2					14				
3					15				
4					16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				
12					24				

Observations/Notes

☒ Photograph(s)

Channel was dry.
Photos Taken

0714151936

☐ **Associated monitoring u/s, d/s** *(circle one or both and complete required FDS(s))* **at:**

PHOTOGRAPHS

Photo 1 – Dry channel facing d/s

Photo 2 - Dry channel facing d/s

Photo 3 - Dry channel facing u/s

WATER POLLUTION PREVENTION
FUNDED BY THE CITIES AND COUNTY OF RIVERSIDE

FIELD DATA SHEET

Rev 07/02/2015 - CVWD

QAp
02/23/2016

STATION ID: 719POR817 **SAMPLE DATE (MM/DD/YYYY):** 01/05/2016

STATION NAME: 817 - Portola Avenue Outfall

WATERSHED: ☐SAR ☐SMR ☒WWR

PROJECT NAME: *Whitewater River Region Monitoring Program - 2013 Order* Within: ☐Unincorp. or ☒City of Palm Desert

CONVEYANCE TYPE: Open Channel ☐Receiving Water

GPS INFO: Lat 33° 44.26 Long 116° 22.40 GPS Unit: ☒Outfall, Owner: City of Palm Desert

PRINTED NAMES of Sampling Team: MATT ROJO, SERGIO M., JOE M. ☐Other:

SIGNATURE of lead sampler: Matt Rojo

Sampling AGENCY: *Coachella Valley Water District*

SAMPLE INFORMATION ☐ VISITED, NOT SAMPLED (TIME:)

EVENT CATEGORY:
☒ Wet Weather (Storm) OR
☐ Dry Weather
☐1st ☐2nd ☐3rd ☐4th
☐ Recon, IC/ID, or Complaint
☐ Other

SAMPLE ID(s) [# of Bottles]: 7 1516-XX-XXXX-01 [ ], 1516-XX-XXXX-XX [ ], 1516-XX-XXXX-XX [ ]

STREAM FLOW:
Dry: ☐Yes ☒No Ponded: ☐Yes ☐No
Rising Groundwater: ☐Yes ☐No
Connects to Surface Receiving Water ☐Yes ☐No
Dry weather event u/s influence: ☐Yes ☐No

TYPE (check all that apply):
☒ Grab [SAMPLE TIME: 1457]
☐ ~~Composite(-01-C) [SAMPLE TIME:]~~ COC last aliquot
☐ Field DUP(-02) ☐ Field Blank(-03) ☐ Travel Blank(-04)
☐ Other:

FIELD PARAMETERS Time Measured: 1457

	Result (primary/dup)	Units	Meter	Calibration Date
☐ Water Temp	15°	C	HQ40D	1/5/2016
☐ pH	7.85	SU	HQ40D	1/5/2016
☐ EC	652	µhmo/cm	HQ40D	1/5/2016
☐ Turbidity	240	NTU	2100P	6/23/2014
☐ DO	8.81	mg/L	HQ300	1/5/2016
☐				
☐				
☐				

FLOW ESTIMATION: See attached flow calculation

☐ USGS Gauge height/stage ____ ft Q (cfs) = ____

[Gauge Name/No.:]

☒ Calculation by visual measurement: Q (cfs) = 3.9

= [Coef(1,2/3, ___)]*[depth ___ ft]*[width ___ ft]*[vel ___ fps]

Circular pipe: [vel ___ fps][depth ___ ft][width ___ ft][R= ___ ft]

COMPOSITE Samples: Auto/Grab, Flow/Time Weighted, ___ Hrs

	Time	H(in.)	Flow(cfs)	%		Time	H(in.)	Flow(cfs)	%
1					13				
2					14				
3					15				
4					16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				
12					24				

SITE CONDITIONS

PRECIPITATION:
NOW: ☐ None ☒ Drizzle/Sprinkle ☐ Rain ☐ Hail/Snow
[APPROX. STORM START TIME: 1420]
>72 hrs since previous (>0.1") rainfall event: ☐ Yes ☐ No

ODOR: ☒ None ☐ Sulfides ☐ Sewage ☐ Smoke ☐ Petroleum ☐ Other:

☐ Floatables ☐ Settleables
☐ Vegetation ☐ Staining

COLOR: ☐ Colorless ☐ Green ☐ Yellow ☒ Brown ☐ Other

CLARITY: ☐ Clear (see bottom) ☐ Cloudy ☒ Murky
Sheen Present: ☐ Yes ☒ No

TRASH: ☒ Yes ☐ No
From: ☒ Flows ☒ Litter ☒ Dumping ☐ Other

Observations/Notes ☒ Photograph(s)

(If conducting Outfall Monitoring, provide estimate of the surface flows for both the Outfall and prox. Receiving Water as applicable.)

☐ **Associated monitoring u/s, d/s** *(circle one or both and complete required FDS(s))* **at:**

Coachella Valley Water District
Clean Water Act Division

1/5/16
Portola
WeT

DATA FORM FOR CALCULATING FLOW

Solving the equation: Flow = $\frac{A\,L\,C}{T}$

Where:

A = Average cross-sectional area of the stream. L = Length of the stream reach measured (usually 20 ft.).
C = A coefficient or correction factor (0.8 for rocky-bottom streams or 0.9 for muddy-bottom streams). T = Time, in seconds, for the float to travel the length of L.

A: Average Cross-Sectional Area

Transect #1 (upstream)

	Interval width (feet)	Depth (feet)	
A to B =	___	___	(at B)
B to C =	___	___	(at C)
C to D =	___	___	(at D)
D to E =	___	___	(shoreline)
Totals	☐	☐	÷ 4

= Avg. depth ☐ ft

Cross-sectional area of Transect #1
= Total width (ft) X Avg. depth (ft)
25 X 0.25 = 6.25 ft^2

Transect #2 (downstream)

	Interval width (feet)	Depth (feet)	
A to B =	___	___	(at B)
B to C =	___	___	(at C)
C to D =	___	___	(at D)
D to E =	___	___	(shoreline)
Totals	☐	☐	÷ 4

= Avg. depth ☐ ft

Cross-sectional area of Transect #2
= Total width (ft) X Avg. depth (ft)
☐ X ☐ = ☐ ft^2

(Cross-sectional area of Transect #1 + Cross-sectional area of Transect #2) ÷ 2 = Average Cross-sectional area

A = (~~25~~ ft^2 + ~~0.25~~ ft^2) ÷ 2 = 6.25 ft^2

L: Length of Stream Reach

10 ft

C: Coefficient

0.9

T: Travel Time

	Travel Time of Float (sec.)
Trial #1	13.2
Trial #2	14.5
Trial #3	15.8
Total	43.5 ÷ 3

= Avg. time 14.5 sec.

Flow = $\frac{A\,L\,C}{T}$ = $\frac{6.25 \quad 10 \quad 0.9}{14.5}$ = 3.9 ft^3/sec.

Final Analytical Report

Coachella Valley Water District
Water Quality Laboratory
ELAP No. 1780
P.O. Box 1058
Coachella, CA 92236
Telephone: (760) 398-2651

Sample Number
20160105-068

Location: Portola Avenue Outfall
Sample Type Desc: GroundWater
ollected Date/Time: 1/5/2016 14:57
eceived Date/Time: 1/5/2016 15:55
Sample Status: Complete
Subcontract Lab: N/A
Sample Comment:

Sample Point: 719POR817
State Well Number: N/A
Collected By: MAR
Received By: JFS
Completed Date/Time: 1/12/2016 10:40
Report Date/Time: 1/27/2016 8:01

Analyte(s)	Result	Units	MDL	RL	MCL	Method	Date/Time	Analyst	Flag
ysical-Chemical Characteristics									
Field - Specific Conductance (EC)	650	µmhos/cm				SM 2510	1/5/2016 14:57	MAR	
Temperature, Field	15.0	Degrees C				SM 2550 B	1/5/2016 14:57	MAR	
Field Turbidity	240.0	NTU			5	SM 2130 B	1/6/2016 2:01	MAR	
Field pH	7.8	SU					1/6/2016 2:01	MAR	
cteriological Analyses									
E. coli	920	MPN/100mL	2			SM 9221	1/5/2016 16:00	JFS	
ner									
Dissolved Oxygen	8.81	mg/L				SM 4500 OG	1/5/2016 14:57	MAR	

Coachella Valley Water District
Environmental Services Department

WET WEATHER RECEIVING WATER AND MS4 OUTFALL MONITORING EVENT

JANUARY 5, 2016

Location	Able to Sample?	Conditions
Portola Outfall 719POR817	Yes	There was a small stormwater flow observed at the Portola Outfall that was sufficient to sample.

SAMPLE COCs/Reports

	Portola Outfall		CVSC Ave 52 Bridge	
	DRY	WET	DRY	WET
Field Parameters				
• Water Temperature IN °C • pH • EC • Turbidity • DO • Additional as needed to characterize		CE16010516		n/a
Constituents of Concern				
• Antimony • Arsenic • Barium • Beryllium • Cadmium • Chromium • Chromium^{+6} • Copper • Lead • Mercury • Nickel • Selenium • Silver • Thallium • Zinc • E. coli[1(8)] • NO_2 (N)[1(48)] • NO_3 (N)[1(48)] • TKN • Total N • Ammonia (N) • Total Suspended Solids • Total Dissolved Solids • Total Phosphorus • Ortho Phosphorus[1(48)] AKA Phosphate as P • Total Petroleum Hydrocarbons • Methylene-blue activated substances (MBAS)[1(48)] • Ethylene-glycol • Oil and Grease		CE16010517		n/a
• E. Coli		CE16010516		n/a

Included in this package:

- Photos numbered 1 through 2:
- COCs:
    - CE16010516
    - CE16010517
- CVWD Final Analytical Reports:
    - 20160105-068
- Field Data Sheets:
    - 719 POR 817

- 719POR817
- Analytical Data Babcock: Work Order #B6A0413
- Invoice Number BA61280-2044 – Babcock

Data Review:

Location	Analytical Results	
	E. Coli (MPN/100ml)	**Dissolved Oxygen** (mg/L)
Portola Outfall	920	8.81

Photos:

Photo 1: Portola Outfall


Photo 2: Portola – apron through fence

To: CVWD

PLEASE RETURN ☐ CLIENT ICE CHEST(S) AND ICE PACKS

COACHELLA VALLEY WATER DISTRICT
P.O. Box 1058; Coachella, CA 92236

Chain of Custody

CE16010516

☐ Requires State Forms

Turn Around Time: ☐ Standard or ☐ RUSH

COC #: CE16010516 271 - Stormwater - Wet Weather - 01/05/2016

Received Date Time:

Comments:

CVWD Log Number	Sampler	Sample Pt ID	Sample Site Name	SM	CM	ST	Preservative No Btls / Container	pH	EC (µhmo/cm)	Temp° C	Cl2 (mg/L) Free / Total	Comments
20160105-068	771	17122	Portola Avenue Outfall		G	O	Na2S2O3 Bacterial 100 ml	7.85	652	15.0		D.O. = 8.81 mg/L
Sample Date: 160105 / Time: 1457		Sample Point Name: 719POR817										TURB = 240 NTU

Requested Analysis: DO - Field, pH - Field, EC - Field, Turbidity - Field, E. coli by MTF 3x5 w/3 Dilutions, Temperature - Field

MR

Sample Matrix (SM): W = Water; S = Soil; Sl = Sludge || Collection Method (CM): G = Grab; CF = Flow composite; CT = Time Composite; CS = Spatial Composite
Sample Type (ST): FF = First flush, RT = Routine; Rp = Repeat; Rm = Replacement; Nw = New; Rs = Resample; Ts = Test; Sp = Special; 24 = 24 Hour; 4Q = 4 Quarters; 7s = 7 samples

Released By	ID#	Company	Received By	ID##	Company	Date	Time	Temp °C Iced (✓) Refrigerated ( )
Matt Kopo	771	CVWD	[signature]	196	CVWD	160105	1555	10.1

To: Babcock LABS

Copy

COACHELLA VALLEY WATER DISTRICT

P.O. Box 1058; Coachella, CA 92236

Chain of Custody

CE16010517

PLEASE RETURN [ ] CLIENT ICE CHEST(S) AND ICE PACKS

[ ] Requires State Forms   Turn Around Time: [ ] Standard or [ ] RUSH

COC #: CE16010517   295 - Stormwater - Wet Weather - Babcock - 01/05/

Received Date Time: Comments:

CVWD Log Number / Sample Date	Time	Sampler	Sample Pt ID	Sample Site Name / Sample Point Name	SM	CM	ST	Preservative / No Bttls / Container	pH	EC (µhmo/cm)	Temp°	Cl2 (mg/L) Free / Total	Comments
20160105-075 / 160105	1457	771	17122	Portola Avenue Outfall / 719POR817		G	O	Iced / Poly 2L					...
Requested Analysis: TDS - Babcock, Nitrite - Subcontract, Nitrate - Subcontract, TSS - Babcock, MBAS - Babcock, Orthophosphate - Babcock													
20160105-076			17122	Portola Avenue Outfall / 719POR817		G	O	HCl / VOA 40mL					...
Requested Analysis: Total Petroleum Hydrocarbons - Babcock													
20160105-077			17122	Portola Avenue Outfall / 719POR817		G	O	H2SO4 / Poly 1L					...
Requested Analysis: Nitrogen-Total - Babcock, Ammonia-N - Babcock, Nitrogen-Kjeldahl - Babcock, Phosphorus-Total - Babcock													
20160105-078			17122	Portola Avenue Outfall / 719POR817		G	O	Iced / 500 mL - Glass					...
Requested Analysis: Ethylene Glycol - Babcock													
20160105-079			17122	Portola Avenue Outfall / 719POR817		G	O	HNO3 / Poly 1L					...
Requested Analysis: Thallium - Babcock, Total Chromium - Babcock, Cadmium- Babcock, Barium - Babcock, Arsenic - Babcock, Selenium - Babcock, Mercury - Babcock, Lead - Babcock, Silver - Babcock, Antimony - Babcock, Nickel - Babcock, Copper - Babcock, Hexavalent Chromium - Babcock, Beryllium - Babcock, Zinc - Babcock													
20160105-080			17122	Portola Avenue Outfall / 719POR817		G	O	None / 500 mL - Glass					...
Requested Analysis: Oil & Grease - Babcock													

M2

Sample Matrix (SM) W = Water, S = Soil, Sl = Sludge || Collection Method (CM) G = Grab, CF = Flow composite, CT = Time Composite, CS = Spatial Composite
Sample Type (ST) FF = First flush, RT = Routine, Rp = Repeat, Rm = Replacement, Nw = New, Rs = Resample, Ts = Test, Sp = Special, 24 = 24 Hour, 4Q = 4 Quarters, 7s = 7 samples

Released By	ID#	Company	Received By	ID##	Company	Date	Time	Temp °C Iced ( ) Refrigerated ( )
Matt Rojo	771	CVWD						

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QAp
10/31/2016

Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 1 of 23
Contact:	Steve Bigley	Project Name:	CVWD Storm Water - WWR Mor
Address:	P.O. Box 1058	Project Number:	CE16010517 - SW Wet Weather
	Coachella, CA 92236		
Report Date:	28-Oct-2016	**Work Order Number:**	**B6A0413**

Received on Ice (Y/N): Yes Temp: 0 °C

Attached is the analytical report for the sample(s) received for your project. Below is a list of the individual sample descriptions with the corresponding laboratory number(s). Also, enclosed is a copy of the Chain of Custody document (if received with your sample(s)). Please note any unused portion of the sample(s) may be responsibly discarded after 30 days from the above report date, unless you have requested otherwise.

Thank you for the opportunity to serve your analytical needs. If you have any questions or concerns regarding this report please contact our client service department.

Sample Identification

Lab Sample #	Client Sample ID	Matrix	Date Sampled	By	Date Submitted	By
B6A0413-06	Portola Avenue Outfall 20160105-080 Grab	Liquid	01/5/16 14:57	771	01/06/16 11:15	FedEx
B6A0413-05	Portola Avenue Outfall 20160105-079 Grab	Liquid	01/5/16 14:57	771	01/06/16 11:15	FedEx
B6A0413-04	Portola Avenue Outfall 20160105-078 Grab	Liquid	01/5/16 14:57	771	01/06/16 11:15	FedEx
B6A0413-03	Portola Avenue Outfall 20160105-077 Grab	Liquid	01/5/16 14:57	771	01/06/16 11:15	FedEx
B6A0413-02	Portola Avenue Outfall 20160105-076 Grab	Liquid	01/5/16 14:57	771	01/06/16 11:15	FedEx
B6A0413-01	Portola Avenue Outfall 20160105-075 Grab	Liquid	01/5/16 14:57	771	01/06/16 11:15	FedEx

GOOD

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: CVWD Storm Water - WWR Moı
Project Number: CE16010517 - SW Wet Weatheı

Work Order Number: B6A0413
Received on Ice (Y/N): Yes Temp: 0 °C

Laboratory Reference Number
B6A0413-01

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
Portola Avenue Outfall 20160105-075	Liquid	01/05/16 14:57	01/06/16 11:15

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Anions								
Nitrate as N	16	0.20	0.11	mg/L	EPA 300.0	01/06/16 22:51	dcb	NRLrcf
Solids								
Total Dissolved Solids	500	20	12	mg/L	SM 2540C	01/06/16 23:35	cdcs	NRLrcf
Total Suspended Solids	510	20	15	mg/L	SM 2540D	01/09/16 11:00	sll	NRLrcf
Surfactants								
MBAS	ND	0.67	0.67	mg/L	SM 5540C	01/07/16 11:55	slp	N_RLm
Nutrients								
Nitrite as N	0.42	0.10	0.046	mg/L	SM 4500NO2 B	01/06/16 21:40	nc	NRLrcf
Ortho Phosphate Phosphorus	0.32	0.050	0.0028	mg/L	SM 4500P E	01/06/16 19:50	slp	NRLrcf
Metals and Metalloids								
Hexavalent Chromium	1.5	1.0	0.013	ug/L	EPA 218.6	01/07/16 21:44	DCB	NRLrcf

Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Analytical Report:
Project Name: CVWD Storm Water - WWR Mor
Project Number: CE16010517 - SW Wet Weather

Work Order Number: B6A0413
Received on Ice (Y/N): Yes Temp: 0 °C

Laboratory Reference Number
B6A0413-02

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
Portola Avenue Outfall 20160105-076	Liquid	01/05/16 14:57	01/06/16 11:15

Analyte(s)	Result		RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Diesel Range Organics by EPA 8015									
Diesel Range Hydrocarbons	ND		5.0	0.46	mg/L	EPA 8015B	01/13/16 01:15	naa	
Surrogate: Decachlorobiphenyl	75.6	%	35-120			EPA 8015B	01/13/16 01:15	naa	
Gasoline Range Organics by EPA 8015									
Gasoline Range Organics	0.024		0.050	0.024	mg/L	EPA 8015B	01/13/16 02:49	eec	J
Surrogate: a,a,a-Trifluorotoluene	51.5	%	10-110			EPA 8015B	01/13/16 02:49	eec	

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: CVWD Storm Water - WWR Mor
Project Number: CE16010517 - SW Wet Weather

Work Order Number: B6A0413
Received on Ice (Y/N): Yes Temp: 0 °C

Laboratory Reference Number
B6A0413-03

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
Portola Avenue Outfall 20160105-077	Liquid	01/05/16 14:57	01/06/16 11:15

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Nutrients								
Ammonia-Nitrogen	1.6	0.10	0.059	mg/L	SM4500NH3H	01/07/16 15:18	sll	
Kjeldahl Nitrogen	13	0.80	0.50	mg/L	EPA 351.2	01/12/16 00:42	jma	NRLrcf
Total Nitrogen	29	0.8	0.50	mg/L	Calculation			
Total Phosphorus	1.5	0.50	0.19	mg/L	SM 4500P B E	01/13/16 13:40	slp	NRLrcf

mailing
P.O Box 432
Riverside, CA 92502-0432

location
6100 Quail Valley Court
Riverside, CA 92507-0704

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www.babcocklabs.com

CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119

ESB
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Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 5 of 23
Contact:	Steve Bigley	Project Name:	CVWD Storm Water - WWR Mor
Address:	P.O. Box 1058	Project Number:	CE16010517 - SW Wet Weather
	Coachella, CA 92236		
Report Date:	28-Oct-2016	**Work Order Number:**	**B6A0413**
		Received on Ice (Y/N):	Yes Temp: 0 °C

Laboratory Reference Number
B6A0413-04

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
Portola Avenue Outfall 20160105-078	Liquid	01/05/16 14:57	01/06/16 11:15

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Miscellaneous Organic Compounds								
Ethylene Glycol	ND	1.0	1.0	mg/L*	Purpald-Periodate	01/12/16 13:27	jhr	

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: CVWD Storm Water - WWR Mo
Project Number: CE16010517 - SW Wet Weathe

Work Order Number: B6A0413
Received on Ice (Y/N): Yes Temp: 0 °C

Laboratory Reference Number

B6A0413-05

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
Portola Avenue Outfall 20160105-079	Liquid	01/05/16 14:57	01/06/16 11:15

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Metals and Metalloids								
Antimony	3.9	10	0.40	ug/L	EPA 200.8	01/13/16 17:56	ERA	NRLrcf, J
Arsenic	3.1	5.0	1.2	ug/L	EPA 200.8	01/13/16 17:56	ERA	NRLrcf, J
Barium	140	20	0.18	ug/L	EPA 200.8	01/13/16 17:56	ERA	NRLrcf
Beryllium	1.9	10	0.26	ug/L	EPA 200.8	01/13/16 17:56	ERA	NRLrcf, J
Cadmium	0.76	2.0	0.26	ug/L	EPA 200.8	01/13/16 17:56	ERA	NRLrcf, J
Total Chromium	17	20	1.9	ug/L	EPA 200.8	01/13/16 17:56	ERA	NRLrcf, J
Copper	130	10	0.64	ug/L	EPA 200.8	01/13/16 17:56	ERA	NRLrcf
Lead	10	10	0.19	ug/L	EPA 200.8	01/13/16 17:56	ERA	NRLrcf
Mercury	ND	0.20	0.055	ug/L	EPA 200.8 ATP	01/13/16 17:56	ERA	NRLrcf
Nickel	11	20	0.20	ug/L	EPA 200.8	01/13/16 17:56	ERA	NRLrcf, J
Selenium	1.4	5.0	1.4	ug/L	EPA 200.8	01/13/16 17:56	ERA	NRLrcf, J
Silver	1.3	10	0.22	ug/L	EPA 200.8	01/13/16 17:56	ERA	NRLrcf, J
Thallium	0.26	200	0.20	ug/L	EPA 200.8	01/13/16 17:56	ERA	NRLrcf, J
Zinc	250	10	1.5	ug/L	EPA 200.8	01/13/16 17:56	ERA	NRLrcf

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CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119

Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 7 of 23
Contact:	Steve Bigley	Project Name:	CVWD Storm Water - WWR Mor
Address:	P.O. Box 1058 Coachella, CA 92236	Project Number:	CE16010517 - SW Wet Weather
Report Date:	28-Oct-2016	**Work Order Number:**	**B6A0413**

Received on Ice (Y/N): Yes Temp: 0 °C

Laboratory Reference Number

B6A0413-06

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
Portola Avenue Outfall 20160105-080	Liquid	01/05/16 14:57	01/06/16 11:15

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Aggregate Organic Compounds								
Oil & Grease (HEM)	3.3	4.9	1.8	mg/L	EPA 1664A	01/19/16 13:35	krv	J

* NELAP does not offer accreditation for this analyte/method/matrix combination

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: CVWD Storm Water - WWR Mo
Project Number: CE16010517 - SW Wet Weathe

Work Order Number: B6A0413
Received on Ice (Y/N): Yes Temp: 0 °C

Anions - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A06126 - Analyzed as Received IC											
Blank (6A06126-BLK1)				Prepared & Analyzed: 01/06/16							
Nitrate as N	ND	0.20	0.11	mg/L							
LCS (6A06126-BS1)				Prepared & Analyzed: 01/06/16							
Nitrate as N	11.1	0.20	0.11	mg/L	11.3		98.1	90-110			
Matrix Spike (6A06126-MS1)		**Source: B6A0386-02**		Prepared & Analyzed: 01/07/16							
Nitrate as N	6.97	0.20	0.11	mg/L	4.52	3.00	88.0	75-131			
Matrix Spike (6A06126-MS2)		**Source: B6A0403-01**		Prepared & Analyzed: 01/07/16							
Nitrate as N	11.1	0.20	0.11	mg/L	4.52	6.58	100	75-131			
Matrix Spike Dup (6A06126-MSD1)		**Source: B6A0386-02**		Prepared & Analyzed: 01/07/16							
Nitrate as N	7.03	0.20	0.11	mg/L	4.52	3.00	89.2	75-131	0.738	20	

Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: CVWD Storm Water - WWR Moı
Project Number: CE16010517 - SW Wet Weatheı

Work Order Number: B6A0413
Received on Ice (Y/N): Yes Temp: 0 °C

Solids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A06148 - Analyzed as received											
Blank (6A06148-BLK1)				Prepared & Analyzed: 01/06/16							
Total Dissolved Solids	ND	10	5.8	mg/L							
LCS (6A06148-BS1)				Prepared & Analyzed: 01/06/16							
Total Dissolved Solids	740	20	12	mg/L	746		99.2	90-110			
Duplicate (6A06148-DUP1)		**Source: B6A0333-03**		Prepared & Analyzed: 01/06/16							
Total Dissolved Solids	869	20	12	mg/L		895			2.95	20	
Duplicate (6A06148-DUP2)		**Source: B6A0509-02**		Prepared & Analyzed: 01/06/16							
Total Dissolved Solids	569	20	12	mg/L		541			5.05	20	
Batch 6A09061 - Analyzed as received											
Blank (6A09061-BLK1)				Prepared & Analyzed: 01/09/16							
Total Suspended Solids	ND	5	4	mg/L							
LCS (6A09061-BS1)				Prepared & Analyzed: 01/09/16							
Total Suspended Solids	510	10	7	mg/L	500		102	90-110			
Duplicate (6A09061-DUP1)		**Source: B6A0413-01**		Prepared & Analyzed: 01/09/16							
Total Suspended Solids	532	20	15	mg/L		506			5.01	25	
Duplicate (6A09061-DUP2)		**Source: B6A0544-01RE1**		Prepared & Analyzed: 01/09/16							
Total Suspended Solids	32.0	10	7	mg/L		33.0			3.08	25	

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
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Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: CVWD Storm Water - WWR Mor
Project Number: CE16010517 - SW Wet Weather

Work Order Number: B6A0413
Received on Ice (Y/N): Yes Temp: 0 °C

Aggregate Organic Compounds - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A19087 - Solvent Extraction.											
Blank (6A19087-BLK1)				Prepared & Analyzed: 01/19/16							
Oil & Grease (HEM)	1.60	2.5	0.9	mg/L							J
LCS (6A19087-BS1)				Prepared & Analyzed: 01/19/16							
Oil & Grease (HEM)	35.4	2.5	0.9	mg/L	40.0		88.5	78-114			
LCS Dup (6A19087-BSD1)				Prepared & Analyzed: 01/19/16							
Oil & Grease (HEM)	37.0	2.5	0.9	mg/L	40.0		92.5	78-114	4.42	18	
Matrix Spike (6A19087-MS1)		**Source: B6A0567-02**		Prepared & Analyzed: 01/19/16							
Oil & Grease (HEM)	46.0	5.0	1.8	mg/L	80.0	31.6	18.0	78-114			QMint

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Project Name: CVWD Storm Water - WWR Moı
Project Number: CE16010517 - SW Wet Weatheı

Work Order Number: B6A0413
Received on Ice (Y/N): Yes Temp: 0 °C

Surfactants - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A07031 - Solvent Extraction											
Blank (6A07031-BLK1)					Prepared & Analyzed: 01/07/16						
MBAS	ND	0.08	0.08	mg/L							
LCS (6A07031-BS1)					Prepared & Analyzed: 01/07/16						
MBAS	0.331	0.08	0.08	mg/L	0.320		103	80-120			
Duplicate (6A07031-DUP1)		**Source: B6A0522-01**			Prepared & Analyzed: 01/07/16						
MBAS	ND	0.08	0.08	mg/L		ND				20	
Matrix Spike (6A07031-MS1)		**Source: B6A0525-01**			Prepared & Analyzed: 01/07/16						
MBAS	0.522	0.20	0.20	mg/L	0.400	0.152	92.6	80-120			
Matrix Spike Dup (6A07031-MSD1)		**Source: B6A0525-01**			Prepared & Analyzed: 01/07/16						
MBAS	0.532	0.20	0.20	mg/L	0.400	0.152	95.1	80-120	1.90	20	

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Project Name: CVWD Storm Water - WWR Mo
Project Number: CE16010517 - SW Wet Weathe

Work Order Number: B6A0413
Received on Ice (Y/N): Yes Temp: 0 °C

Nutrients - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A06142 - Filter if turbid.											
LCS (6A06142-BS1)					Prepared & Analyzed: 01/06/16						
Ortho Phosphate Phosphorus	0.491	0.050	0.0028	mg/L	0.500		98.2	90-110			
Matrix Spike (6A06142-MS1)		**Source: B6A0292-05**			Prepared & Analyzed: 01/06/16						
Ortho Phosphate Phosphorus	0.535	0.050	0.0028	mg/L	0.500	0.0480	97.4	80-120			
Matrix Spike Dup (6A06142-MSD1)		**Source: B6A0292-05**			Prepared & Analyzed: 01/06/16						
Ortho Phosphate Phosphorus	0.542	0.050	0.0028	mg/L	0.500	0.0480	98.8	80-120	1.30	20	
Batch 6A06146 - Filter if turbid.											
LCS (6A06146-BS1)					Prepared & Analyzed: 01/06/16						
Nitrite as N	1.02	0.10	0.046	mg/L	1.00		102	90-110			
Matrix Spike (6A06146-MS1)		**Source: B6A0391-01**			Prepared & Analyzed: 01/06/16						
Nitrite as N	1.03	0.10	0.046	mg/L	1.00	ND	103	80-120			
Matrix Spike Dup (6A06146-MSD1)		**Source: B6A0391-01**			Prepared & Analyzed: 01/06/16						
Nitrite as N	1.05	0.10	0.046	mg/L	1.00	ND	105	80-120	1.92	20	
Batch 6A07009 - Analyzed as received											
Blank (6A07009-BLK1)					Prepared & Analyzed: 01/07/16						
Ammonia-Nitrogen	ND	0.10	0.059	mg/L							
LCS (6A07009-BS1)					Prepared & Analyzed: 01/07/16						
Ammonia-Nitrogen	0.728	0.10	0.059	mg/L	0.780		93.3	90-110			

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Project Name: CVWD Storm Water - WWR Moı
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Work Order Number: B6A0413
Received on Ice (Y/N): Yes Temp: 0 °C

Nutrients - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A07009 - Analyzed as received											
Duplicate (6A07009-DUP1)		**Source: B6A0488-01**		Prepared & Analyzed: 01/07/16							
Ammonia-Nitrogen	ND	0.10	0.059	mg/L		ND				20	
Matrix Spike (6A07009-MS1)		**Source: B6A0488-01**		Prepared & Analyzed: 01/07/16							
Ammonia-Nitrogen	0.701	0.10	0.059	mg/L	0.780	ND	89.9	80-120			
Matrix Spike Dup (6A07009-MSD1)		**Source: B6A0488-01**		Prepared & Analyzed: 01/07/16							
Ammonia-Nitrogen	0.708	0.10	0.059	mg/L	0.780	ND	90.7	80-120	0.908	20	
Batch 6A11091 - Acid Digest											
Blank (6A11091-BLK1)				Prepared: 01/11/16 Analyzed: 01/12/16							
Kjeldahl Nitrogen	ND	0.10	0.063	mg/L							
LCS (6A11091-BS1)				Prepared: 01/11/16 Analyzed: 01/12/16							
Kjeldahl Nitrogen	0.952	0.10	0.063	mg/L	1.00		95.2	80-120			
Matrix Spike (6A11091-MS1)		**Source: B6A0428-01**		Prepared: 01/11/16 Analyzed: 01/12/16							
Kjeldahl Nitrogen	74.1	4.0	2.5	mg/L	40.0	31.9	105	44-159			
Matrix Spike (6A11091-MS2)		**Source: B6A0537-02**		Prepared: 01/11/16 Analyzed: 01/12/16							
Kjeldahl Nitrogen	107	4.0	2.5	mg/L	40.0	50.4	141	44-159			
Batch 6A12087 - Acid Digest											
LCS (6A12087-BS1)				Prepared: 01/12/16 Analyzed: 01/13/16							
Total Phosphorus	0.557	0.05	0.02	mg/L	0.525		106	85-115			

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Project Name: CVWD Storm Water - WWR Mo
Project Number: CE16010517 - SW Wet Weathe

Work Order Number: B6A0413
Received on Ice (Y/N): Yes Temp: 0 °C

Nutrients - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A12087 - Acid Digest											
Duplicate (6A12087-DUP1)		**Source: B6A0510-01**			Prepared: 01/12/16	Analyzed: 01/13/16					
Total Phosphorus	0.356	0.05	0.02	mg/L		0.346			2.85	20	
Matrix Spike (6A12087-MS1)		**Source: B6A0522-01**			Prepared: 01/12/16	Analyzed: 01/13/16					
Total Phosphorus	0.900	0.05	0.02	mg/L	0.525	0.314	112	80-120			
Matrix Spike Dup (6A12087-MSD1)		**Source: B6A0522-01**			Prepared: 01/12/16	Analyzed: 01/13/16					
Total Phosphorus	0.897	0.05	0.02	mg/L	0.525	0.314	111	80-120	0.334	20	

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Report Date: 28-Oct-2016

Project Name: CVWD Storm Water - WWR Mor
Project Number: CE16010517 - SW Wet Weather

Work Order Number: B6A0413
Received on Ice (Y/N): Yes Temp: 0 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A07037 - Filter if turbid.-IC											
Blank (6A07037-BLK1)				Prepared & Analyzed: 01/07/16							
Hexavalent Chromium	ND	0.10	0.013	ug/L							
LCS (6A07037-BS1)				Prepared & Analyzed: 01/07/16							
Hexavalent Chromium	4.84	0.10	0.013	ug/L	5.00		96.8	90-110			
LCS Dup (6A07037-BSD1)				Prepared & Analyzed: 01/07/16							
Hexavalent Chromium	4.86	0.10	0.013	ug/L	5.00		97.3	90-110	0.530	20	
Duplicate (6A07037-DUP1)		**Source: B6A0356-02**		Prepared & Analyzed: 01/07/16							
Hexavalent Chromium	0.236	0.10	0.013	ug/L		0.246			4.44	20	
Matrix Spike (6A07037-MS1)		**Source: B6A0292-05**		Prepared & Analyzed: 01/07/16							
Hexavalent Chromium	5.27	0.10	0.013	ug/L	5.00	0.179	102	84-122			
Matrix Spike Dup (6A07037-MSD1)		**Source: B6A0292-05**		Prepared & Analyzed: 01/07/16							
Hexavalent Chromium	5.21	0.10	0.013	ug/L	5.00	0.179	101	84-122	1.18	20	
Batch 6A12132 - EPA 200.2 SOP M02C											
Blank (6A12132-BLK1)				Prepared & Analyzed: 01/13/16							
Antimony	ND	10	0.40	ug/L							
Arsenic	ND	5.0	1.2	ug/L							
Barium	0.359	20	0.18	ug/L							J
Beryllium	ND	10	0.26	ug/L							
Cadmium	ND	2.0	0.26	ug/L							
Total Chromium	ND	20	1.9	ug/L							
Copper	ND	10	0.64	ug/L							
Lead	ND	10	0.19	ug/L							
Mercury	ND	0.20	0.055	ug/L							
Nickel	ND	20	0.20	ug/L							
Selenium	ND	5.0	1.4	ug/L							
Silver	ND	10	0.22	ug/L							
Thallium	ND	200	0.20	ug/L							
Zinc	ND	10	1.5	ug/L							

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Report Date: 28-Oct-2016

Project Name: CVWD Storm Water - WWR Mo
Project Number: CE16010517 - SW Wet Weathe

Work Order Number: B6A0413
Received on Ice (Y/N): Yes Temp: 0 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A12132 - EPA 200.2 SOP M02C											
LCS (6A12132-BS1)					Prepared & Analyzed: 01/13/16						
Antimony	328	10	0.40	ug/L	334		98.5	85-115			
Arsenic	320	5.0	1.2	ug/L	334		96.1	85-115			
Barium	318	20	0.18	ug/L	334		95.3	85-115			
Beryllium	327	10	0.26	ug/L	334		98.2	85-115			
Cadmium	317	2.0	0.26	ug/L	334		95.2	85-115			
Total Chromium	313	20	1.9	ug/L	334		93.9	85-115			
Copper	300	10	0.64	ug/L	334		90.0	85-115			
Lead	315	10	0.19	ug/L	334		94.4	85-115			
Mercury	3.32	0.20	0.055	ug/L	3.34		99.7	85-115			
Nickel	303	20	0.20	ug/L	334		91.0	85-115			
Selenium	306	5.0	1.4	ug/L	334		91.8	85-115			
Silver	252	10	0.22	ug/L	334		75.7	85-115			QL-MS
Thallium	303	200	0.20	ug/L	334		90.9	85-115			
Zinc	296	10	1.5	ug/L	334		88.9	85-115			
LCS Dup (6A12132-BSD1)					Prepared & Analyzed: 01/13/16						
Antimony	330	10	0.40	ug/L	334		99.0	85-115	0.526	20	
Arsenic	325	5.0	1.2	ug/L	334		97.4	85-115	1.39	20	
Barium	320	20	0.18	ug/L	334		96.1	85-115	0.788	20	
Beryllium	324	10	0.26	ug/L	334		97.2	85-115	0.972	20	
Cadmium	317	2.0	0.26	ug/L	334		95.1	85-115	0.0475	20	
Total Chromium	315	20	1.9	ug/L	334		94.4	85-115	0.496	20	
Copper	304	10	0.64	ug/L	334		91.2	85-115	1.29	20	
Lead	318	10	0.19	ug/L	334		95.4	85-115	1.02	20	
Mercury	3.34	0.20	0.055	ug/L	3.34		100	85-115	0.593	20	
Nickel	307	20	0.20	ug/L	334		92.1	85-115	1.22	20	
Selenium	308	5.0	1.4	ug/L	334		92.3	85-115	0.496	20	
Silver	258	10	0.22	ug/L	334		77.2	85-115	2.07	20	QL-MS
Thallium	304	200	0.20	ug/L	334		91.3	85-115	0.462	20	
Zinc	301	10	1.5	ug/L	334		90.1	85-115	1.39	20	

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Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 17 of 23
Contact:	Steve Bigley	Project Name:	CVWD Storm Water - WWR Moı
Address:	P.O. Box 1058	Project Number:	CE16010517 - SW Wet Weatheı
	Coachella, CA 92236		
Report Date:	28-Oct-2016	**Work Order Number:**	**B6A0413**

Received on Ice (Y/N): Yes Temp: 0 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A12132 - EPA 200.2 SOP M02C											
Matrix Spike (6A12132-MS1)		**Source: B6A0541-01**		Prepared & Analyzed: 01/13/16							
Antimony	396	10	0.40	ug/L	334	0.517	118	70-130			
Arsenic	406	5.0	1.2	ug/L	334	2.46	121	70-130			
Barium	871	20	0.18	ug/L	334	519	106	70-130			
Beryllium	370	10	0.26	ug/L	334	1.30	110	70-130			
Cadmium	362	2.0	0.26	ug/L	334	ND	108	70-130			
Total Chromium	359	20	1.9	ug/L	334	3.80	107	70-130			
Copper	490	10	0.64	ug/L	334	159	99.3	70-130			
Lead	344	10	0.19	ug/L	334	4.74	102	70-130			
Mercury	3.56	0.20	0.055	ug/L	3.34	ND	107	70-130			
Nickel	363	20	0.20	ug/L	334	4.91	107	70-130			
Selenium	349	5.0	1.4	ug/L	334	1.70	104	70-130			
Silver	309	10	0.22	ug/L	334	ND	92.7	70-130			
Thallium	325	200	0.20	ug/L	334	ND	97.5	70-130			
Zinc	452	10	1.5	ug/L	334	126	98.0	70-130			
Matrix Spike (6A12132-MS2)		**Source: B6A0749-01**		Prepared & Analyzed: 01/13/16							
Antimony	326	10	0.40	ug/L	334	3.39	96.6	70-130			
Arsenic	318	5.0	1.2	ug/L	334	3.66	94.2	70-130			
Barium	335	20	0.18	ug/L	334	23.0	93.4	70-130			
Beryllium	309	10	0.26	ug/L	334	5.70	91.0	70-130			
Cadmium	309	2.0	0.26	ug/L	334	ND	92.6	70-130			
Total Chromium	307	20	1.9	ug/L	334	5.05	90.4	70-130			
Copper	299	10	0.64	ug/L	334	9.31	86.7	70-130			
Lead	302	10	0.19	ug/L	334	5.36	88.9	70-130			
Mercury	3.15	0.20	0.055	ug/L	3.34	0.0693	92.3	70-130			
Nickel	301	20	0.20	ug/L	334	7.44	88.1	70-130			
Selenium	294	5.0	1.4	ug/L	334	2.70	87.4	70-130			
Silver	258	10	0.22	ug/L	334	ND	77.4	70-130			
Thallium	282	200	0.20	ug/L	334	ND	84.5	70-130			
Zinc	396	10	1.5	ug/L	334	112	85.4	70-130			

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Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 18 of 23
Contact:	Steve Bigley	Project Name:	CVWD Storm Water - WWR Mo
Address:	P.O. Box 1058	Project Number:	CE16010517 - SW Wet Weathe
	Coachella, CA 92236		
Report Date:	28-Oct-2016	**Work Order Number:**	**B6A0413**
		Received on Ice (Y/N):	Yes Temp: 0 °C

Diesel Range Organics by EPA 8015 - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A12067 - Microextraction											
Blank (6A12067-BLK1)				Prepared & Analyzed: 01/12/16							
Diesel Range Hydrocarbons	ND	5.0	0.46	mg/L							
Surrogate: Decachlorobiphenyl	*0.94*			mg/L	*1.14*		*82.0*	*35-120*			
LCS (6A12067-BS1)				Prepared: 01/12/16 Analyzed: 01/13/16							
Diesel Range Hydrocarbons	40.0	5.0	0.46	mg/L	45.7		87.4	61-128			
Surrogate: Decachlorobiphenyl	*0.94*			mg/L	*1.14*		*82.2*	*35-120*			
LCS Dup (6A12067-BSD1)				Prepared: 01/12/16 Analyzed: 01/13/16							
Diesel Range Hydrocarbons	43.9	5.0	0.46	mg/L	45.7		96.1	61-128	9.45	20	
Surrogate: Decachlorobiphenyl	*1.0*			mg/L	*1.14*		*88.9*	*35-120*			
Matrix Spike (6A12067-MS1)		**Source: B6A0787-02**		Prepared: 01/12/16 Analyzed: 01/13/16							
Diesel Range Hydrocarbons	41.0	5.0	0.46	mg/L	45.7	ND	89.7	44-132			Q_nes
Surrogate: Decachlorobiphenyl	*0.87*			mg/L	*1.14*		*76.1*	*35-120*			*Q_nes*

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Client Name:	Coachella Valley Water Dist.	Analytical Report:	
Contact:	Steve Bigley	Project Name:	CVWD Storm Water - WWR Moı
Address:	P.O. Box 1058 Coachella, CA 92236	Project Number:	CE16010517 - SW Wet Weatheı
Report Date:	28-Oct-2016	**Work Order Number:**	**B6A0413**

Received on Ice (Y/N): Yes Temp: 0 °C

Gasoline Range Organics by EPA 8015 - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A12077 - Purge and Trap											
Blank (6A12077-BLK1)				Prepared & Analyzed: 01/12/16							
Gasoline Range Organics	0.0280	0.050	0.024	mg/L							J
Surrogate: a,a,a-Trifluorotoluene	*0.12*			mg/L	*0.215*		*58.1*	*10-110*			
LCS (6A12077-BS1)				Prepared & Analyzed: 01/12/16							
Gasoline Range Organics	2.86	0.050	0.024	mg/L	2.90		98.5	69-145			
Surrogate: a,a,a-Trifluorotoluene	*0.25*			mg/L	*0.269*		*94.5*	*10-110*			
LCS Dup (6A12077-BSD1)				Prepared & Analyzed: 01/12/16							
Gasoline Range Organics	2.81	0.050	0.024	mg/L	2.90		97.1	69-145	1.49	40	
Surrogate: a,a,a-Trifluorotoluene	*0.25*			mg/L	*0.269*		*92.4*	*10-110*			
Matrix Spike (6A12077-MS1)		**Source: B6A0292-01RE1**		Prepared & Analyzed: 01/12/16							
Gasoline Range Organics	2.63	0.050	0.024	mg/L	2.50	0.0240	104	63-140			
Surrogate: a,a,a-Trifluorotoluene	*0.25*			mg/L	*0.215*		*114*	*10-110*			*QSout*
Matrix Spike Dup (6A12077-MSD1)		**Source: B6A0292-01RE1**		Prepared & Analyzed: 01/12/16							
Gasoline Range Organics	2.53	0.050	0.024	mg/L	2.50	0.0240	100	63-140	3.62	40	
Surrogate: a,a,a-Trifluorotoluene	*0.21*			mg/L	*0.215*		*98.9*	*10-110*			

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Project Number: CE16010517 - SW Wet Weathe

Work Order Number: B6A0413
Received on Ice (Y/N): Yes Temp: 0 °C

Miscellaneous Organic Compounds - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A12082 - None											
Blank (6A12082-BLK1)					Prepared & Analyzed: 01/12/16						
Ethylene Glycol	ND	1.0	1.0	mg/L*							
LCS (6A12082-BS1)					Prepared & Analyzed: 01/12/16						
Ethylene Glycol	4.50	1.0	1.0	mg/L*	5.00		90.0	50-150			
Matrix Spike (6A12082-MS1)		**Source: B6A0413-04**			Prepared & Analyzed: 01/12/16						
Ethylene Glycol	4.50	1.0	1.0	mg/L*	5.00	ND	90.0	50-150			
Matrix Spike Dup (6A12082-MSD1)		**Source: B6A0413-04**			Prepared & Analyzed: 01/12/16						
Ethylene Glycol	5.00	1.0	1.0	mg/L*	5.00	ND	100	50-150	10.5	40	

BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years

Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: CVWD Storm Water - WWR Mor
Project Number: CE16010517 - SW Wet Weather

Work Order Number: B6A0413
Received on Ice (Y/N): Yes Temp: 0 °C

Notes and Definitions

Cr+6: Regulatory 15 minute holding time for sample filtration and preservation exceeded B6A0413-01

J	Estimated value
N_RLm	Due to sample matrix, the reporting limit has been raised.
NRLrcf	RL for analyte does not meet the SWAMP/ CTR required RL.
ND:	Analyte NOT DETECTED at or above the Method Detection Limit **(if MDL is reported)**, otherwise at or above the Reportable Detection Limit (RDL)
NR:	Not Reported
RDL:	Reportable Detection Limit
MDL:	Method Detection Limit

* / (Non-NELAP): NELAP does not offer accreditation for this analyte/method/matrix combination

mailing
P.O Box 432
Riverside, CA 92502-0432

location
6100 Quail Valley Court
Riverside, CA 92507-0704

P 951 653 3351
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www.babcocklabs.com

CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119

BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years

Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 22 of 23
Contact:	Steve Bigley	Project Name:	CVWD Storm Water - WWR Moı
Address:	P.O. Box 1058	Project Number:	CE16010517 - SW Wet Weatheı
	Coachella, CA 92236		
Report Date:	28-Oct-2016	**Work Order Number:**	**B6A0413**

Received on Ice (Y/N): Yes Temp: 0 °C

Approval

Enclosed are the analytical results for the submitted sample(s). Babcock Laboratories certify the data presented as part of this report meet the minimum quality standards in the referenced analytical methods. Any exceptions have been noted. Babcock Laboratories and its officers and employees assume no responsibility and make no warranty, express or implied, for uses or interpretations made by any recipients, intended or unintended, of this report.

Amanda Porter

Digitally signed by: Amanda Porter
DN: CN = Amanda Porter C = US
O = Babcock Laboratories
Date: 2016.10.28 21:19:26 -07'00'

Amanda Porter

cc:

e-Standard.rpt

BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years

Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: CVWD Storm Water - WWR Mor
Project Number: CE16010517 - SW Wet Weather

Work Order Number: B6A0413
Received on Ice (Y/N): Yes Temp: 0 °C

To: BABCOCK LABS

COACHELLA VALLEY WATER DISTRICT
P.O. Box 1058; Coachella, CA 92236
Chain of Custody

CE16010517

WATER DISTRICT

PLEASE RETURN ☐ CLIENT ICE CHEST(S) AND ICE PACKS ☐ Requires State Forms Turn Around Time: ☐ Standard or ☐ RUSH

COC #: CE16010517 295 - Stormwater - Wet Weather - Babcock - 01/05/
Received Date Time: Comments:

CVWD Log Number / Sample Date, Time	Sampler	Sample Pt ID	Sample Site Name / Sample Point Name	SM	CM	ST	Preservative / No Bttls / Container	pH	EC (µhmo/cm)	Temp°	Cl2 (mg/L) Free / Total	Comments
20160105-075 / 160105 1457	771	17122	Portola Avenue Outfall / 719POR817		G	O	Iced / Poly 2L					...
Requested Analysis: TDS - Babcock, Nitrite - Subcontract, Nitrate - Subcontract, TSS - Babcock, MBAS - Babcock, Orthophosphate - Babcock Hexavalent chromium (AB) 1/06/16												
20160105-076		17122	Portola Avenue Outfall / 719POR817		G	O	HCl / VOA 40mL					...
Requested Analysis: Total Petroleum Hydrocarbons - Babcock												
20160105-077		17122	Portola Avenue Outfall / 719POR817		G	O	H2SO4 / Poly 1L					...
Requested Analysis: Nitrogen-Total - Babcock, Ammonia-N - Babcock, Nitrogen-Kjeldahl - Babcock, Phosphorus-Total - Babcock												
20160105-078		17122	Portola Avenue Outfall / 719POR817		G	O	Iced / 500 mL - Glass					...
Requested Analysis: Ethylene Glycol - Babcock												
20160105-079		17122	Portola Avenue Outfall / 719POR817		G	O	HNO3 / Poly 1L					...
Requested Analysis: Thallium - Babcock, Total Chromium - Babcock, Cadmium- Babcock, Barium - Babcock, Arsenic - Babcock, Selenium - Babcock, Mercury - Babcock, Lead - Babcock, Silver - Babcock, Antimony - Babcock, Nickel - Babcock, Copper - Babcock, Hexavalent Chromium - Babcock, Beryllium - Babcock, Zinc - Babcock												
20160105-080		17122	Portola Avenue Outfall / 719POR817		G	O	None / 500 mL - Glass	Removed to 075 (AB) 1/06/16				...
Requested Analysis: Oil & Grease - Babcock												

JAN - 6 2016
B6A0413 AB

Sample Matrix (SM): W = Water; S = Soil; Sl = Sludge || Collection Method (CM): G = Grab; CF = Flow composite; CT = Time Composite; CS = Spatial Composite
Sample Type (ST): FF = First flush; RT = Routine; Rp = Repeat; Rm = Replacement; Nw = New; Rs = Resample; Ts = Test; Sp = Special; 24 = 24 Hour; 4Q = 4 Quarters; 7s = 7 samples

Released By	ID#	Company	Received By	ID##	Company	Date	Time	Temp °C Iced ( ) Refrigerated ( )
Matt Rojo	771	CVWD	~~FEDEX~~					
FEDEX		FEDEX	[signature]		ESB	1/6/16	1115	0° ON ICE / INTACT

page 1 of 1

Coachella Valley Water District
Environment Services Department

DRY WEATHER MS4 OUTFALL IC/ID MONITORING: APRIL 27, 2016

Location	Able to Sample?	Conditions
Portola Outfall 719POR817	No	There was incidental sprinkler water at Portola Avenue outfall only. This outfall has recently been cleaned of trash and debris at the mouth of the outfall and on the cement apron. Vegetation left at the foot of the apron has created a dam allowing incidental sprinkler water to collect.

SAMPLE COCs/Reports

			Portola Outfall	
			DRY	WET
Field Parameters				
• Water Temperature IN °C • pH • EC • Turbidity • DO • Additional as needed to characterize			n/a	
Constituents of Concern				
• Antimony • Arsenic • Barium • Beryllium • Cadmium • Chromium • Chromium^{+6} • Copper • Lead • Mercury	• Nickel • Selenium • Silver • Thallium • Zinc • E. coli$^{1(8)}$ • NO_2 (N)$^{1(48)}$ • NO_3 (N)$^{1(48)}$ • TKN • Total N	• Ammonia (N) • Total Suspended Solids • Total Dissolved Solids • Total Phosphorus • Ortho Phosphorus$^{1(48)}$AKA Phosphate as P • Total Petroleum Hydrocarbons • Methylene-blue activated substances (MBAS) $^{1(48)}$ • Ethylene-glycol • Oil and Grease		
• E. Coli			n/a	

Other Notes:

This event was a quarterly IC/ID Investigation.

Included in this package:

- Photos numbered 1 through 3:
- Field Data Sheets:
    - 719 POR 817

Data Review:

Location	Analytical Results	
	E. Coli (MPN/100ml)	**Dissolved Oxygen** (mg/L)
Portola Outfall	n/a	n/a

Photos:

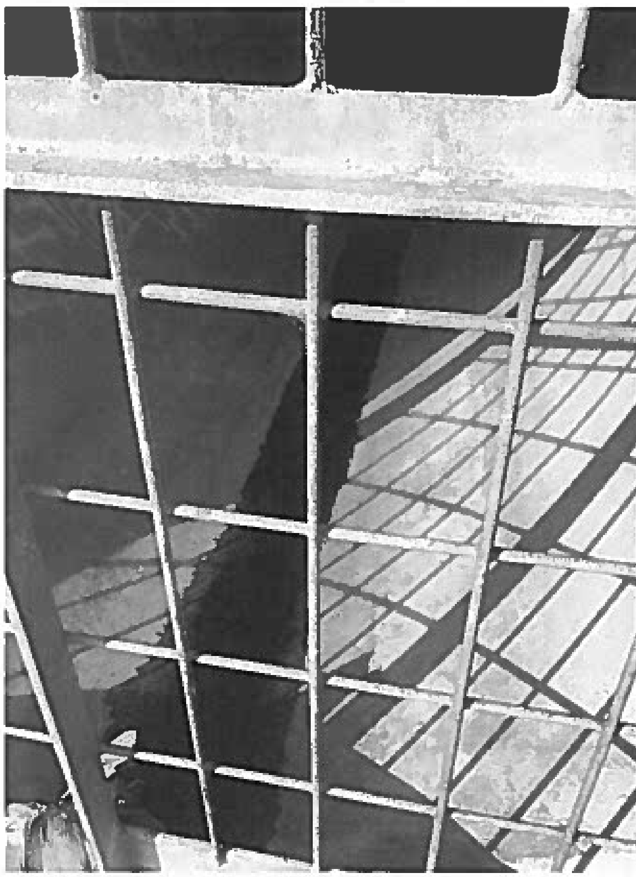

Photo 1: Portola Outfall

Photo 2: Portola Outfall


Photo 3: Portola Outfall

WATER POLLUTION PREVENTION
FUNDED BY THE CITIES AND COUNTY OF RIVERSIDE

ONLY RAIN DOWN THE STORM DRAIN

FIELD DATA SHEET

QAp
10/27/2016

Rev 07/02/2015 - CVWD

STATION ID: 719POR817 **SAMPLE DATE** (MM/DD/YYYY): 4/21/2016

STATION NAME: **817 - Portola Avenue Outfall** WATERSHED: ☐SAR ☐SMR ☒WWR

PROJECT NAME: *Whitewater River Region Monitoring Program - 2013 Order* Within: ☐Unincorp. or ☐City of Palm Desert

CONVEYANCE TYPE: Open Channel ☐Receiving Water

GPS INFO: Lat 33° 44.26 Long 116° 22.40 GPS Unit: ☐Outfall, Owner: City of Palm Desert

PRINTED NAMES of Sampling Team: Sergio Martinez ☐Other:

SIGNATURE of lead sampler: [signature] Sampling AGENCY: *Coachella Valley Water District*

SAMPLE INFORMATION

☒ VISITED, NOT SAMPLED (TIME: 0800)

EVENT CATEGORY:
- ☐ Wet Weather (Storm) OR
- ☐ Dry Weather
  - ☐1st ☐2nd ☐3rd ☐4th
- ☒ Recon, IC/ID, or Complaint
- ☐ Other ______

SAMPLE ID(s) [# of Bottles]: 1516-XX-XXXX-01 [__], 1516-XX-XXXX-XX [__], 1516-XX-XXXX-XX [__]

STREAM FLOW:
- Dry: ☐Yes ☐No Ponded: ☐Yes ☐No
- Rising Groundwater: ☐Yes ☐No
- Connects to Surface Receiving Water ☐Yes ☐No
- Dry weather event u/s influence: ☐Yes ☐No

TYPE (check all that apply):
- ☐ **Grab** [SAMPLE TIME: ______]
- ☐ ~~**Composite**(-01-C) [SAMPLE TIME: ______]~~ COC last aliquot
- ☐ Field DUP(-02) ☐ Field Blank(-03) ☐ Travel Blank(-04)
- ☐ Other:

FIELD PARAMETERS

Time Measured: ______

	Result (primary/dup)	Units	Meter	Calibration Date
☐ **Water Temp**				
☐ **pH**				
☐ **EC**				
☐ **Turbidity**				
☐ **DO**				
☐				
☐				
☐				

FLOW ESTIMATION:

☐ USGS Gauge height/stage ______ ft Q (cfs) = ______

[Gauge Name/No.: ______]

☐ Calculation by visual measurement: Q (cfs) = ______

= [Coef(1,$^2/_3$,____)]*[depth____ft]*[width____ft]*[vel____fps]

Circular pipe: [vel____fps][depth____ft][width____ft][R=____ft]

COMPOSITE Samples: Auto/Grab, Flow/Time Weighted, ____Hrs

	Time	H(in.)	Flow(cfs)	%		Time	H(in.)	Flow(cfs)	%
1					13				
2					14				
3					15				
4					16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				
12					24				

SITE CONDITIONS

PRECIPITATION:

NOW: ☒None ☐ Drizzle/Sprinkle ☐ Rain ☐ Hail/Snow

[APPROX. STORM START TIME: ______]

>72 hrs since previous (>0.1") rainfall event: ☒ Yes ☐ No

ODOR: ☒None ☐ Sulfides ☐ Sewage ☐ Smoke ☐ Petroleum ☐ Other: ______

☐ Floatables______ ☐ Settleables ______

☐ Vegetation______ ☐ Staining ______

COLOR: ☒Colorless ☐ Green ☐ Yellow ☐ Brown ☐ Other

CLARITY: ☒Clear (see bottom) ☐ Cloudy ☐ Murky
Sheen Present: ☐ Yes ☐ No

TRASH: ☐ Yes ☒No
From: ☐ Flows ☐ Litter ☐ Dumping ☐ Other______

Observations/Notes ☒Photograph(s)

(If conducting Outfall Monitoring, provide estimate of the surface flows for both the Outfall and prox. Receiving Water as applicable.)

☐ **Associated monitoring u/s, d/s** *(circle one or both and complete required FDS(s))* **at:**

WATER POLLUTION PREVENTION
FUNDED BY THE CITIES AND COUNTY OF RIVERSIDE

FIELD DATA SHEET

QAp 03/14/2016

Rev 07/02/2015 - CVWD

STATION ID: 719POR817 SAMPLE DATE (MM/DD/YYYY): 1/28/16

STATION NAME: 817 - Portola Avenue Outfall WATERSHED: ☐SAR ☐SMR ☒WWR

PROJECT NAME: *Whitewater River Region Monitoring Program - 2013 Order* Within: ☐Unincorp. or ☒City of Palm Desert

CONVEYANCE TYPE: Open Channel ☐Receiving Water

GPS INFO: Lat 33° 44.26 Long 116° 22.40 GPS Unit: ☐Outfall, Owner: City of Palm Desert

PRINTED NAMES of Sampling Team: Sergio Martinez ☐Other:

SIGNATURE of lead sampler: [signature] Sampling AGENCY: *Coachella Valley Water District*

SAMPLE INFORMATION

☒ VISITED, NOT SAMPLED (TIME: 0910)

EVENT CATEGORY:
☐ Wet Weather (Storm) OR
☒ Dry Weather
☐1st ☐2nd ☒3rd ☐4th
☒ Recon, IC/ID, or Complaint
☐ Other

SAMPLE ID(s) [# of Bottles]: 1516-XX-XXXX-01 [__], 1516-XX-XXXX-XX [__], 1516-XX-XXXX-XX [__]

STREAM FLOW:
Dry: ☒Yes ☐No Ponded: ☐Yes ☒No
Rising Groundwater: ☐Yes ☒No
Connects to Surface Receiving Water ☐Yes ☒No
Dry weather event u/s influence: ☐Yes ☒No

TYPE (check all that apply):
☐ Grab [SAMPLE TIME:]
☐ ~~Composite(-01-C) [SAMPLE TIME:]~~ COC last aliquot
☐ Field DUP(-02) ☐ Field Blank(-03) ☐ Travel Blank(-04)
☐ Other:

FIELD PARAMETERS

Time Measured:

	Result (primary/dup)	Units	Meter	Calibration Date
☐ Water Temp				
☐ pH				
☐ EC				
☐ Turbidity				
☐ DO				
☐				
☐				
☐				

FLOW ESTIMATION:

☐ USGS Gauge height/stage ____ ft Q (cfs) = ____

[Gauge Name/No.: ____]

☐ Calculation by visual measurement: Q (cfs) = ____

= [Coef(1,²/₃,____)]*[depth____ft]*[width____ft]*[vel____fps]

Circular pipe: [vel____fps][depth____ft][width____ft][R=____ft]

COMPOSITE Samples: Auto/Grab, Flow/Time Weighted, ____Hrs

	Time	H(in.)	Flow(cfs)	%		Time	H(in.)	Flow(cfs)	%
1					13				
2					14				
3					15				
4					16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				
12					24				

SITE CONDITIONS

PRECIPITATION:
NOW: ☒None ☐ Drizzle/Sprinkle ☐ Rain ☐ Hail/Snow
[APPROX. STORM START TIME:]
>72 hrs since previous (>0.1") rainfall event: ☐ Yes ☐ No

ODOR: ☒None ☐ Sulfides ☐ Sewage ☐ Smoke ☐ Petroleum ☐ Other:

☐ Floatables ☐ Settleables
☐ Vegetation ☐ Staining

COLOR: ☒Colorless ☐ Green ☐ Yellow ☐ Brown ☐ Other

CLARITY: ☒Clear (see bottom) ☐ Cloudy ☐ Murky
Sheen Present: ☐ Yes ☐ No

TRASH: ☐ Yes ☒ No
From: ☐ Flows ☐ Litter ☐ Dumping ☐ Other

Observations/Notes ☒ Photograph(s)

(If conducting Outfall Monitoring, provide estimate of the surface flows for both the Outfall and prox. Receiving Water as applicable.)

☐ **Associated monitoring u/s, d/s** *(circle one or both and complete required FDS(s))* **at:**

Photos:

Photo 1: Portola Outfall

Photo 2: Portola Outfall

Photo 3: Avenue 52 Bridge

Photo 4: Avenue 52 Bridge

WATER POLLUTION PREVENTION
FUNDED BY THE CITIES AND COUNTY OF RIVERSIDE

QAp
03/08/2016

FIELD DATA SHEET

Rev 07/02/2015 - CVWD

STATION ID: 719POR817 **SAMPLE DATE (MM/DD/YYYY):** 10/29/2015

STATION NAME: 817 - Portola Avenue Outfall WATERSHED: ☐SAR ☐SMR ☒WWR

PROJECT NAME: *Whitewater River Region Monitoring Program - 2013 Order* Within: ☐Unincorp. or ☐City of Palm Desert

CONVEYANCE TYPE: Open Channel ☐Receiving Water

GPS INFO: Lat 33° 44.26 Long 116° 22.40 GPS Unit: ☐Outfall, Owner: City of Palm Desert

PRINTED NAMES of Sampling Team: SERGIO MARTINEZ ☐Other:

SIGNATURE of lead sampler: [signature] Sampling AGENCY: *Coachella Valley Water District*

SAMPLE INFORMATION

☒ VISITED, NOT SAMPLED (TIME: 0900)

EVENT CATEGORY:
- ☐ Wet Weather (Storm) OR
- ☐ Dry Weather
  - ☐1st ☐2nd ☐3rd ☐4th
- ☒ Recon, IC/ID, or Complaint
- ☐ Other

SAMPLE ID(s) [# of Bottles]: 1516-XX-XXXX-01 [ ], 1516-XX-XXXX-XX [ ], 1516-XX-XXXX-XX [ ]

STREAM FLOW:
- Dry: ☐Yes ☒No
- Ponded: ☒Yes ☐No
- Rising Groundwater: ☐Yes ☒No
- Connects to Surface Receiving Water ☐Yes ☒No
- Dry weather event u/s influence: ☒Yes ☐No

TYPE (check all that apply):
- ☐ Grab [SAMPLE TIME:]
- ☐ ~~Composite(01-C)~~ [SAMPLE TIME:] COC last aliquot
- ☐ Field DUP(-02) ☐ Field Blank(-03) ☐ Travel Blank(-04)
- ☐ Other:

FIELD PARAMETERS

Time Measured:

	Result (primary/dup)	Units	Meter	Calibration Date
☐ Water Temp				
☐ pH				
☐ EC				
☐ Turbidity				
☐ DO				
☐				
☐				
☐				

FLOW ESTIMATION:

☐ USGS Gauge height/stage ____ ft Q (cfs) = 0

[Gauge Name/No.:]

☐ Calculation by visual measurement: Q (cfs) =

= [Coef(1,2/3,____)]*[depth____ft]*[width____ft]*[vel____fps]

Circular pipe: [vel____fps][depth____ft][width____ft][R=____ft]

SITE CONDITIONS

PRECIPITATION:

NOW: ☒ None ☐ Drizzle/Sprinkle ☐ Rain ☐ Hail/Snow

[APPROX. STORM START TIME:]

>72 hrs since previous (>0.1") rainfall event: ☐ Yes ☒ No

ODOR: ☒ None ☐ Sulfides ☐ Sewage ☐ Smoke ☐ Petroleum ☐ Other:

☐ Floatables ☐ Settleables

☐ Vegetation ☐ Staining

COLOR: ☒ Colorless ☐ Green ☐ Yellow ☐ Brown ☐ Other

CLARITY: ☒ Clear (see bottom) ☐ Cloudy ☐ Murky

Sheen Present: ☐ Yes ☐ No

TRASH: ☐ Yes ☒ No

From: ☐ Flows ☐ Litter ☐ Dumping ☐ Other

COMPOSITE Samples: Auto/Grab, Flow/Time Weighted, ____Hrs

	Time	H(in.)	Flow(cfs)	%		Time	H(in.)	Flow(cfs)	%
1					13				
2					14				
3					15				
4					16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				
12					24				

Observations/Notes ☐ Photograph(s)

(If conducting Outfall Monitoring, provide estimate of the surface flows for both the Outfall and prox. Receiving Water as applicable.)

There is only incidental sprinkler water that drains from nearby neighborhoods. It collects and ponds due to vegetation at foot of outfall apron. There is no flow - just periodic trickle.

☐ **Associated monitoring u/s, d/s** *(circle one or both and complete required FDS(s))* **at:**

Other Notes:

This event was a quarterly IC/ID Investigation.

Included in this package:

- Photos numbered 1 through 3:
- Field Data Sheets:
  - 719 POR 817

Data Review:

Location	Analytical Results	
	E. Coli (MPN/100ml)	**Dissolved Oxygen** (mg/L)
Portola Outfall	n/a	n/a

Photos:

Photo 1: Portola Outfall

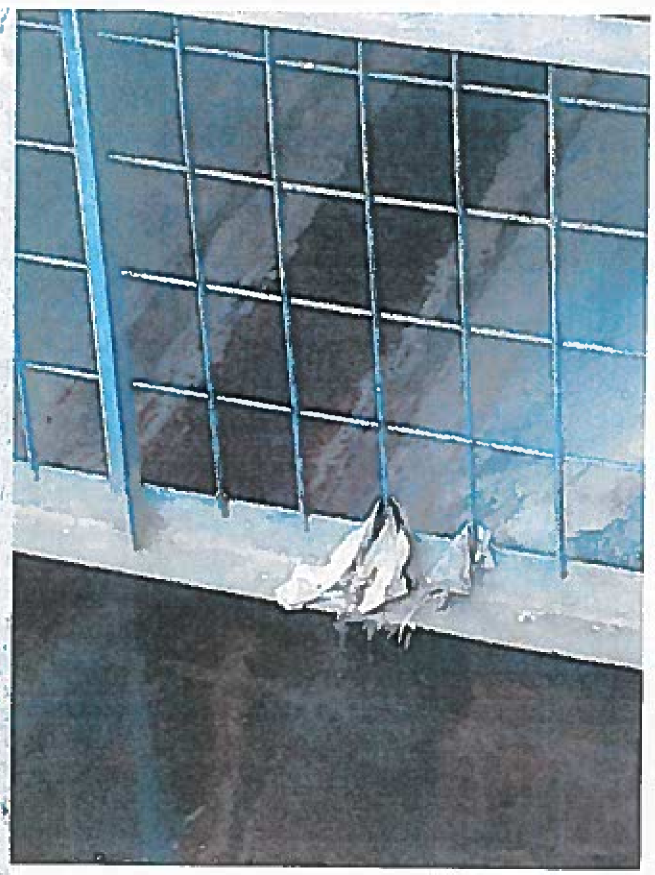

Photo 2: Portola Outfall

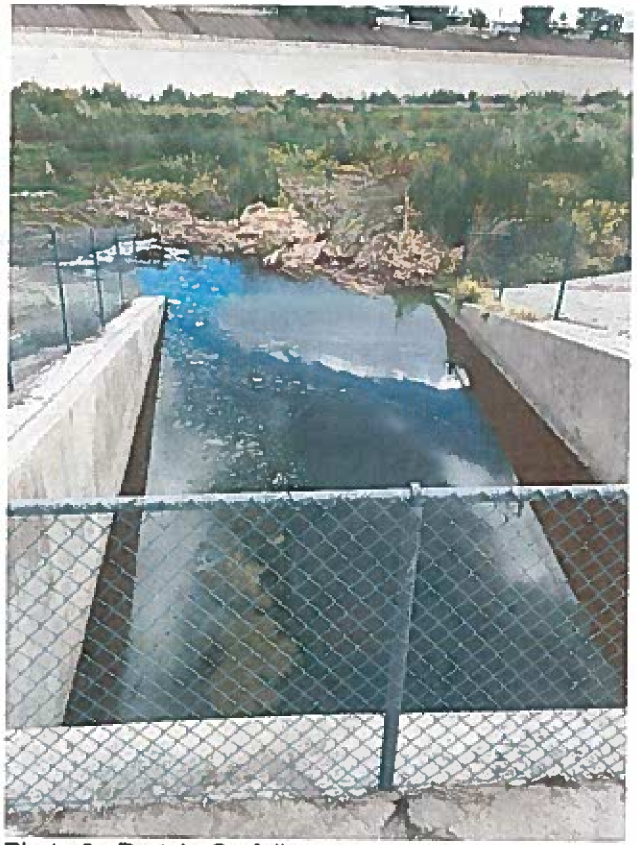
Photo 3: Portola Outfall

WATER POLLUTION PREVENTION
FUNDED BY THE CITIES AND COUNTY OF RIVERSIDE

QAp

FIELD DATA SHEET
Rev 07/02/2015 - CVWD

STATION ID: 719POR817 **SAMPLE DATE** (MM/DD/YYYY): **7/30/2015**

STATION NAME: **817 - Portola Avenue Outfall** WATERSHED: ☐SAR ☐SMR ☒WWR

PROJECT NAME: *Whitewater River Region Monitoring Program - 2013 Order* Within: ☐Unincorp. or ☐City of Palm Desert

CONVEYANCE TYPE: Open Channel ☐Receiving Water

GPS INFO: Lat 33° 44.26 Long 116° 22.40 GPS Unit: ☒Outfall, Owner: City of Palm Desert

PRINTED NAMES of Sampling Team: Joe Ramerez ☐Other:

SIGNATURE of lead sampler: Joe Ramerez Sampling AGENCY: *Coachella Valley Water District*

SAMPLE INFORMATION
☒VISITED, NOT SAMPLED (TIME: 9:30

EVENT CATEGORY:
☐ Wet Weather (Storm) OR
☒Dry Weather
☒1st ☐2nd ☐3rd ☐4th
☐ Recon, IC/ID, or Complaint
☐ Other

SAMPLE ID(s) [# of Bottles]: 1516-XX-XXXX-01 [__], 1516-XX-XXXX-XX [__], 1516-XX-XXXX-XX [__]

STREAM FLOW:
Dry: ☒Yes ☐No Ponded: ☐Yes ☐No
Rising Groundwater: ☐Yes ☐No
Connects to Surface Receiving Water ☐Yes ☐No
Dry weather event u/s influence: ☐Yes ☐No

TYPE (check all that apply):
☐ **Grab** [SAMPLE TIME:]
☐ ~~**Composite**(-01-C) [SAMPLE TIME:]~~ COC last aliquot
☐ Field DUP(-02) ☐ Field Blank(-03) ☐ Travel Blank(-04)
☐ Other:

FIELD PARAMETERS
Time Measured:

	Result (primary/dup)	Units	Meter	Calibration Date
☐ Water Temp				
☐ pH				
☐ EC				
☐ Turbidity				
☐ DO				
☐				
☐				
☐				

FLOW ESTIMATION:

☐ USGS Gauge height/stage ____ ft Q (cfs) = ____

[Gauge Name/No.:]

☐ Calculation by visual measurement: Q (cfs) = 0

= [Coef(1,2/3,____)]*[depth____ft]*[width____ft]*[vel____fps]

Circular pipe: [vel____fps][depth____ft][width____ft][R=____ft]

SITE CONDITIONS

PRECIPITATION:
NOW: ☒ None ☐ Drizzle/Sprinkle ☐ Rain ☐ Hail/Snow
[APPROX. STORM START TIME:]
>72 hrs since previous (>0.1") rainfall event: ☐ Yes ☐ No

ODOR: ☒None ☐ Sulfides ☐ Sewage ☐ Smoke ☐ Petroleum ☐ Other:

☐ Floatables ☐ Settleables
☐ Vegetation ☐ Staining

COLOR: ☒Colorless ☐ Green ☐ Yellow ☐ Brown ☐ Other

CLARITY: ☒ Clear (see bottom) ☐ Cloudy ☐ Murky
Sheen Present: ☐ Yes ☐ No

TRASH: ☒Yes ☐ No
From: ☐ Flows ☒Litter ☐ Dumping ☐ Other

COMPOSITE Samples: Auto/Grab, Flow/Time Weighted, ____ Hrs

	Time	H(in.)	Flow(cfs)	%		Time	H(in.)	Flow(cfs)	%
1					13				
2					14				
3					15				
4					16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				
12					24				

Observations/Notes
☒Photograph(s)

(If conducting Outfall Monitoring, provide estimate of the surface flows for both the Outfall and prox. Receiving Water as applicable.)

0730150930

☐ **Associated monitoring u/s, d/s** *(circle one or both and complete required FDS(s))* **at:**

Photos:

Photo 1: Avenue 52 Bridge

Photo 2: Avenue 52 Bridge

Photo 3: Avenue 52 Bridge

Photo 4: Portola Outfall

Photo 5: Portola Outfall

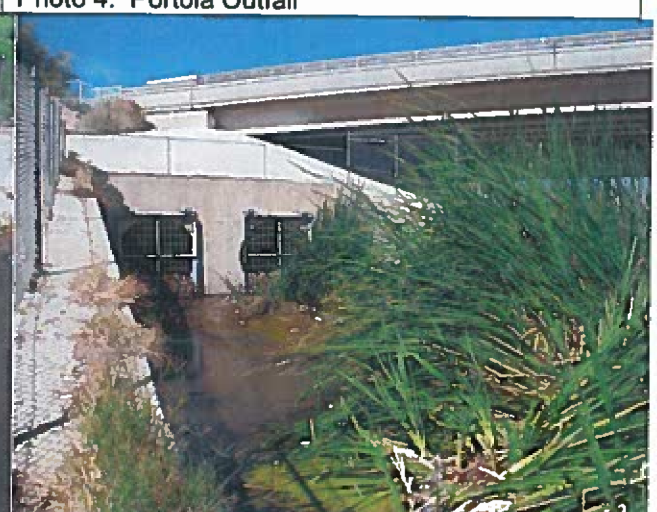

Photo 6: Portola Outfall

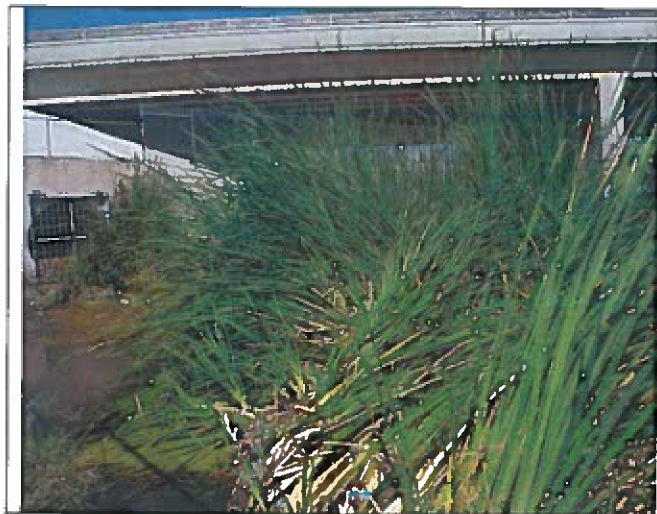
Photo 7: Portola Outfall


Photo 8: Portola Outfall


Photo 9: Portola Outfall

WATER POLLUTION PREVENTION
FUNDED BY THE CITIES AND COUNTY OF RIVERSIDE

ONLY RAIN DOWN THE STORM DRAIN

FIELD DATA SHEET

QAp
03/14/2016

Rev 07/02/2015 - CVWD

STATION ID: 719CVS884 **SAMPLE DATE** (MM/DD/YYYY): 01/05/2016

STATION NAME: **884 - CVSC at Avenue 52 Bridge** WATERSHED: ☐SAR ☐SMR ☒WWR

PROJECT NAME: *Whitewater River Region Monitoring Program - 2013 Order* Within: ☐Unincorp. or ☐City of Coachella

CONVEYANCE TYPE: Open Channel ☒Receiving Water

GPS INFO: Lat 33° 40.35 Long 116° 8.97 GPS Unit: ___ ☐Outfall, Owner: City of Coachella

PRINTED NAMES of Sampling Team: MATT R., SERGIO M., JOE M. ☐Other: ______

SIGNATURE of lead sampler: Matt Rojo Sampling AGENCY: *Coachella Valley Water District*

SAMPLE INFORMATION

☒ VISITED, NOT SAMPLED (TIME: 15:30)

EVENT CATEGORY:
☒ Wet Weather (Storm) OR
☐ Dry Weather
☐1st ☐2nd ☐3rd ☐4th
☐ Recon, IC/ID, or Complaint
☐ Other ______

SAMPLE ID(s) [# of Bottles]: 1516-XX-XXXX-01 [__], 1516-XX-XXXX-XX [__], 1516-XX-XXXX-XX [__]

STREAM FLOW:
Dry: ☐Yes ☒No Ponded: ☐Yes ☒No
Rising Groundwater: ☐Yes ☒No
Connects to Surface Receiving Water ☒Yes ☐No
Dry weather event u/s influence: ☐Yes ☒No

TYPE (check all that apply):
☐ Grab [SAMPLE TIME: ______]
☐ ~~Composite(-01-C) [SAMPLE TIME: ______]~~ COC last aliquot
☐ Field DUP(-02) ☐ Field Blank(-03) ☐ Travel Blank(-04)
☐ Other:

FIELD PARAMETERS

Time Measured: ______

	Result (primary/dup)	Units	Meter	Calibration Date
☐ Water Temp				
☐ pH				
☐ EC				
☐ Turbidity				
☐ DO				
☐				
☐				
☐				

FLOW ESTIMATION:

☐ USGS Gauge height/stage ______ ft Q (cfs) = ______
[Gauge Name/No.: ______]

☐ Calculation by visual measurement: Q (cfs) = ______
= [Coef(1,²/₃,______)]*[depth______ft]*[width______ft]*[vel______fps]

Circular pipe: [vel______fps][depth______ft][width______ft][R=______ft]

COMPOSITE Samples: Auto/Grab, Flow/Time Weighted, ____Hrs

	Time	H(in.)	Flow(cfs)	%		Time	H(in.)	Flow(cfs)	%
1					13				
2					14				
3					15				
4					16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				
12					24				

SITE CONDITIONS

PRECIPITATION:
NOW: ☐ None ☒ Drizzle/Sprinkle ☐ Rain ☐ Hail/Snow
[APPROX. STORM START TIME: 15:00]
>72 hrs since previous (>0.1") rainfall event: ☒Yes ☐ No

ODOR: ☐ None ☐ Sulfides ☐ Sewage ☐ Smoke
☐ Petroleum ☐ Other: ______

☐ Floatables______ ☐ Settleables ______
☐ Vegetation______ ☐ Staining ______

COLOR: ☐ Colorless ☐ Green ☐ Yellow ☐ Brown
☐ Other

CLARITY: ☐ Clear (see bottom) ☐ Cloudy ☐ Murky
Sheen Present: ☐ Yes ☐ No

TRASH: ☐ Yes ☐ No
From: ☐ Flows ☐ Litter ☐ Dumping ☐ Other______

Observations/Notes ☒Photograph(s)

(If conducting Outfall Monitoring, provide estimate of the surface flows for both the Outfall and prox. Receiving Water as applicable.)

rain water had not yet reached the sw channel.

☐ **Associated monitoring u/s, d/s** *(circle one or both and complete required FDS(s))* **at:**

WATER POLLUTION PREVENTION
FUNDED BY THE CITIES AND COUNTY OF RIVERSIDE

ONLY RAIN DOWN THE STORM DRAIN

QAp
02/24/2016

FIELD DATA SHEET

Rev 07/02/2015 - CVWD

STATION ID: 719CVS884 **SAMPLE DATE** (MM/DD/YYYY): 01/06/2016

STATION NAME: 884 - CVSC at Avenue 52 Bridge

WATERSHED: ☐SAR ☐SMR ☒WWR

PROJECT NAME: *Whitewater River Region Monitoring Program - 2013 Order*

Within: ☐Unincorp. or ☒City of Coachella

CONVEYANCE TYPE: Open Channel

☒Receiving Water

GPS INFO: Lat 33° 40.35 Long 116° 8.97 GPS Unit: ____

☐Outfall, Owner: City of Coachella

PRINTED NAMES of Sampling Team: Matt Rojo, Sergio Martinez, Joe Morales

☐Other: ____

SIGNATURE of lead sampler: Matt Rojo

Sampling AGENCY: *Coachella Valley Water District*

SAMPLE INFORMATION

☐ VISITED, NOT SAMPLED (TIME: 0817)

EVENT CATEGORY:

☒ Wet Weather (Storm) OR
☐ Dry Weather
☐1st ☐2nd ☐3rd ☐4th
☐ Recon, IC/ID, or Complaint
☐ Other ____

SAMPLE ID(s) [# of Bottles]: 7 1516-XX-XXXX-01 [__], 1516-XX-XXXX-XX [__], 1516-XX-XXXX-XX [__]

STREAM FLOW:

Dry: ☐Yes ☒No Ponded: ☐Yes ☒No
Rising Groundwater: ☐Yes ☐No
Connects to Surface Receiving Water ☐Yes ☐No
Dry weather event u/s influence: ☐Yes ☐No

TYPE (check all that apply):

☒ Grab [SAMPLE TIME: 0817]
☐ ~~Composite(-01-C) [SAMPLE TIME: ____]~~ COC last aliquot
☐ Field DUP(-02) ☐ Field Blank(-03) ☐ Travel Blank(-04)
☐ Other:

FIELD PARAMETERS

Time Measured: ____

	Result (primary/dup)	Units	Meter	Calibration Date
☐ Water Temp	13.4°	C	HQ 400	
☐ pH	8.38	SU	HQ40D	
☐ EC	1638	µhmo/cm		
☐ Turbidity	196	NTU		
☐ DO	4.07	mg/L		
☐				
☐				
☐				

FLOW ESTIMATION: See attached flow calibration

☐ USGS Gauge height/stage ____ ft Q (cfs) = 41.5

[Gauge Name/No.: ____]

☐ Calculation by visual measurement: Q (cfs) = ____

= [Coef(1,2/3,____)]*[depth____ft]*[width____ft]*[vel____fps]

Circular pipe: [vel____fps][depth____ft][width____ft][R=____ft]

COMPOSITE Samples: Auto/Grab, Flow/Time Weighted, ____Hrs

	Time	H(in.)	Flow(cfs)	%		Time	H(in.)	Flow(cfs)	%
1					13				
2					14				
3					15				
4					16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				
12					24				

SITE CONDITIONS

PRECIPITATION:

NOW: ☒ None ☐ Drizzle/Sprinkle ☐ Rain ☐ Hail/Snow

(APPROX. STORM START TIME: ____)

>72 hrs since previous (>0.1") rainfall event: ☐ Yes ☐ No

ODOR: ☒ None ☐ Sulfides ☐ Sewage ☐ Smoke
☐ Petroleum ☐ Other: ____

☐ Floatables____ ☐ Settleables ____
☐ Vegetation____ ☐ Staining ____

COLOR: ☐ Colorless ☐ Green ☐ Yellow ☒ Brown ☐ Other

CLARITY: ☐ Clear (see bottom) ☐ Cloudy ☒ Murky
Sheen Present: ☐ Yes ☒ No

TRASH: ☐ Yes ☒ No
From: ☐ Flows ☐ Litter ☐ Dumping ☐ Other____

Observations/Notes ☐ **Photograph(s)**

(If conducting Outfall Monitoring, provide estimate of the surface flows for both the Outfall and prox. Receiving Water as applicable.)

☐ **Associated monitoring u/s, d/s** *(circle one or both and complete required FDS(s))* **at:**

Coachella Valley Water District
Clean Water Act Division

1/6/16
Ave 52 Bridge
WET

DATA FORM FOR CALCULATING FLOW

Solving the equation: Flow = $\frac{ALC}{T}$

Where:

A = Average cross-sectional area of the stream. L = Length of the stream reach measured (usually 20 ft.). C = A coefficient or correction factor (0.8 for rocky-bottom streams or 0.9 for muddy-bottom streams). T = Time, in seconds, for the float to travel the length of L.

A: Average Cross-Sectional Area

Transect #1 (upstream)

	Interval width (feet)	Depth (feet)	
A to B =	___	___	(at B)
B to C =	___	___	(at C)
C to D =	___	___	(at D)
D to E =	___	___	(shoreline)
Totals	[ ]	[ ]	÷ 4

= Avg. depth [ ] ft

Cross-sectional area of Transect #1

= Total width (ft) X Avg. depth (ft)

[28] X [4.5] = [126] ft²

Transect #2 (downstream)

	Interval width (feet)	Depth (feet)	
A to B =	___	___	(at B)
B to C =	___	___	(at C)
C to D =	___	___	(at D)
D to E =	___	___	(shoreline)
Totals	[ ]	[ ]	÷ 4

= Avg. depth [ ] ft

Cross-sectional area of Transect #2

= Total width (ft) X Avg. depth (ft)

[ ] X [ ] = [ ] ft²

(Cross-sectional area of Transect #1 + Cross-sectional area of Transect #2) ÷ 2 = Average Cross-sectional area

A = ([ ] ft² + [ ] ft²) ÷ 2 = [126] ft²

L: Length of Stream Reach

[15] ft

C: Coefficient

[0.9]

T: Travel Time

	Travel Time of Float (sec.)
Trial #1	57
Trial #2	31
Trial #3	35
Total	[123] ÷ 3

= Avg. time [41] sec.

Flow = $\frac{ALC}{T}$ = $\frac{[126]\ [15]\ [0.9]}{[41]}$ = [41.5] ft³/sec.

Coachella Valley Water District
Environmental Services Department

WET WEATHER RECEIVING WATER MONITORING EVENT

JANUARY 6, 2016

Location	Able to Sample?	Conditions
Avenue 52 Bridge 719CVS884	Yes	There was adequate stormwater flow.

SAMPLE COCs/Reports

	Portola Outfall		CVSC Ave 52 Bridge	
	DRY	WET	DRY	WET
Field Parameters				
• Water Temperature IN °C • pH • EC • Turbidity • DO • Additional as needed to characterize		n/a		CE169010520
Constituents of Concern				
• Antimony • Arsenic • Barium • Beryllium • Cadmium • Chromium • Chromium^{+6} • Copper • Lead • Mercury • Nickel • Selenium • Silver • Thallium • Zinc • E. coli[1(8)] • NO_2 (N)[1(48)] • NO_3 (N)[1(48)] • TKN • Total N • Ammonia (N) • Total Suspended Solids • Total Dissolved Solids • Total Phosphorus • Ortho Phosphorus[1(48)] AKA Phosphate as P • Total Petroleum Hydrocarbons • Methylene-blue activated substances (MBAS)[1(48)] • Ethylene-glycol • Oil and Grease		n/a		CE169010521
• E. Coli		n/a		CE169010520

Other Notes:

This event was a localized WET weather event in Palm Desert allowing stormwater sampling at the Portolla outfall; no rain occurred at the Avenue 52 Bridge site.

Included in this package:

- Photos numbered 1 through 2:
- COCs:
  - CE16010520
  - CE16010521
- CVWD Final Analytical Reports:
  - 20160106-067
- Field Data Sheet:
  - 719CVS884
- Analytical Data Babcock: Work Order #B6A0643
- Invoice Number BA61686-2044 – Babcock

Data Review:

Location	Analytical Results	
	E. Coli (MPN/100ml)	**Dissolved Oxygen** (mg/L)
Avenue 52 Bridge	4900	4.07

Photos:

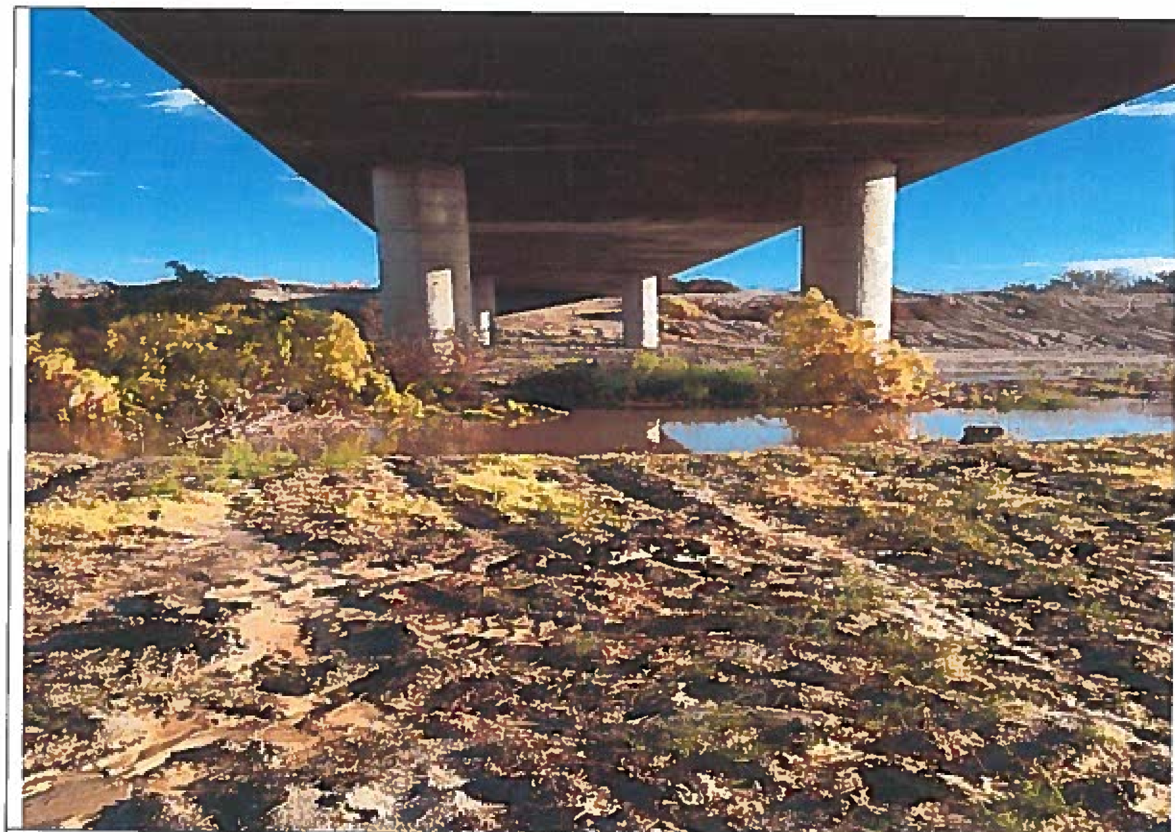

Photo 1: Avenue 52 Bridge

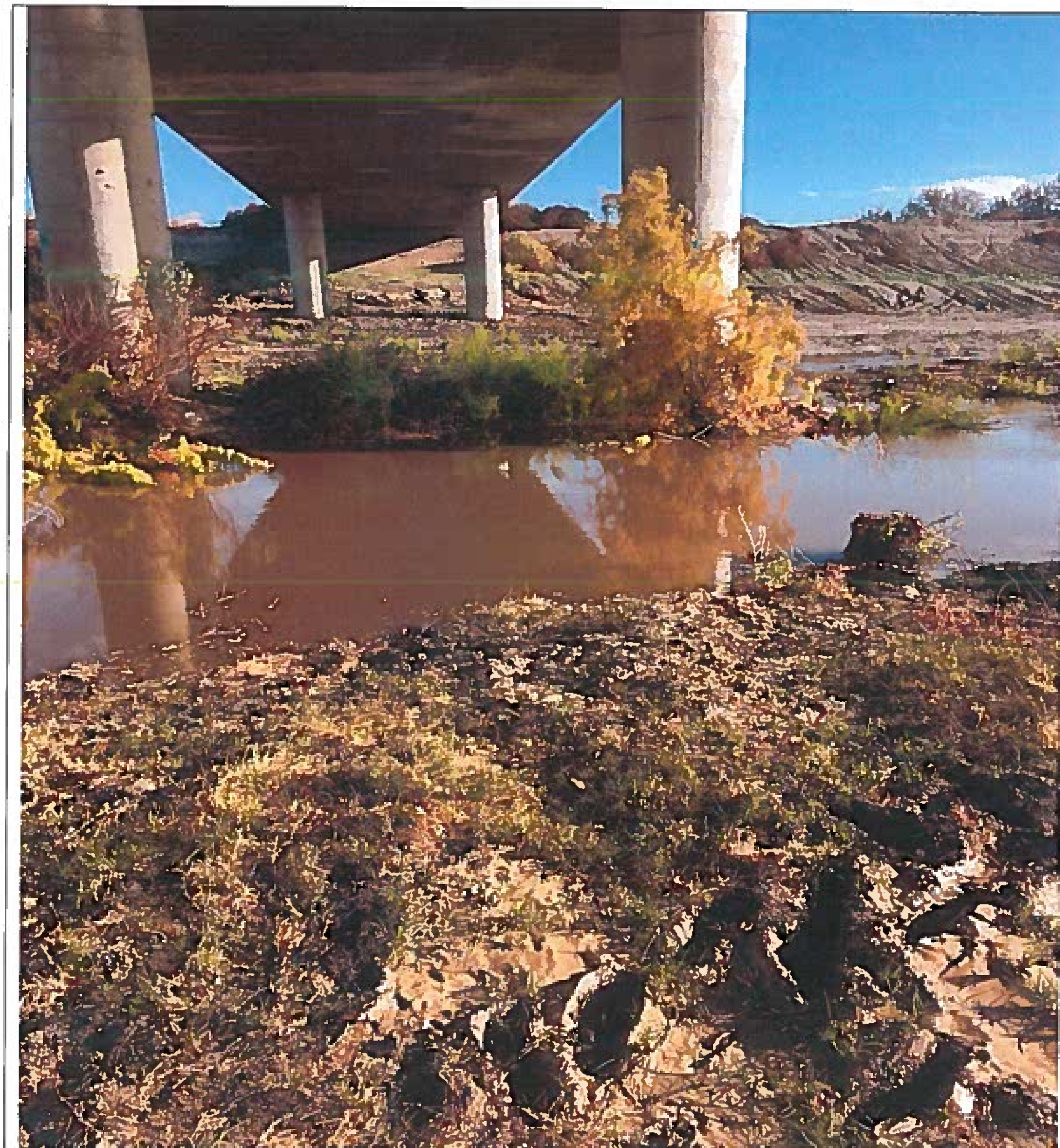

Photo 2: Avenue 52 Bridge

To: CVWD

COACHELLA VALLEY WATER DISTRICT

P.O. Box 1058; Coachella, CA 92236

Chain of Custody

CE16010520

PLEASE RETURN ☐ CLIENT ICE CHEST(S) AND ICE PACKS ☐ Requires State Forms Turn Around Time: ☐ Standard or ☐ RUSH

COC #: CE16010520 271 - Stormwater - Wet Weather - 01/06/2016

Received Date Time: Comments:

CVWD Log Number / Sample Date	Sampler / Time	Sample Pt ID / Sample Point Name	Sample Site Name	SM	CM	ST	Preservative / No Btls / Container	pH	EC (µhmo/cm)	Temp° C	Cl2 (mg/L) Free / Total	Comments
20160106-067	771	17062	CVSC @ Avenue 52 Bridge	W	G	O	Na2S2O3	8.38	1638	13.4		...D.O. - 4.07 mg/L
160106	0817	719CVS884					Bacterial 100 mL					Turb = 916 NTU

Requested Analysis: EC - Field, Temperature - Field, Turbidity - Field, DO - Field, E. coli by MTF 3x5 w/3 Dilutions, pH - Field

MR

Sample Matrix (SM): W = Water; S = Soil; Sl = Sludge || Collection Method (CM): G = Grab; CF = Flow composite; CT = Time Composite; CS = Spatial Composite
Sample Type (ST): FF = First flush; RT = Routine; Rp = Repeat; Rm = Replacement; Nw = New; Rs = Resample; Ts = Test; Sp = Special; 24 = 24 Hour; 4Q = 4 Quarters; 7s = 7 samples

Released By	ID#	Company	Received By	ID##	Company	Date	Time	Temp °C Iced (X) Refrigerated ( )
Matt Bygo	771	CVWD	[signature]	333	CVWD	160106	1005	4.7°C

To: Br[illegible]cock LABS

COPY

COACHELLA VA[illegible]EY WATER DISTRICT
P.O. Box 1058; Coachella, CA 92236
Chain of Custody

CE16010521

PLEASE RETURN ☐ CLIENT ICE CHEST(S) AND ICE PACKS ☐ Requires State Forms Turn Around Time: ☐ Standard or ☐ RUSH

COC #: CE16010521 295 - Stormwater - Wet Weather - Babcock - 01/06/

Received Date Time: Comments:

CVWD Log Number / Sample Date	Time	Sampler	Sample Pt ID	Sample Site Name / Sample Point Name	SM	CM	ST	Preservative / No Bttls / Container	pH	EC (µhmo/cm)	Temp°	Cl2 (mg/L) Free / Total	Comments
20160106-016 / 160106	0817	771	17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	HNO3 Poly 1L					✓
Requested Analysis: Antimony - Babcock, Total Chromium - Babcock, Silver - Babcock, Hexavalent Chromium - Babcock, Mercury - Babcock, Cadmium- Babcock, Arsenic - Babcock, Lead - Babcock, Barium - Babcock, Selenium - Babcock, Thallium - Babcock, Nickel - Babcock, Copper - Babcock, Beryllium - Babcock, Zinc - Babcock													
20160106-017			17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	Iced Poly 2L					✓
Requested Analysis: MBAS - Babcock, TSS - Babcock, TDS - Babcock, Orthophosphate - Babcock, Nitrate - Subcontract, Nitrite - Subcontract													
20160106-018			17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	H2SO4 Poly 1L					✓
Requested Analysis: Phosphorus-Total - Babcock, Ammonia-N - Babcock, Nitrogen-Kjeldahl - Babcock, Nitrogen-Total - Babcock													
20160106-019			17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	HCl 4 VOA 40mL					✓
Requested Analysis: Total Petroleum Hydrocarbons - Babcock													
20160106-020			17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	Iced 500 mL - Glass					✓
Requested Analysis: Oil & Grease - Babcock													
20160106-021			17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	None 500 mL - Glass					✓
Requested Analysis: Ethylene Glycol - Babcock													

MR

Sample Matrix (SM) W = Water, S = Soil, Sl = Sludge || Collection Method (CM) G = Grab, CF = Flow composite, CT = Time Composite, CS = Spatial Composite
Sample Type (ST) FF = First flush, RT = Routine, Rp = Repeat, Rm = Replacement, Nw = New, Rs = Resample, Ts = Test, Sp = Special, 24 = 24 Hour, 4Q = 4 Quarters, 7s = 7 samples

Released By	ID#	Company	Received By	ID##	Company	Date	Time	Temp °C Iced ( ) Refrigerated ( )
Matt Rojo	771	CVWD						

884W1

Final Analytical Report

QAp
02/24/2016

Sample Number
20160106-067

Coachella Valley Water District
Water Quality Laboratory
ELAP No. 1780
P.O. Box 1058
Coachella, CA 92236
Telephone: (760) 398-2651

Location: CVSC @ Avenue 52 Bridge
Sample Type Desc: Water
ollected Date/Time: 1/6/2016 8:17
eceived Date/Time: 1/6/2016 10:05
Sample Status: Complete
Subcontract Lab: N/A
Sample Comment:

Sample Point: 719CVS884
State Well Number: N/A
Collected By: MAR
Received By: MAS
Completed Date/Time: 1/12/2016 10:40
Report Date/Time: 1/27/2016 8:00

Analyte(s)	Result	Units	MDL	RL	MCL	Method	Date/Time	Analyst	Flag
ysical-Chemical Characteristics									
Field - Specific Conductance (EC)	1600	µmhos/cm				SM 2510	1/6/2016 8:17	MAR	
Temperature, Field	13.4	Degrees C				SM 2550 B	1/6/2016 8:17	MAR	
Field Turbidity	196.0	NTU			5	SM 2130 B	1/6/2016 ~~2:01~~ 8:17	MAR	
Field pH	8.4	SU					1/6/2016 ~~2:01~~ 8:17	MAR	
cteriological Analyses									
E. coli	4900	MPN/100mL	2			SM 9221	1/6/2015 11:30	JFS	
ier									
Dissolved Oxygen	4.07	mg/L				SM 4500 OG	1/6/2016 8:17	MAR	

per COC

ESB
BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years

QAp
11/03/2016

Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 02-Nov-2016

Project Name: CVWD Storm Water - WWR Mor
Project Number: CE16010521

Work Order Number: B6A0643
Received on Ice (Y/N): Yes Temp: 2 °C

Attached is the analytical report for the sample(s) received for your project. Below is a list of the individual sample descriptions with the corresponding laboratory number(s). Also, enclosed is a copy of the Chain of Custody document (if received with your sample(s)). Please note any unused portion of the sample(s) may be responsibly discarded after 30 days from the above report date, unless you have requested otherwise.

Thank you for the opportunity to serve your analytical needs. If you have any questions or concerns regarding this report please contact our client service department.

Sample Identification

Lab Sample #	Client Sample ID	Matrix	Date Sampled	By	Date Submitted	By
B6A0643-06	CVSC @ Avenue 52 Bridge 20160106-021 Grab	Liquid	01/6/16 8:17	771	01/07/16 09:40	FedEx
B6A0643-05	CVSC @ Avenue 52 Bridge 20160106-020 Grab	Liquid	01/6/16 8:17	771	01/07/16 09:40	FedEx
B6A0643-04	CVSC @ Avenue 52 Bridge 20160106-019 Grab	Liquid	01/6/16 8:17	771	01/07/16 09:40	FedEx
B6A0643-03	CVSC @ Avenue 52 Bridge 20160106-018 Grab	Liquid	01/6/16 8:17	771	01/07/16 09:40	FedEx
B6A0643-02	CVSC @ Avenue 52 Bridge 20160106-017 Grab	Liquid	01/6/16 8:17	771	01/07/16 09:40	FedEx
B6A0643-01	CVSC @ Avenue 52 Bridge 20160106-016 Grab	Liquid	01/6/16 8:17	771	01/07/16 09:40	FedEx

GOOD

BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years

Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 02-Nov-2016

Project Name: CVWD Storm Water - WWR Mo
Project Number: CE16010521

Work Order Number: B6A0643
Received on Ice (Y/N): Yes Temp: 2 °C

Laboratory Reference Number
B6A0643-01

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
CVSC @ Avenue 52 Bridge 20160106-016	Liquid	01/06/16 08:17	01/07/16 9:40

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Metals and Metalloids								
Antimony	1.3	10	0.40	ug/L	EPA 200.8	01/13/16 18:16	ERA	J, NRLrcf
Arsenic	2.7	5.0	1.2	ug/L	EPA 200.8	01/13/16 18:16	ERA	NRLrcf, J
Barium	77	20	0.18	ug/L	EPA 200.8	01/13/16 18:16	ERA	NRLrcf
Beryllium	ND	10	0.26	ug/L	EPA 200.8	01/13/16 18:16	ERA	NRLrcf
Cadmium	ND	2.0	0.26	ug/L	EPA 200.8	01/13/16 18:16	ERA	NRLrcf
Total Chromium	8.5	20	1.9	ug/L	EPA 200.8	01/13/16 18:16	ERA	NRLrcf, J
Copper	23	10	0.64	ug/L	EPA 200.8	01/13/16 18:16	ERA	NRLrcf
Lead	5.2	10	0.19	ug/L	EPA 200.8	01/13/16 18:16	ERA	J, NRLrcf
Mercury	0.058	0.20	0.055	ug/L	EPA 200.8 ATP	01/13/16 18:16	ERA	NRLrcf, J
Nickel	9.0	20	0.20	ug/L	EPA 200.8	01/13/16 18:16	ERA	J, NRLrcf
Selenium	1.5	5.0	1.4	ug/L	EPA 200.8	01/13/16 18:16	ERA	J, NRLrcf
Silver	ND	10	0.22	ug/L	EPA 200.8	01/13/16 18:16	ERA	NRLrcf
Thallium	ND	200	0.20	ug/L	EPA 200.8	01/13/16 18:16	ERA	NRLrcf
Zinc	47	10	1.5	ug/L	EPA 200.8	01/13/16 18:16	ERA	NRLrcf

BABCOCK Laboratories, Inc.
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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 02-Nov-2016

Project Name: CVWD Storm Water - WWR Moı
Project Number: CE16010521

Work Order Number: B6A0643
Received on Ice (Y/N): Yes Temp: 2 °C

Laboratory Reference Number
B6A0643-02

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
CVSC @ Avenue 52 Bridge 20160106-017	Liquid	01/06/16 08:17	01/07/16 9:40

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Anions								
Nitrate as N	2.9	0.20	0.11	mg/L	EPA 300.0	01/07/16 22:16	dcb	NRLrcf
Solids								
Total Dissolved Solids	960	20	12	mg/L	SM 2540C	01/08/16 21:00	cdcs	NRLrcf
Total Suspended Solids	120	10	7	mg/L	SM 2540D	01/12/16 10:05	sll	NRLrcf
Surfactants								
MBAS	ND	0.40	0.40	mg/L	SM 5540C	01/07/16 14:25	slp	N_RLm
Nutrients								
Nitrite as N	0.38	0.10	0.046	mg/L	SM 4500NO2 B	01/07/16 20:05	nc	NRLrcf
Ortho Phosphate Phosphorus	1.2	0.25	0.014	mg/L	SM 4500P E	01/07/16 23:45	jma	NRLrcf
Metals and Metalloids								
Hexavalent Chromium	0.47	1.0	0.013	ug/L	EPA 218.6	01/08/16 12:08	DCB	NRLrcf, J

BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years

Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 02-Nov-2016

Project Name: CVWD Storm Water - WWR Mo
Project Number: CE16010521

Work Order Number: B6A0643
Received on Ice (Y/N): Yes Temp: 2 °C

Laboratory Reference Number
B6A0643-03

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
CVSC @ Avenue 52 Bridge 20160106-018	Liquid	01/06/16 08:17	01/07/16 9:40

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Nutrients								
Ammonia-Nitrogen	10	0.80	0.47	mg/L	SM4500NH3H	01/08/16 15:18	sll	NRLrcf
Kjeldahl Nitrogen	21	1.0	0.63	mg/L	EPA 351.2	01/12/16 00:42	jma	NRLrcf
Total Nitrogen	24	1.0	0.63	mg/L	Calculation			
Total Phosphorus	1.5	0.50	0.19	mg/L	SM 4500P B E	01/13/16 13:40	slp	NRLrcf

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 02-Nov-2016

Project Name: CVWD Storm Water - WWR Moı
Project Number: CE16010521

Work Order Number: B6A0643
Received on Ice (Y/N): Yes Temp: 2 °C

Laboratory Reference Number
B6A0643-04

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
CVSC @ Avenue 52 Bridge 20160106-019	Liquid	01/06/16 08:17	01/07/16 9:40

Analyte(s)	Result		RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Diesel Range Organics by EPA 8015									
Diesel Range Hydrocarbons	ND		5.0	0.46	mg/L	EPA 8015B	01/13/16 01:32	naa	
Surrogate: Decachlorobiphenyl	70.2	%	35-120			EPA 8015B	01/13/16 01:32	naa	
Gasoline Range Organics by EPA 8015									
Gasoline Range Organics	0.024		0.050	0.024	mg/L	EPA 8015B	01/13/16 03:23	eec	J
Surrogate: a,a,a-Trifluorotoluene	52.2	%	10-110			EPA 8015B	01/13/16 03:23	eec	

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Report Date: 02-Nov-2016

Project Name: CVWD Storm Water - WWR Moı
Project Number: CE16010521

Work Order Number: B6A0643
Received on Ice (Y/N): Yes Temp: 2 °C

Laboratory Reference Number
B6A0643-05

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
CVSC @ Avenue 52 Bridge 20160106-020	Liquid	01/06/16 08:17	01/07/16 9:40

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Aggregate Organic Compounds								
Oil & Grease (HEM)	2.6	4.6	1.7	mg/L	EPA 1664A	01/23/16 13:50	slp	J

Client Name: Coachella Valley Water Dist.
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Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 02-Nov-2016

Project Name: CVWD Storm Water - WWR Moı
Project Number: CE16010521

Work Order Number: B6A0643
Received on Ice (Y/N): Yes Temp: 2 °C

Laboratory Reference Number
B6A0643-06

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
CVSC @ Avenue 52 Bridge 20160106-021	Liquid	01/06/16 08:17	01/07/16 9:40

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Miscellaneous Organic Compounds								
Ethylene Glycol	ND	1.0	1.0	mg/L*	Purpald-Periodate	01/12/16 13:27	jhr	

* NELAP does not offer accreditation for this analyte/method/matrix combination

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 02-Nov-2016

Project Name: CVWD Storm Water - WWR Mor
Project Number: CE16010521

Work Order Number: B6A0643
Received on Ice (Y/N): Yes Temp: 2 °C

Anions - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A07057 - Analyzed as Received IC											
Blank (6A07057-BLK1)					Prepared: 01/07/16 Analyzed: 01/08/16						
Nitrate as N	ND	0.20	0.11	mg/L							
LCS (6A07057-BS1)					Prepared & Analyzed: 01/07/16						
Nitrate as N	11.5	0.20	0.11	mg/L	11.3		102	90-110			
Matrix Spike (6A07057-MS1)		**Source: B6A0693-01**			Prepared & Analyzed: 01/08/16						
Nitrate as N	4.38	0.20	0.11	mg/L	4.52	0.734	80.8	75-131			
Matrix Spike (6A07057-MS2)		**Source: B6A0696-03**			Prepared & Analyzed: 01/08/16						
Nitrate as N	4.17	0.20	0.11	mg/L	4.52	0.464	82.0	75-131			
Matrix Spike Dup (6A07057-MSD1)		**Source: B6A0693-01**			Prepared & Analyzed: 01/08/16						
Nitrate as N	4.37	0.20	0.11	mg/L	4.52	0.734	80.5	75-131	0.379	20	

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Report Date: 02-Nov-2016

Project Name: CVWD Storm Water - WWR Mo
Project Number: CE16010521

Work Order Number: B6A0643
Received on Ice (Y/N): Yes Temp: 2 °C

Solids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A08069 - Analyzed as received											
Blank (6A08069-BLK1)				Prepared & Analyzed: 01/08/16							
Total Dissolved Solids	ND	10	5.8	mg/L							
LCS (6A08069-BS1)				Prepared & Analyzed: 01/08/16							
Total Dissolved Solids	725	20	12	mg/L	746		97.2	90-110			
Duplicate (6A08069-DUP1)		**Source: B6A0565-01**		Prepared & Analyzed: 01/08/16							
Total Dissolved Solids	718	20	12	mg/L		735			2.34	20	
Duplicate (6A08069-DUP2)		**Source: B6A0757-01**		Prepared & Analyzed: 01/08/16							
Total Dissolved Solids	425	20	12	mg/L		443			4.15	20	
Batch 6A12069 - Analyzed as received											
Blank (6A12069-BLK1)				Prepared & Analyzed: 01/12/16							
Total Suspended Solids	ND	5	4	mg/L							
LCS (6A12069-BS1)				Prepared & Analyzed: 01/12/16							
Total Suspended Solids	505	10	7	mg/L	500		101	90-110			
Duplicate (6A12069-DUP1)		**Source: B6A0643-02**		Prepared & Analyzed: 01/12/16							
Total Suspended Solids	117	10	7	mg/L		117			0.00	25	
Duplicate (6A12069-DUP2)		**Source: B6A0754-01**		Prepared & Analyzed: 01/12/16							
Total Suspended Solids	197	10	7	mg/L		193			2.05	25	

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EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119

Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 10 of 23
Contact:	Steve Bigley	Project Name:	CVWD Storm Water - WWR Mo
Address:	P.O. Box 1058	Project Number:	CE16010521
	Coachella, CA 92236		
Report Date:	02-Nov-2016	**Work Order Number:**	**B6A0643**

Received on Ice (Y/N): Yes Temp: 2 °C

Aggregate Organic Compounds - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A22044 - Solvent Extraction.											
Blank (6A22044-BLK1)					Prepared & Analyzed: 01/23/16						
Oil & Grease (HEM)	1.60	2.5	0.9	mg/L							J
LCS (6A22044-BS1)					Prepared & Analyzed: 01/23/16						
Oil & Grease (HEM)	32.7	2.5	0.9	mg/L	40.0		81.8	60-126			
LCS Dup (6A22044-BSD1)					Prepared & Analyzed: 01/23/16						
Oil & Grease (HEM)	39.3	2.5	0.9	mg/L	40.0		98.2	60-126	18.3	25	
Matrix Spike (6A22044-MS1)		**Source: B6A0598-01**			Prepared & Analyzed: 01/23/16						
Oil & Grease (HEM)	67.0	4.6	1.7	mg/L	72.7	6.37	83.3	50-137			

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Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 11 of 23
Contact:	Steve Bigley	Project Name:	CVWD Storm Water - WWR Moı
Address:	P.O. Box 1058	Project Number:	CE16010521
	Coachella, CA 92236		
Report Date:	02-Nov-2016	**Work Order Number:**	**B6A0643**
		Received on Ice (Y/N):	Yes Temp: 2 °C

Surfactants - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A07031 - Solvent Extraction											
Blank (6A07031-BLK1)					Prepared & Analyzed: 01/07/16						
MBAS	ND	0.08	0.08	mg/L							
LCS (6A07031-BS1)					Prepared & Analyzed: 01/07/16						
MBAS	0.331	0.08	0.08	mg/L	0.320		103	80-120			
Duplicate (6A07031-DUP1)		**Source: B6A0522-01**			Prepared & Analyzed: 01/07/16						
MBAS	ND	0.08	0.08	mg/L		ND				20	
Matrix Spike (6A07031-MS1)		**Source: B6A0525-01**			Prepared & Analyzed: 01/07/16						
MBAS	0.522	0.20	0.20	mg/L	0.400	0.152	92.6	80-120			
Matrix Spike Dup (6A07031-MSD1)		**Source: B6A0525-01**			Prepared & Analyzed: 01/07/16						
MBAS	0.532	0.20	0.20	mg/L	0.400	0.152	95.1	80-120	1.90	20	

Client Name: Coachella Valley Water Dist.
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Report Date: 02-Nov-2016

Project Name: CVWD Storm Water - WWR Moı
Project Number: CE16010521

Work Order Number: B6A0643
Received on Ice (Y/N): Yes Temp: 2 °C

Nutrients - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A07070 - Filter if turbid.											
LCS (6A07070-BS1)					Prepared & Analyzed: 01/07/16						
Nitrite as N	1.06	0.10	0.046	mg/L	1.00		106	90-110			
Matrix Spike (6A07070-MS1)		**Source: B6A0641-01**			Prepared & Analyzed: 01/07/16						
Nitrite as N	1.10	0.10	0.046	mg/L	1.00	ND	110	80-120			
Matrix Spike Dup (6A07070-MSD1)		**Source: B6A0641-01**			Prepared & Analyzed: 01/07/16						
Nitrite as N	1.08	0.10	0.046	mg/L	1.00	ND	108	80-120	1.83	20	
Batch 6A07076 - Filter if turbid.											
LCS (6A07076-BS1)					Prepared & Analyzed: 01/07/16						
Ortho Phosphate Phosphorus	0.478	0.050	0.0028	mg/L	0.500		95.6	90-110			
Matrix Spike (6A07076-MS1)		**Source: B6A0711-03**			Prepared & Analyzed: 01/07/16						
Ortho Phosphate Phosphorus	0.586	0.050	0.0028	mg/L	0.500	0.0750	102	80-120			
Matrix Spike Dup (6A07076-MSD1)		**Source: B6A0711-03**			Prepared & Analyzed: 01/07/16						
Ortho Phosphate Phosphorus	0.577	0.050	0.0028	mg/L	0.500	0.0750	100	80-120	1.55	20	
Batch 6A08018 - Analyzed as received											
Blank (6A08018-BLK1)					Prepared & Analyzed: 01/08/16						
Ammonia-Nitrogen	ND	0.10	0.059	mg/L							
LCS (6A08018-BS1)					Prepared & Analyzed: 01/08/16						
Ammonia-Nitrogen	0.773	0.10	0.059	mg/L	0.780		99.1	90-110			

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Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 13 of 23
Contact:	Steve Bigley	Project Name:	CVWD Storm Water - WWR Mo
Address:	P.O. Box 1058	Project Number:	CE16010521
	Coachella, CA 92236		
Report Date:	02-Nov-2016	**Work Order Number:**	**B6A0643**
		Received on Ice (Y/N):	Yes Temp: 2 °C

Nutrients - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A08018 - Analyzed as received											
Duplicate (6A08018-DUP1)		**Source: B6A0534-01RE1**		Prepared & Analyzed: 01/08/16							
Ammonia-Nitrogen	0.358	0.10	0.059	mg/L		0.335			6.75	20	
Matrix Spike (6A08018-MS1)		**Source: B6A0534-01RE1**		Prepared & Analyzed: 01/08/16							
Ammonia-Nitrogen	1.02	0.10	0.059	mg/L	0.780	0.335	87.3	80-120			
Matrix Spike Dup (6A08018-MSD1)		**Source: B6A0534-01RE1**		Prepared & Analyzed: 01/08/16							
Ammonia-Nitrogen	1.03	0.10	0.059	mg/L	0.780	0.335	88.6	80-120	1.03	20	
Batch 6A11092 - Acid Digest											
Blank (6A11092-BLK1)				Prepared: 01/11/16 Analyzed: 01/12/16							
Kjeldahl Nitrogen	0.0700	0.10	0.063	mg/L							J
LCS (6A11092-BS1)				Prepared: 01/11/16 Analyzed: 01/12/16							
Kjeldahl Nitrogen	0.958	0.10	0.063	mg/L	1.00		95.8	80-120			
Duplicate (6A11092-DUP1)		**Source: B6A0559-01**		Prepared: 01/11/16 Analyzed: 01/12/16							
Kjeldahl Nitrogen	120	8.0	5.0	mg/L		91.6			26.7	20	QFnt, QRPDo
Matrix Spike (6A11092-MS1)		**Source: B6A0559-01**		Prepared: 01/11/16 Analyzed: 01/12/16							
Kjeldahl Nitrogen	135	8.0	5.0	mg/L	80.0	91.6	54.5	70-130			QMout
Matrix Spike Dup (6A11092-MSD1)		**Source: B6A0559-01**		Prepared: 01/11/16 Analyzed: 01/12/16							
Kjeldahl Nitrogen	130	8.0	5.0	mg/L	80.0	91.6	47.4	70-130	4.24	25	QMout
Batch 6A12087 - Acid Digest											
LCS (6A12087-BS1)				Prepared: 01/12/16 Analyzed: 01/13/16							
Total Phosphorus	0.557	0.05	0.02	mg/L	0.525		106	85-115			

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LACSD No. 10119

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 02-Nov-2016

Project Name: CVWD Storm Water - WWR Mo
Project Number: CE16010521

Work Order Number: B6A0643
Received on Ice (Y/N): Yes Temp: 2 °C

Nutrients - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A12087 - Acid Digest											
Duplicate (6A12087-DUP1)		**Source: B6A0510-01**			Prepared: 01/12/16	Analyzed: 01/13/16					
Total Phosphorus	0.356	0.05	0.02	mg/L		0.346			2.85	20	
Matrix Spike (6A12087-MS1)		**Source: B6A0522-01**			Prepared: 01/12/16	Analyzed: 01/13/16					
Total Phosphorus	0.900	0.05	0.02	mg/L	0.525	0.314	112	80-120			
Matrix Spike Dup (6A12087-MSD1)		**Source: B6A0522-01**			Prepared: 01/12/16	Analyzed: 01/13/16					
Total Phosphorus	0.897	0.05	0.02	mg/L	0.525	0.314	111	80-120	0.334	20	

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
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Report Date: 02-Nov-2016

Project Name: CVWD Storm Water - WWR Moi
Project Number: CE16010521

Work Order Number: B6A0643
Received on Ice (Y/N): Yes Temp: 2 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A08029 - Filter if turbid.-IC											
Blank (6A08029-BLK1)					Prepared & Analyzed: 01/08/16						
Hexavalent Chromium	ND	1.0	0.013	ug/L							
LCS (6A08029-BS1)					Prepared & Analyzed: 01/08/16						
Hexavalent Chromium	4.91	1.0	0.013	ug/L	5.00		98.2	90-110			
LCS Dup (6A08029-BSD1)					Prepared & Analyzed: 01/08/16						
Hexavalent Chromium	4.90	1.0	0.013	ug/L	5.00		97.9	90-110	0.265	20	
Duplicate (6A08029-DUP1)		**Source: B6A0737-03**			Prepared & Analyzed: 01/08/16						
Hexavalent Chromium	0.680	1.0	0.013	ug/L		0.685			0.806	20	J
Matrix Spike (6A08029-MS1)		**Source: B6A0737-03**			Prepared & Analyzed: 01/08/16						
Hexavalent Chromium	5.58	1.0	0.013	ug/L	5.00	0.685	97.9	84-122			
Matrix Spike Dup (6A08029-MSD1)		**Source: B6A0737-03**			Prepared & Analyzed: 01/08/16						
Hexavalent Chromium	5.60	1.0	0.013	ug/L	5.00	0.685	98.2	84-122	0.251	20	
Batch 6A12132 - EPA 200.2 SOP M02C											
Blank (6A12132-BLK1)					Prepared & Analyzed: 01/13/16						
Antimony	ND	10	0.40	ug/L							
Arsenic	ND	5.0	1.2	ug/L							
Barium	0.359	20	0.18	ug/L							J
Beryllium	ND	10	0.26	ug/L							
Cadmium	ND	2.0	0.26	ug/L							
Total Chromium	ND	20	1.9	ug/L							
Copper	ND	10	0.64	ug/L							
Lead	ND	10	0.19	ug/L							
Mercury	ND	0.20	0.055	ug/L							
Nickel	ND	20	0.20	ug/L							
Selenium	ND	5.0	1.4	ug/L							
Silver	ND	10	0.22	ug/L							
Thallium	ND	200	0.20	ug/L							
Zinc	ND	10	1.5	ug/L							

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Client Name:	Coachella Valley Water Dist.	Analytical Report:	
Contact:	Steve Bigley	Project Name:	CVWD Storm Water - WWR Mo
Address:	P.O. Box 1058 Coachella, CA 92236	Project Number:	CE16010521
Report Date:	02-Nov-2016	**Work Order Number:**	**B6A0643**

Received on Ice (Y/N): Yes Temp: 2 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A12132 - EPA 200.2 SOP M02C											
LCS (6A12132-BS1)					Prepared & Analyzed: 01/13/16						
Antimony	328	10	0.40	ug/L	334		98.5	85-115			
Arsenic	320	5.0	1.2	ug/L	334		96.1	85-115			
Barium	318	20	0.18	ug/L	334		95.3	85-115			
Beryllium	327	10	0.26	ug/L	334		98.2	85-115			
Cadmium	317	2.0	0.26	ug/L	334		95.2	85-115			
Total Chromium	313	20	1.9	ug/L	334		93.9	85-115			
Copper	300	10	0.64	ug/L	334		90.0	85-115			
Lead	315	10	0.19	ug/L	334		94.4	85-115			
Mercury	3.32	0.20	0.055	ug/L	3.34		99.7	85-115			
Nickel	303	20	0.20	ug/L	334		91.0	85-115			
Selenium	306	5.0	1.4	ug/L	334		91.8	85-115			
Silver	252	10	0.22	ug/L	334		75.7	85-115			QL-MS
Thallium	303	200	0.20	ug/L	334		90.9	85-115			
Zinc	296	10	1.5	ug/L	334		88.9	85-115			
LCS Dup (6A12132-BSD1)					Prepared & Analyzed: 01/13/16						
Antimony	330	10	0.40	ug/L	334		99.0	85-115	0.526	20	
Arsenic	325	5.0	1.2	ug/L	334		97.4	85-115	1.39	20	
Barium	320	20	0.18	ug/L	334		96.1	85-115	0.788	20	
Beryllium	324	10	0.26	ug/L	334		97.2	85-115	0.972	20	
Cadmium	317	2.0	0.26	ug/L	334		95.1	85-115	0.0475	20	
Total Chromium	315	20	1.9	ug/L	334		94.4	85-115	0.496	20	
Copper	304	10	0.64	ug/L	334		91.2	85-115	1.29	20	
Lead	318	10	0.19	ug/L	334		95.4	85-115	1.02	20	
Mercury	3.34	0.20	0.055	ug/L	3.34		100	85-115	0.593	20	
Nickel	307	20	0.20	ug/L	334		92.1	85-115	1.22	20	
Selenium	308	5.0	1.4	ug/L	334		92.3	85-115	0.496	20	
Silver	258	10	0.22	ug/L	334		77.2	85-115	2.07	20	QL-MS
Thallium	304	200	0.20	ug/L	334		91.3	85-115	0.462	20	
Zinc	301	10	1.5	ug/L	334		90.1	85-115	1.39	20	

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Contact: Steve Bigley
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Report Date: 02-Nov-2016

Project Name: CVWD Storm Water - WWR Mo
Project Number: CE16010521

Work Order Number: B6A0643
Received on Ice (Y/N): Yes Temp: 2 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A12132 - EPA 200.2 SOP M02C											
Matrix Spike (6A12132-MS1)		**Source: B6A0541-01**		Prepared & Analyzed: 01/13/16							
Antimony	396	10	0.40	ug/L	334	0.517	118	70-130			
Arsenic	406	5.0	1.2	ug/L	334	2.46	121	70-130			
Barium	871	20	0.18	ug/L	334	519	106	70-130			
Beryllium	370	10	0.26	ug/L	334	1.30	110	70-130			
Cadmium	362	2.0	0.26	ug/L	334	ND	108	70-130			
Total Chromium	359	20	1.9	ug/L	334	3.80	107	70-130			
Copper	490	10	0.64	ug/L	334	159	99.3	70-130			
Lead	344	10	0.19	ug/L	334	4.74	102	70-130			
Mercury	3.56	0.20	0.055	ug/L	3.34	ND	107	70-130			
Nickel	363	20	0.20	ug/L	334	4.91	107	70-130			
Selenium	349	5.0	1.4	ug/L	334	1.70	104	70-130			
Silver	309	10	0.22	ug/L	334	ND	92.7	70-130			
Thallium	325	200	0.20	ug/L	334	ND	97.5	70-130			
Zinc	452	10	1.5	ug/L	334	126	98.0	70-130			
Matrix Spike (6A12132-MS2)		**Source: B6A0749-01**		Prepared & Analyzed: 01/13/16							
Antimony	326	10	0.40	ug/L	334	3.39	96.6	70-130			
Arsenic	318	5.0	1.2	ug/L	334	3.66	94.2	70-130			
Barium	335	20	0.18	ug/L	334	23.0	93.4	70-130			
Beryllium	309	10	0.26	ug/L	334	5.70	91.0	70-130			
Cadmium	309	2.0	0.26	ug/L	334	ND	92.6	70-130			
Total Chromium	307	20	1.9	ug/L	334	5.05	90.4	70-130			
Copper	299	10	0.64	ug/L	334	9.31	86.7	70-130			
Lead	302	10	0.19	ug/L	334	5.36	88.9	70-130			
Mercury	3.15	0.20	0.055	ug/L	3.34	0.0693	92.3	70-130			
Nickel	301	20	0.20	ug/L	334	7.44	88.1	70-130			
Selenium	294	5.0	1.4	ug/L	334	2.70	87.4	70-130			
Silver	258	10	0.22	ug/L	334	ND	77.4	70-130			
Thallium	282	200	0.20	ug/L	334	ND	84.5	70-130			
Zinc	396	10	1.5	ug/L	334	112	85.4	70-130			

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P.O Box 432
Riverside, CA 92502-0432

location
6100 Quail Valley Court
Riverside, CA 92507-0704

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F 951 653 1662
www.babcocklabs.com

CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119

Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 02-Nov-2016

Project Name: CVWD Storm Water - WWR Moı
Project Number: CE16010521

Work Order Number: B6A0643
Received on Ice (Y/N): Yes Temp: 2 °C

Diesel Range Organics by EPA 8015 - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A12067 - Microextraction											
Blank (6A12067-BLK1)				Prepared & Analyzed: 01/12/16							
Diesel Range Hydrocarbons	ND	5.0	0.46	mg/L							
Surrogate: Decachlorobiphenyl	*0.94*			mg/L	*1.14*		*82.0*	*35-120*			
LCS (6A12067-BS1)				Prepared: 01/12/16 Analyzed: 01/13/16							
Diesel Range Hydrocarbons	40.0	5.0	0.46	mg/L	45.7		87.4	61-128			
Surrogate: Decachlorobiphenyl	*0.94*			mg/L	*1.14*		*82.2*	*35-120*			
LCS Dup (6A12067-BSD1)				Prepared: 01/12/16 Analyzed: 01/13/16							
Diesel Range Hydrocarbons	43.9	5.0	0.46	mg/L	45.7		96.1	61-128	9.45	20	
Surrogate: Decachlorobiphenyl	*1.0*			mg/L	*1.14*		*88.9*	*35-120*			
Matrix Spike (6A12067-MS1)		**Source: B6A0787-02**		Prepared: 01/12/16 Analyzed: 01/13/16							
Diesel Range Hydrocarbons	41.0	5.0	0.46	mg/L	45.7	ND	89.7	44-132			Q_nes
Surrogate: Decachlorobiphenyl	*0.87*			mg/L	*1.14*		*76.1*	*35-120*			*Q_nes*

mailing
P.O Box 432
Riverside, CA 92502-0432

location
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Riverside, CA 92507-0704

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CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119

BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years

Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 19 of 23
Contact:	Steve Bigley	Project Name:	CVWD Storm Water - WWR Mo
Address:	P.O. Box 1058	Project Number:	CE16010521
	Coachella, CA 92236		
Report Date:	02-Nov-2016	**Work Order Number:**	**B6A0643**
		Received on Ice (Y/N):	Yes Temp: 2 °C

Gasoline Range Organics by EPA 8015 - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A12077 - Purge and Trap											
Blank (6A12077-BLK1)				Prepared & Analyzed: 01/12/16							
Gasoline Range Organics	0.0280	0.050	0.024	mg/L							J
Surrogate: a,a,a-Trifluorotoluene	*0.12*			mg/L	*0.215*		*58.1*	*10-110*			
LCS (6A12077-BS1)				Prepared & Analyzed: 01/12/16							
Gasoline Range Organics	2.86	0.050	0.024	mg/L	2.90		98.5	69-145			
Surrogate: a,a,a-Trifluorotoluene	*0.25*			mg/L	*0.269*		*94.5*	*10-110*			
LCS Dup (6A12077-BSD1)				Prepared & Analyzed: 01/12/16							
Gasoline Range Organics	2.81	0.050	0.024	mg/L	2.90		97.1	69-145	1.49	40	
Surrogate: a,a,a-Trifluorotoluene	*0.25*			mg/L	*0.269*		*92.4*	*10-110*			
Matrix Spike (6A12077-MS1)		**Source: B6A0292-01RE1**		Prepared & Analyzed: 01/12/16							
Gasoline Range Organics	2.63	0.050	0.024	mg/L	2.50	0.0240	104	63-140			
Surrogate: a,a,a-Trifluorotoluene	*0.25*			mg/L	*0.215*		*114*	*10-110*			*QSout*
Matrix Spike Dup (6A12077-MSD1)		**Source: B6A0292-01RE1**		Prepared & Analyzed: 01/12/16							
Gasoline Range Organics	2.53	0.050	0.024	mg/L	2.50	0.0240	100	63-140	3.62	40	
Surrogate: a,a,a-Trifluorotoluene	*0.21*			mg/L	*0.215*		*98.9*	*10-110*			

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The Standard of Excellence for Over 100 Years

Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 02-Nov-2016

Project Name: CVWD Storm Water - WWR Mo
Project Number: CE16010521

Work Order Number: B6A0643
Received on Ice (Y/N): Yes Temp: 2 °C

Miscellaneous Organic Compounds - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A12082 - None											
Blank (6A12082-BLK1)					Prepared & Analyzed: 01/12/16						
Ethylene Glycol	ND	1.0	1.0	mg/L*							
LCS (6A12082-BS1)					Prepared & Analyzed: 01/12/16						
Ethylene Glycol	4.50	1.0	1.0	mg/L*	5.00		90.0	50-150			
Matrix Spike (6A12082-MS1)		**Source: B6A0413-04**			Prepared & Analyzed: 01/12/16						
Ethylene Glycol	4.50	1.0	1.0	mg/L*	5.00	ND	90.0	50-150			
Matrix Spike Dup (6A12082-MSD1)		**Source: B6A0413-04**			Prepared & Analyzed: 01/12/16						
Ethylene Glycol	5.00	1.0	1.0	mg/L*	5.00	ND	100	50-150	10.5	40	

Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 21 of 23
Contact:	Steve Bigley	Project Name:	CVWD Storm Water - WWR Moı
Address:	P.O. Box 1058 Coachella, CA 92236	Project Number:	CE16010521
Report Date:	02-Nov-2016	**Work Order Number:**	**B6A0643**

Received on Ice (Y/N): Yes Temp: 2 °C

Notes and Definitions

Cr+6: Regulatory 15 minute holding time for sample filtration and preservation exceeded B6A0643-02

J Estimated value

N_RLm Due to sample matrix, the reporting limit has been raised.

NRLrcf RL for analyte does not meet the SWAMP/ CTR required RL.

ND: Analyte NOT DETECTED at or above the Method Detection Limit **(if MDL is reported)**, otherwise at or above the Reportable Detection Limit (RDL)

NR: Not Reported

RDL: Reportable Detection Limit

MDL: Method Detection Limit

* / (Non-NELAP): NELAP does not offer accreditation for this analyte/method/matrix combination

BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years

Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 02-Nov-2016

Project Name: CVWD Storm Water - WWR Mo
Project Number: CE16010521

Work Order Number: B6A0643
Received on Ice (Y/N): Yes Temp: 2 °C

Approval

Enclosed are the analytical results for the submitted sample(s). Babcock Laboratories certify the data presented as part of this report meet the minimum quality standards in the referenced analytical methods. Any exceptions have been noted. Babcock Laboratories and its officers and employees assume no responsibility and make no warranty, express or implied, for uses or interpretations made by any recipients, intended or unintended, of this report.

cc:

e-Standard.rpt

BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years

Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 02-Nov-2016

Project Name: CVWD Storm Water - WWR Moı
Project Number: CE16010521

Work Order Number: B6A0643
Received on Ice (Y/N): Yes Temp: 2 °C

To: BABCOCK LABS

COACHELLA VALLEY WATER DISTRICT
P.O. Box 1058; Coachella, CA 92236
Chain of Custody
CE16010521

WATER DISTRICT

PLEASE RETURN ☐ CLIENT ICE CHEST(S) AND ICE PACKS ☐ Requires State Forms Turn Around Time: ☐ Standard or ☐ RUSH

COC #: CE16010521 295 - Stormwater - Wet Weather - Babcock - 01/06/
Received Date Time: Comments:

CVWD Log Number / Sample Date	Time	Sampler	Sample Pt ID	Sample Site Name / Sample Point Name	SM	CM	ST	Preservative No Bttls / Container	pH	EC (µhmo/cm)	Temp°	Cl2 (mg/L) Free / Total	Comments
20160106-016 / 160106	0817	771	17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	HNO3 Poly 1L *Needs to be split from unpres. bottle, moved to -017 (AB) 1/07/16					...
Requested Analysis: Antimony - Babcock, Total Chromium - Babcock, Silver - Babcock, Hexavalent Chromium - Babcock, Mercury - Babcock, Cadmium- Babcock, Arsenic - Babcock, Lead - Babcock, Barium - Babcock, Selenium - Babcock, Thallium - Babcock, Nickel - Babcock, Copper - Babcock, Beryllium - Babcock, Zinc - Babcock													
20160106-017			17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	Iced Poly 2L					...
Requested Analysis: MBAS - Babcock, TSS - Babcock, TDS - Babcock, Orthophosphate - Babcock, Nitrate - Subcontract, Nitrite - Subcontract * Hexavalent Chromium (AB) 1/07/16													
20160106-018			17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	H2SO4 Poly 1L					...
Requested Analysis: Phosphorus-Total - Babcock, Ammonia-N - Babcock, Nitrogen-Kjeldahl - Babcock, Nitrogen-Total - Babcock													
20160106-019			17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	HCl 4- VOA 40mL					...
Requested Analysis: Total Petroleum Hydrocarbons - Babcock (8015 G&D) (AB) 1/07/16													
20160106-020			17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	Iced 500 mL - Glass					...
Requested Analysis: Oil & Grease - Babcock													
20160106-021			17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	None 500 mL - Glass					...
Requested Analysis: Ethylene Glycol - Babcock													

9 bottles

B6A0643 AB
JAN - 7 2016

Sample Matrix (SM): W = Water; S = Soil; Sl = Sludge || Collection Method (CM): G = Grab; CF = Flow composite; CT = Time Composite; CS = Spatial Composite
Sample Type (ST): FF = First flush; RT = Routine; Rp = Repeat; Rm = Replacement; Nw = New; Rs = Resample; Ts = Test; Sp = Special; 24 = 24 Hour; 4Q = 4 Quarters; 7s = 7 samples

Released By	ID#	Company	Received By	ID##	Company	Date	Time	Temp °C Iced ( ) Refrigerated ( )
Matt Pyro / FEDEX	771	CVWD	[illegible signature]		ESB	1/7/16	940	2°C

page 1 of 1

WATER POLLUTION PREVENTION
FUNDED BY THE CITIES AND COUNTY OF RIVERSIDE

FIELD DATA SHEET

Rev 07/02/2015 - CVWD

QAp
02/25/2016

STATION ID: 719CVS884 **SAMPLE DATE** (MM/DD/YYYY): 1/28/16

STATION NAME: 884 - CVSC at Avenue 52 Bridge WATERSHED: ☐SAR ☐SMR ☒WWR

PROJECT NAME: *Whitewater River Region Monitoring Program - 2013 Order* Within: ☐Unincorp. or ☒City of Coachella

CONVEYANCE TYPE: Open Channel ☐Receiving Water

GPS INFO: Lat 33° 40.35 Long 116° 8.97 GPS Unit: ___ ☐Outfall, Owner: City of Coachella

PRINTED NAMES of Sampling Team: Sergio M ☐Other: ___

SIGNATURE of lead sampler: ___ Sampling AGENCY: *Coachella Valley Water District*

SAMPLE INFORMATION

☐ VISITED, NOT SAMPLED (TIME: ___)

EVENT CATEGORY:
- ☐ Wet Weather (Storm) OR
- ☒ Dry Weather
  - ☒1st ☐2nd ☐3rd ☐4th
- ☐ Recon, IC/ID, or Complaint
- ☐ Other ___

SAMPLE ID(s) [# of Bottles]: 1516-XX-XXXX-01 [__], 1516-XX-XXXX-XX [__], 1516-XX-XXXX-XX [__]

STREAM FLOW:
- Dry: ☐Yes ☒No Ponded: ☐Yes ☒No
- Rising Groundwater: ☐Yes ☒No
- Connects to Surface Receiving Water ☒Yes ☐No
- Dry weather event u/s influence: ☐Yes ☐No

TYPE (check all that apply):
- ☒ Grab [SAMPLE TIME: 1030]
- ☐ ~~Composite(-01-C) [SAMPLE TIME: ___]~~ COC last aliquot
- ☐ Field DUP(-02) ☐ Field Blank(-03) ☐ Travel Blank(-04)
- ☐ Other:

FIELD PARAMETERS

Time Measured: ___

	Result (primary/dup)	Units	Meter	Calibration Date
☒ Water Temp	16.5	C	HQ40D	1/27/16
☒ pH	7.68	SU	HQ400	1/27/16
☒ EC	1140	uS/cm	HQ400	1/27/16
☒ Turbidity	14.9	NTU	2100P	3/15/13
☒ DO	3.89	Mg/L	HQ300	1/27/16
☐				
☐				
☐				

SITE CONDITIONS

PRECIPITATION:
NOW: ☒None ☐ Drizzle/Sprinkle ☐ Rain ☐ Hail/Snow
[APPROX. STORM START TIME: ___]
>72 hrs since previous (>0.1") rainfall event: ☐ Yes ☐ No

ODOR: ☒None ☐ Sulfides ☐ Sewage ☐ Smoke ☐ Petroleum ☐ Other: ___

☐ Floatables ___ ☐ Settleables ___
☒ Vegetation ___ ☐ Staining ___

COLOR: ☐ Colorless ☒Green ☐ Yellow ☐ Brown ☐ Other

CLARITY: ☐ Clear (see bottom) ☐ Cloudy ☒Murky
Sheen Present: ☐ Yes ☐ No

TRASH: ☐ Yes ☒No
From: ☐ Flows ☐ Litter ☐ Dumping ☐ Other ___

FLOW ESTIMATION:

☐ USGS Gauge height/stage ___ ft Q (cfs) = ___

[Gauge Name/No.: ___]

☐ Calculation by visual measurement: Q (cfs) = 29 cfs

= [Coef(1,$^2/_3$,___)]*[depth___ft]*[width___ft]*[vel___fps]

Circular pipe: (vel___fps)(depth___ft)(width___ft)(R=___ft)

COMPOSITE Samples: Auto/Grab, Flow/Time Weighted, ___Hrs

	Time	H(in.)	Flow(cfs)	%		Time	H(in.)	Flow(cfs)	%
1					13				
2					14				
3					15				
4					16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				
12					24				

Observations/Notes ☒ Photograph(s)

(If conducting Outfall Monitoring, provide estimate of the surface flows for both the Outfall and prox. Receiving Water as applicable.)

☐ **Associated monitoring u/s, d/s** *(circle one or both and complete required FDS(s))* **at:**

Coachella Valley Water District
Clean Water Act Division

DATA FORM FOR CALCULATING FLOW

Solving the equation: $\text{Flow} = \dfrac{A\,L\,C}{T}$

Where:

A = Average cross-sectional area of the stream. L = Length of the stream reach measured (usually 20 ft.). C = A coefficient or correction factor (0.8 for rocky-bottom streams or 0.9 for muddy-bottom streams). T = Time, in seconds, for the float to travel the length of L.

A: Average Cross-Sectional Area

Transect #1 (upstream)

Interval width (feet)		Depth (feet)	
A to B =	___	___	(at B)
B to C =	___	___	(at C)
C to D =	___	___	(at D)
D to E =	___	___	(shoreline)
Totals	☐	☐	÷ 4

= Avg. depth ☐ ft

Cross-sectional area of Transect #1
= Total width (ft) X Avg. depth (ft)

15 X 3.7 = 55.5 ft²

Transect #2 (downstream)

Interval width (feet)		Depth (feet)	
A to B =	___	___	(at B)
B to C =	___	___	(at C)
C to D =	___	___	(at D)
D to E =	___	___	(shoreline)
Totals	☐	☐	÷ 4

= Avg. depth ☐ ft

Cross-sectional area of Transect #2
= Total width (ft) X Avg. depth (ft)

☐ X ☐ = ☐ ft²

(Cross-sectional area of Transect #1 + Cross-sectional area of Transect #2) ÷ 2 = Average Cross-sectional area

A = (☐ ft² + ☐ ft²) ÷ 2 = ☐ ft²

L: Length of Stream Reach

10 ft

C: Coefficient

0.9

T: Travel Time

	Travel Time of Float (sec.)
Trial #1	___
Trial #2	___
Trial #3	___
Total	☐ ÷ 3

= Avg. time 17.2 sec.

Flow = $\dfrac{A\,L\,C}{T} = \dfrac{55.5 \quad 10 \quad 0.9}{17.2}$ = 29 ft³/sec.

Photos:

Photo 1: Portola Outfall

Photo 2: Portola Outfall

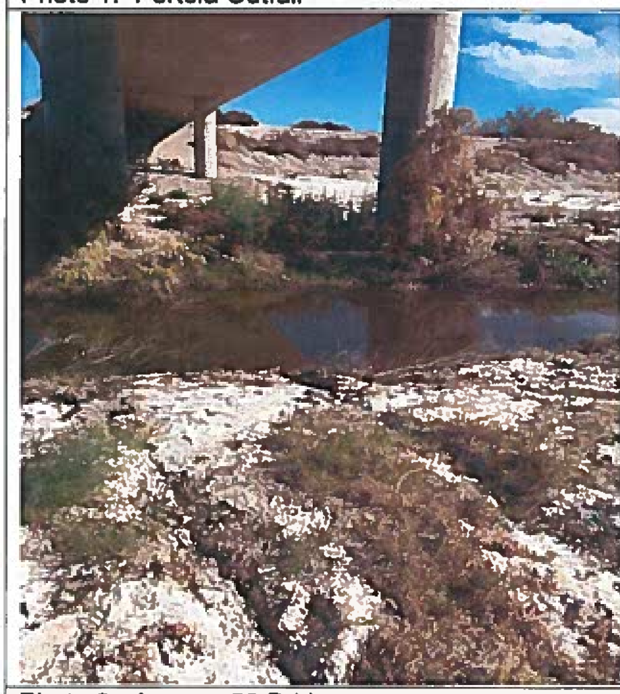

Photo 3: Avenue 52 Bridge

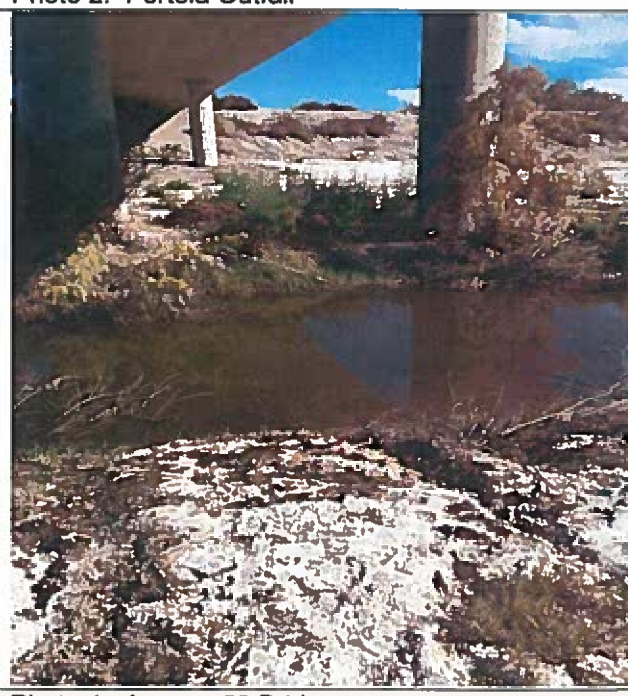

Photo 4: Avenue 52 Bridge

To: CVC -

COACHELLA VALLEY WATER DISTRICT
P.O. Box 105 Coachella, CA 92236
Chain of Custody

CE16012801

PLEASE RETURN [ ] CLIENT ICE CHEST(S) AND ICE PACKS   [ ] Requires State Forms   Turn Around Time: [ ] Standard or [ ] RUSH

COC #: CE16012801   272 - Stormwater - Dry Weather - 01/27/2016
Received Date Time: Comments:

CVWD Log Number		Sampler	Sample Pt ID	Sample Site Name	SM	CM	ST	Preservative	pH	EC (µhmo/cm)	Temp°	Cl2 (mg/L) Free / Total	Comments
Sample Date	Time	Sample Point Name						No Btls / Container					
20160127-012		843	17062	CVSC @ Avenue 52 Bridge	W	G	O	Na2S2O3	7.68	1140	16.5		TURB=14.9 NTU
160128	1035	719CVS884						Bacterial 100 mL					D.O.= 3.89
Requested Analysis: DO - Field, Turbidity - Field, pH - Field, E. coli by MTF 3x5, EC - Field, Temperature - Field													
20160127-013			17122	Portola Avenue Outfall		G	O	Na2S2O3					...
		719POR817						Bacterial 100 mL					CANCEL
Requested Analysis: Turbidity - Field, pH - Field, DO - Field, Temperature - Field, EC - Field, E. coli by MTF 3x5													

Data Entered

Sample Matrix (SM): W = Water; S = Soil; Sl = Sludge || Collection Method (CM): G = Grab; CF = Flow composite; CT = Time Composite; CS = Spatial Composite
Sample Type (ST): FF = First flush; RT = Routine; Rp = Repeat; Rm = Replacement; Nw = New; Rs = Resample; Ts = Test; Sp = Special; 24 = 24 Hour; 4Q = 4 Quarters; 7s = 7 samples

Released By	ID#	Company	Received By	ID##	Company	Date	Time	Temp °C Iced (X) Refrigerated ( )
[signature]	843	CVWD	[signature]	541	CVWD	160128	1110	8.4 °C

To: DATA WORK

COACHELLA VALLEY WATER DISTRICT
P.O. Box 105[illegible] [illegible]oachella, CA 92236
Chain of Custody

CE16012802

PLEASE RETURN ☐ CLIENT ICE CHEST(S) AND ICE PACKS ☐ Requires State Forms Turn Around Time: ☐ Standard or ☐ RUSH

COC #: CE16012802 342 - Stormwater - Dry Weather-Babcock - 01/27/201

Received Date Time: Comments:

CVWD Log Number / Sample Date, Time	Sampler	Sample Pt ID	Sample Site Name / Sample Point Name	SM	CM	ST	Preservative / No Bttls / Container	pH	EC (µhmo/cm)	Temp°	Cl2 (mg/L) Free / Total	Comments
20160127-014 / 160128, 1028	843	17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	HNO3 Poly 1L					✓
Requested Analysis: Antimony - Babcock, Silver - Babcock, Zinc - Babcock, Total Chromium - Babcock, Lead - Babcock, Barium - Babcock, Cadmium- Babcock, Selenium - Babcock, Beryllium - Babcock, Thallium - Babcock, Hexavalent Chromium - Babcock, Nickel - Babcock, Arsenic - Babcock, Mercury - Babcock, Copper - Babcock												
20160127-015 / 1029		17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	Iced Poly 2L					✓
Requested Analysis: Nitrite - Babcock, MBAS - Babcock, TDS - Babcock, TSS - Babcock, Orthophosphate - Babcock, Nitrate - Babcock												
20160127-016 / 1030		17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	Iced 500 mL - Glass					✓
Requested Analysis: Oil & Grease - Babcock												
20160127-017 / 1031		17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	H2SO4 Poly 1L					✓
Requested Analysis: Ammonia-N - Babcock, Nitrogen-Kjeldahl - Babcock, Phosphorus-Total - Babcock, Nitrogen-Total - Babcock												
20160127-018 / 1032		17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	None 500 mL - Glass					✓
Requested Analysis: Ethylene Glycol - Babcock												
20160127-019 / 1033		17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	H2SO4 Amber 1L					✓
Requested Analysis: Total Petroleum Hydrocarbons - Babcock												

DATA ENTERED

Sample Matrix (SM): W = Water; S = Soil; Sl = Sludge || Collection Method (CM): G = Grab; CF = Flow composite; CT = Time Composite; CS = Spatial Composite
Sample Type (ST): FF = First flush; RT = Routine; Rp = Repeat; Rm = Replacement; Nw = New; Rs = Resample; Ts = Test; Sp = Special; 24 = 24 Hour; 4Q = 4 Quarters; 7s = 7 samples

Released By	ID#	Company	Received By	ID##	Company	Date	Time	Temp °C Iced (✓) Refrigerated ( )
[signature]	843	CVWD	[signature]	541	CVWD	160128	1110	3.4 °C

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QAp
11/02/2016

Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: CVWD Storm Water - WWR Moı
Project Number: CE16012802 CVSC @ Avenue

Work Order Number: B6A2675
Received on Ice (Y/N): Yes Temp: 4 °C

Attached is the analytical report for the sample(s) received for your project. Below is a list of the individual sample descriptions with the corresponding laboratory number(s). Also, enclosed is a copy of the Chain of Custody document (if received with your sample(s)). Please note any unused portion of the sample(s) may be responsibly discarded after 30 days from the above report date, unless you have requested otherwise.

Thank you for the opportunity to serve your analytical needs. If you have any questions or concerns regarding this report please contact our client service department.

Sample Identification

Lab Sample #	Client Sample ID	Matrix	Date Sampled	By	Date Submitted	By
B6A2675-06	CVSC @ Avenue 52 Bridge 20160127-019 Grab	Liquid	01/28/16 10:33	843	01/28/16 15:00	Corbin Doty
B6A2675-05	CVSC @ Avenue 52 Bridge 20160127-018 Grab	Liquid	01/28/16 10:32	843	01/28/16 15:00	Corbin Doty
B6A2675-04	CVSC @ Avenue 52 Bridge 20160127-017 Grab	Liquid	01/28/16 10:31	843	01/28/16 15:00	Corbin Doty
B6A2675-03	CVSC @ Avenue 52 Bridge 20160127-016 Grab	Liquid	01/28/16 10:30	843	01/28/16 15:00	Corbin Doty
B6A2675-02	CVSC @ Avenue 52 Bridge 20160127-015 Grab	Liquid	01/28/16 10:29	843	01/28/16 15:00	Corbin Doty
B6A2675-01	CVSC @ Avenue 52 Bridge 20160127-014 Grab	Liquid	01/28/16 10:28	843	01/28/16 15:00	Corbin Doty

GOOD

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: CVWD Storm Water - WWR Moı
Project Number: CE16012802 CVSC @ Avenue

Work Order Number: B6A2675
Received on Ice (Y/N): Yes Temp: 4 °C

Laboratory Reference Number
B6A2675-01

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
CVSC @ Avenue 52 Bridge 20160127-014	Liquid	01/28/16 10:28	01/28/16 15:00

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Metals and Metalloids								
Antimony	ND	10	0.40	ug/L	EPA 200.8	02/03/16 16:04	ERA	NRLrcf
Arsenic	1.4	5.0	1.2	ug/L	EPA 200.8	02/03/16 16:04	ERA	NRLrcf, J
Barium	49	20	0.18	ug/L	EPA 200.8	02/03/16 16:04	ERA	NRLrcf
Beryllium	0.34	10	0.26	ug/L	EPA 200.8	02/03/16 16:04	ERA	NRLrcf, J
Cadmium	0.27	2.0	0.26	ug/L	EPA 200.8	02/03/16 16:04	ERA	NRLrcf, J
Total Chromium	ND	20	1.9	ug/L	EPA 200.8	02/03/16 16:04	ERA	NRLrcf
Copper	2.7	10	0.64	ug/L	EPA 200.8	02/03/16 16:04	ERA	J, NRLrcf
Lead	0.69	10	0.19	ug/L	EPA 200.8	02/03/16 16:04	ERA	J, NRLrcf
Mercury	ND	0.20	0.055	ug/L	EPA 200.8 ATP	02/03/16 16:04	ERA	NRLrcf
Nickel	3.0	20	0.20	ug/L	EPA 200.8	02/03/16 16:04	ERA	J, NRLrcf
Selenium	ND	5.0	1.4	ug/L	EPA 200.8	02/03/16 16:04	ERA	NRLrcf
Silver	0.26	10	0.22	ug/L	EPA 200.8	02/03/16 16:04	ERA	NRLrcf, J
Thallium	0.21	200	0.20	ug/L	EPA 200.8	02/03/16 16:04	ERA	NRLrcf, J
Zinc	7.5	10	1.5	ug/L	EPA 200.8	02/03/16 16:04	ERA	NRLrcf, J

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Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 3 of 22
Contact:	Steve Bigley	Project Name:	CVWD Storm Water - WWR Mo
Address:	P.O. Box 1058	Project Number:	CE16012802 CVSC @ Avenue
	Coachella, CA 92236		
Report Date:	28-Oct-2016	**Work Order Number:**	**B6A2675**
		Received on Ice (Y/N):	Yes Temp: 4 °C

Laboratory Reference Number

B6A2675-02

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
CVSC @ Avenue 52 Bridge 20160127-015	Liquid	01/28/16 10:29	01/28/16 15:00

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Solids								
Total Dissolved Solids	650	20	12	mg/L	SM 2540C	02/02/16 18:40	cdcs	NRLrcf
Total Suspended Solids	17	5	4	mg/L	SM 2540D	02/02/16 16:35	kl	NRLrcf
Surfactants								
MBAS	ND	0.08	0.08	mg/L	SM 5540C	01/29/16 18:30	slp	
Nutrients								
Ortho Phosphate Phosphorus	1.8	0.25	0.014	mg/L	SM 4500P E	01/29/16 16:25	kl	NRLrcf
Metals and Metalloids								
Hexavalent Chromium	0.038	1.0	0.013	ug/L	EPA 218.6	02/03/16 16:00	DCB	NRLrcf, J

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: CVWD Storm Water - WWR Mo
Project Number: CE16012802 CVSC @ Avenue

Work Order Number: B6A2675
Received on Ice (Y/N): Yes Temp: 4 °C

Laboratory Reference Number
B6A2675-03

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
CVSC @ Avenue 52 Bridge 20160127-016	Liquid	01/28/16 10:30	01/28/16 15:00

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Aggregate Organic Compounds								
Oil & Grease (HEM)	3.8	4.7	1.7	mg/L	EPA 1664A	02/04/16 13:30	krv	J

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Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 5 of 22
Contact:	Steve Bigley	Project Name:	CVWD Storm Water - WWR Moı
Address:	P.O. Box 1058	Project Number:	CE16012802 CVSC @ Avenue
	Coachella, CA 92236		
Report Date:	28-Oct-2016	**Work Order Number:**	**B6A2675**
		Received on Ice (Y/N):	Yes Temp: 4 °C

Laboratory Reference Number
B6A2675-04

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
CVSC @ Avenue 52 Bridge 20160127-017	Liquid	01/28/16 10:31	01/28/16 15:00

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Anions								
Nitrate as N	2.6	0.20	0.11	mg/L	EPA 300.0	01/29/16 09:10	dcb	NRLrcf
Nutrients								
Total Nitrogen	31	4.0	2.5	mg/L	Calculation			
Nitrite as N	0.56	0.10	0.046	mg/L	SM 4500NO2 B	01/29/16 17:45	nc	NRLrcf
Ammonia-Nitrogen	24	2.0	1.2	mg/L	SM4500NH3H	02/01/16 14:04	sll	NRLrcf
Kjeldahl Nitrogen	28	4.0	2.5	mg/L	EPA 351.2	02/05/16 22:09	jma	NRLrcf
Total Phosphorus	2.3	0.10	0.04	mg/L	SM 4500P B E	02/02/16 17:00	krv	NRLrcf

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Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 6 of 22
Contact:	Steve Bigley	Project Name:	CVWD Storm Water - WWR Mo
Address:	P.O. Box 1058	Project Number:	CE16012802 CVSC @ Avenue
	Coachella, CA 92236		
Report Date:	28-Oct-2016	**Work Order Number:**	**B6A2675**

Received on Ice (Y/N): Yes Temp: 4 °C

Laboratory Reference Number

B6A2675-05

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
CVSC @ Avenue 52 Bridge 20160127-018	Liquid	01/28/16 10:32	01/28/16 15:00

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Miscellaneous Organic Compounds								
Ethylene Glycol	ND	1.0	1.0	mg/L*	Purpald-Periodate	02/05/16 14:25	jhr	

Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: CVWD Storm Water - WWR Mor
Project Number: CE16012802 CVSC @ Avenue

Work Order Number: B6A2675
Received on Ice (Y/N): Yes Temp: 4 °C

Laboratory Reference Number

B6A2675-06

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
CVSC @ Avenue 52 Bridge 20160127-019	Liquid	01/28/16 10:33	01/28/16 15:00

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Aggregate Organic Compounds								
Total Petroleum Hydrocarbons	ND	1.0	0.50	mg/L	EPA 418.1	02/05/16 13:22	adh	

* NELAP does not offer accreditation for this analyte/method/matrix combination

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EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: CVWD Storm Water - WWR Mo
Project Number: CE16012802 CVSC @ Avenue

Work Order Number: B6A2675
Received on Ice (Y/N): Yes Temp: 4 °C

Anions - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A28069 - Analyzed as Received IC											
Blank (6A28069-BLK1)				Prepared & Analyzed: 01/29/16							
Nitrate as N	ND	0.20	0.11	mg/L							
LCS (6A28069-BS1)				Prepared & Analyzed: 01/29/16							
Nitrate as N	11.9	0.20	0.11	mg/L	11.3		106	90-110			
Matrix Spike (6A28069-MS1)		**Source: B6A2666-01**		Prepared & Analyzed: 01/29/16							
Nitrate as N	8.13	0.20	0.11	mg/L	4.52	3.50	102	75-131			
Matrix Spike (6A28069-MS2)		**Source: B6A2678-01**		Prepared & Analyzed: 01/29/16							
Nitrate as N	4.45	0.20	0.11	mg/L	4.52	ND	98.6	75-131			
Matrix Spike Dup (6A28069-MSD1)		**Source: B6A2666-01**		Prepared & Analyzed: 01/29/16							
Nitrate as N	8.07	0.20	0.11	mg/L	4.52	3.50	101	75-131	0.743	20	

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Report Date: 28-Oct-2016

Project Name: CVWD Storm Water - WWR Mor
Project Number: CE16012802 CVSC @ Avenue

Work Order Number: B6A2675
Received on Ice (Y/N): Yes Temp: 4 °C

Solids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6B02126 - Analyzed as received											
Blank (6B02126-BLK1)				Prepared & Analyzed: 02/02/16							
Total Suspended Solids	ND	2	1	mg/L							
LCS (6B02126-BS1)				Prepared & Analyzed: 02/02/16							
Total Suspended Solids	478	10	7	mg/L	500		95.6	90-110			
Duplicate (6B02126-DUP1)		**Source: B6A2648-01**		Prepared & Analyzed: 02/02/16							
Total Suspended Solids	60.0	20	15	mg/L		62.0			3.28	25	
Duplicate (6B02126-DUP2)		**Source: B6A2657-01**		Prepared & Analyzed: 02/02/16							
Total Suspended Solids	114	20	15	mg/L		112			1.77	25	
Batch 6B02139 - Analyzed as received											
Blank (6B02139-BLK1)				Prepared & Analyzed: 02/02/16							
Total Dissolved Solids	ND	10	5.8	mg/L							
LCS (6B02139-BS1)				Prepared & Analyzed: 02/02/16							
Total Dissolved Solids	723	20	12	mg/L	746		96.9	90-110			
Duplicate (6B02139-DUP1)		**Source: B6A2673-01**		Prepared & Analyzed: 02/02/16							
Total Dissolved Solids	628	20	12	mg/L		586			6.92	20	
Duplicate (6B02139-DUP2)		**Source: B6A2679-01**		Prepared & Analyzed: 02/02/16							
Total Dissolved Solids	806	20	12	mg/L		808			0.248	20	

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CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119

Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: CVWD Storm Water - WWR Mo
Project Number: CE16012802 CVSC @ Avenue

Work Order Number: B6A2675
Received on Ice (Y/N): Yes Temp: 4 °C

Aggregate Organic Compounds - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6B03136 - Solvent Extraction.											
Blank (6B03136-BLK1)					Prepared & Analyzed: 02/04/16						
Oil & Grease (HEM)	1.00	1.4	0.9	mg/L							J
LCS (6B03136-BS1)					Prepared & Analyzed: 02/04/16						
Oil & Grease (HEM)	39.5	1.4	0.9	mg/L	40.0		98.8	80-114			
LCS Dup (6B03136-BSD1)					Prepared & Analyzed: 02/04/16						
Oil & Grease (HEM)	37.9	1.4	0.9	mg/L	40.0		94.8	80-114	4.13	18	
Duplicate (6B03136-DUP1)		**Source: B6A2774-02**			Prepared & Analyzed: 02/04/16						
Oil & Grease (HEM)	1.31	1.4	0.9	mg/L		1.40			6.41	18	J
Matrix Spike (6B03136-MS1)		**Source: B6B0224-02RE1**			Prepared & Analyzed: 02/04/16						
Oil & Grease (HEM)	71.0	2.8	1.8	mg/L	80.0	3.59	84.3	80-114			
Batch 6B04030 - Solvent Extraction											
Blank (6B04030-BLK1)					Prepared: 02/04/16 Analyzed: 02/05/16						
Total Petroleum Hydrocarbons	ND	1.0	0.50	mg/L							
LCS (6B04030-BS1)					Prepared: 02/04/16 Analyzed: 02/05/16						
Total Petroleum Hydrocarbons	3.98	1.0	0.50	mg/L	5.00		79.6	69-110			
LCS Dup (6B04030-BSD1)					Prepared: 02/04/16 Analyzed: 02/05/16						
Total Petroleum Hydrocarbons	3.87	1.0	0.50	mg/L	5.00		77.5	69-110	2.64	20	

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
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Report Date: 28-Oct-2016

Project Name: CVWD Storm Water - WWR Mo
Project Number: CE16012802 CVSC @ Avenue

Work Order Number: B6A2675
Received on Ice (Y/N): Yes Temp: 4 °C

Surfactants - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A29040 - Solvent Extraction.											
Blank (6A29040-BLK1)					Prepared & Analyzed: 01/29/16						
MBAS	ND	0.08	0.08	mg/L							
LCS (6A29040-BS1)					Prepared & Analyzed: 01/29/16						
MBAS	0.282	0.08	0.08	mg/L	0.320		88.1	62-123			
Matrix Spike (6A29040-MS1)		**Source: B6A2675-02**			Prepared & Analyzed: 01/29/16						
MBAS	0.280	0.20	0.20	mg/L	0.400	ND	70.0	47-132			
Matrix Spike Dup (6A29040-MSD1)		**Source: B6A2675-02**			Prepared & Analyzed: 01/29/16						
MBAS	0.205	0.20	0.20	mg/L	0.400	ND	51.2	47-132	30.9	20	QRPDa

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: CVWD Storm Water - WWR Mo
Project Number: CE16012802 CVSC @ Avenue

Work Order Number: B6A2675
Received on Ice (Y/N): Yes Temp: 4 °C

Nutrients - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6A29031 - Filter if turbid.											
LCS (6A29031-BS1)					Prepared & Analyzed: 01/29/16						
Nitrite as N	1.00	0.10	0.046	mg/L	1.00		100	90-110			
Matrix Spike (6A29031-MS1)		**Source: B6A2605-07**			Prepared & Analyzed: 01/29/16						
Nitrite as N	0.990	0.10	0.046	mg/L	1.00	ND	99.0	80-120			
Matrix Spike Dup (6A29031-MSD1)		**Source: B6A2605-07**			Prepared & Analyzed: 01/29/16						
Nitrite as N	1.01	0.10	0.046	mg/L	1.00	ND	101	80-120	2.00	20	
Batch 6A29038 - Filter if turbid.											
LCS (6A29038-BS1)					Prepared & Analyzed: 01/29/16						
Ortho Phosphate Phosphorus	0.495	0.050	0.0028	mg/L	0.500		99.0	90-110			
Matrix Spike (6A29038-MS1)		**Source: B6A2625-04**			Prepared & Analyzed: 01/29/16						
Ortho Phosphate Phosphorus	0.541	0.050	0.0028	mg/L	0.500	0.0430	99.6	80-120			
Matrix Spike Dup (6A29038-MSD1)		**Source: B6A2625-04**			Prepared & Analyzed: 01/29/16						
Ortho Phosphate Phosphorus	0.556	0.050	0.0028	mg/L	0.500	0.0430	103	80-120	2.73	20	
Batch 6B01089 - Analyzed as received											
Blank (6B01089-BLK1)					Prepared & Analyzed: 02/01/16						
Ammonia-Nitrogen	ND	0.10	0.059	mg/L							
LCS (6B01089-BS1)					Prepared & Analyzed: 02/01/16						
Ammonia-Nitrogen	0.746	0.10	0.059	mg/L	0.780		95.6	90-110			

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Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 13 of 22
Contact:	Steve Bigley	Project Name:	CVWD Storm Water - WWR Moı
Address:	P.O. Box 1058	Project Number:	CE16012802 CVSC @ Avenue
	Coachella, CA 92236		
Report Date:	28-Oct-2016	**Work Order Number:**	**B6A2675**

Received on Ice (Y/N): Yes Temp: 4 °C

Nutrients - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6B01089 - Analyzed as received											
Matrix Spike (6B01089-MS1)		**Source: B6A2777-01**		Prepared & Analyzed: 02/01/16							
Ammonia-Nitrogen	74.8	5.0	3.0	mg/L	39.0	34.8	102	80-120			
Matrix Spike Dup (6B01089-MSD1)		**Source: B6A2777-01**		Prepared & Analyzed: 02/01/16							
Ammonia-Nitrogen	75.0	5.0	3.0	mg/L	39.0	34.8	103	80-120	0.240	20	
Batch 6B02094 - Acid Digest											
LCS (6B02094-BS1)				Prepared & Analyzed: 02/02/16							
Total Phosphorus	0.570	0.05	0.02	mg/L	0.525		109	85-115			
Matrix Spike (6B02094-MS1)		**Source: B6A2625-01**		Prepared & Analyzed: 02/02/16							
Total Phosphorus	0.621	0.05	0.02	mg/L	0.525	0.0290	113	80-120			
Matrix Spike Dup (6B02094-MSD1)		**Source: B6A2625-01**		Prepared & Analyzed: 02/02/16							
Total Phosphorus	0.621	0.05	0.02	mg/L	0.525	0.0290	113	80-120	0.00	20	
Batch 6B05012 - Acid Digest											
Blank (6B05012-BLK1)				Prepared & Analyzed: 02/05/16							
Kjeldahl Nitrogen	ND	0.10	0.063	mg/L							
LCS (6B05012-BS1)				Prepared & Analyzed: 02/05/16							
Kjeldahl Nitrogen	0.912	0.10	0.063	mg/L	1.00		91.2	80-120			
Matrix Spike (6B05012-MS1)		**Source: B6A2675-04RE1**		Prepared & Analyzed: 02/05/16							
Kjeldahl Nitrogen	63.2	4.0	2.5	mg/L	40.0	27.7	89.0	44-159			

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EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119

Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 14 of 22
Contact:	Steve Bigley	Project Name:	CVWD Storm Water - WWR Moı
Address:	P.O. Box 1058	Project Number:	CE16012802 CVSC @ Avenue
	Coachella, CA 92236		
Report Date:	28-Oct-2016	**Work Order Number:**	**B6A2675**
		Received on Ice (Y/N):	Yes Temp: 4 °C

Nutrients - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6B05012 - Acid Digest											
Matrix Spike (6B05012-MS2)		**Source: B6B0122-01RE1**		Prepared & Analyzed: 02/05/16							
Kjeldahl Nitrogen	2.47	0.20	0.13	mg/L	2.00	0.968	75.2	44-159			
Matrix Spike (6B05012-MS3)		**Source: B6B0245-01**		Prepared & Analyzed: 02/05/16							
Kjeldahl Nitrogen	5.26	0.40	0.25	mg/L	4.00	1.79	86.7	44-159			

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Analytical Report: Page 15 of 22
Project Name: CVWD Storm Water - WWR Mor
Project Number: CE16012802 CVSC @ Avenue

Work Order Number: B6A2675
Received on Ice (Y/N): Yes Temp: 4 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6B02098 - EPA 200.2 SOP M02C											
Blank (6B02098-BLK1)					Prepared & Analyzed: 02/03/16						
Antimony	ND	10	0.40	ug/L							
Arsenic	ND	5.0	1.2	ug/L							
Barium	ND	20	0.18	ug/L							
Beryllium	ND	10	0.26	ug/L							
Cadmium	ND	2.0	0.26	ug/L							
Total Chromium	ND	20	1.9	ug/L							
Copper	ND	10	0.64	ug/L							
Lead	ND	10	0.19	ug/L							
Mercury	ND	0.20	0.055	ug/L							
Nickel	3.67	20	0.20	ug/L							J
Selenium	ND	5.0	1.4	ug/L							
Silver	ND	10	0.22	ug/L							
Thallium	ND	200	0.20	ug/L							
Zinc	ND	10	1.5	ug/L							
LCS (6B02098-BS1)					Prepared & Analyzed: 02/03/16						
Antimony	358	10	0.40	ug/L	334		107	85-115			
Arsenic	341	5.0	1.2	ug/L	334		102	85-115			
Barium	347	20	0.18	ug/L	334		104	85-115			
Beryllium	356	10	0.26	ug/L	334		107	85-115			
Cadmium	340	2.0	0.26	ug/L	334		102	85-115			
Total Chromium	340	20	1.9	ug/L	334		102	85-115			
Copper	329	10	0.64	ug/L	334		98.6	85-115			
Lead	350	10	0.19	ug/L	334		105	85-115			
Mercury	2.57	0.20	0.055	ug/L	2.78		92.5	85-115			
Nickel	329	20	0.20	ug/L	334		98.8	85-115			
Selenium	341	5.0	1.4	ug/L	334		102	85-115			
Silver	302	10	0.22	ug/L	334		90.7	85-115			
Thallium	338	200	0.20	ug/L	334		101	85-115			
Zinc	333	10	1.5	ug/L	334		99.9	85-115			

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CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: CVWD Storm Water - WWR Mo
Project Number: CE16012802 CVSC @ Avenue

Work Order Number: B6A2675
Received on Ice (Y/N): Yes Temp: 4 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6B02098 - EPA 200.2 SOP M02C											
LCS Dup (6B02098-BSD1)					Prepared & Analyzed: 02/03/16						
Antimony	348	10	0.40	ug/L	334		104	85-115	3.01	20	
Arsenic	334	5.0	1.2	ug/L	334		100	85-115	1.96	20	
Barium	346	20	0.18	ug/L	334		104	85-115	0.517	20	
Beryllium	348	10	0.26	ug/L	334		104	85-115	2.24	20	
Cadmium	332	2.0	0.26	ug/L	334		99.4	85-115	2.53	20	
Total Chromium	337	20	1.9	ug/L	334		101	85-115	0.797	20	
Copper	324	10	0.64	ug/L	334		97.3	85-115	1.38	20	
Lead	348	10	0.19	ug/L	334		104	85-115	0.414	20	
Mercury	2.58	0.20	0.055	ug/L	2.78		92.7	85-115	0.296	20	
Nickel	324	20	0.20	ug/L	334		97.1	85-115	1.69	20	
Selenium	337	5.0	1.4	ug/L	334		101	85-115	1.05	20	
Silver	325	10	0.22	ug/L	334		97.4	85-115	7.11	20	
Thallium	337	200	0.20	ug/L	334		101	85-115	0.461	20	
Zinc	330	10	1.5	ug/L	334		99.1	85-115	0.826	20	
Duplicate (6B02098-DUP1)		**Source: B6B0051-01**			Prepared & Analyzed: 02/03/16						
Antimony	0.817	10	0.40	ug/L		ND				20	J
Arsenic	3.08	5.0	1.2	ug/L		2.83			8.55	20	J
Barium	37.3	20	0.18	ug/L		40.0			6.97	20	
Beryllium	0.651	10	0.26	ug/L		ND				20	J
Cadmium	0.344	2.0	0.26	ug/L		ND				20	J
Total Chromium	3.74	20	1.9	ug/L		3.47			7.63	20	J
Copper	7.49	10	0.64	ug/L		7.35			1.87	20	J
Lead	1.31	10	0.19	ug/L		0.999			26.6	20	QRPDI, J
Mercury	ND	0.20	0.055	ug/L		ND				20	
Nickel	4.85	20	0.20	ug/L		3.85			22.8	20	QRPDI, J
Selenium	2.90	5.0	1.4	ug/L		2.42			17.8	20	J
Silver	0.365	10	0.22	ug/L		ND				20	J
Thallium	0.388	200	0.20	ug/L		ND				20	J
Zinc	7.25	10	1.5	ug/L		6.96			4.06	20	J

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CA ELAP No. 2698
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LACSD No. 10119

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: CVWD Storm Water - WWR Mor
Project Number: CE16012802 CVSC @ Avenue

Work Order Number: B6A2675
Received on Ice (Y/N): Yes Temp: 4 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6B02098 - EPA 200.2 SOP M02C											
Matrix Spike (6B02098-MS1)		**Source: B6A2781-01**		Prepared & Analyzed: 02/03/16							
Antimony	360	10	0.40	ug/L	334	0.568	108	70-130			
Arsenic	337	5.0	1.2	ug/L	334	3.10	100	70-130			
Barium	371	20	0.18	ug/L	334	25.2	104	70-130			
Beryllium	351	10	0.26	ug/L	334	ND	105	70-130			
Cadmium	333	2.0	0.26	ug/L	334	ND	99.9	70-130			
Total Chromium	335	20	1.9	ug/L	334	2.29	99.8	70-130			
Copper	327	10	0.64	ug/L	334	5.50	96.5	70-130			
Lead	341	10	0.19	ug/L	334	0.346	102	70-130			
Mercury	2.53	0.20	0.055	ug/L	2.78	ND	90.8	70-130			
Nickel	321	20	0.20	ug/L	334	1.94	95.6	70-130			
Selenium	329	5.0	1.4	ug/L	334	ND	98.7	70-130			
Silver	339	10	0.22	ug/L	334	ND	102	70-130			
Thallium	325	200	0.20	ug/L	334	ND	97.4	70-130			
Zinc	339	10	1.5	ug/L	334	14.3	97.4	70-130			
Matrix Spike (6B02098-MS2)		**Source: B6B0058-01**		Prepared & Analyzed: 02/03/16							
Antimony	334	10	0.40	ug/L	334	0.674	100	70-130			
Arsenic	323	5.0	1.2	ug/L	334	2.08	96.2	70-130			
Barium	382	20	0.18	ug/L	334	50.1	99.5	70-130			
Beryllium	334	10	0.26	ug/L	334	ND	100	70-130			
Cadmium	318	2.0	0.26	ug/L	334	ND	95.4	70-130			
Total Chromium	323	20	1.9	ug/L	334	4.75	95.3	70-130			
Copper	318	10	0.64	ug/L	334	6.92	93.1	70-130			
Lead	333	10	0.19	ug/L	334	1.07	99.5	70-130			
Mercury	2.41	0.20	0.055	ug/L	2.78	ND	86.5	70-130			
Nickel	314	20	0.20	ug/L	334	2.99	93.3	70-130			
Selenium	314	5.0	1.4	ug/L	334	ND	94.1	70-130			
Silver	325	10	0.22	ug/L	334	ND	97.6	70-130			
Thallium	318	200	0.20	ug/L	334	ND	95.3	70-130			
Zinc	333	10	1.5	ug/L	334	19.0	94.1	70-130			

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: CVWD Storm Water - WWR Moı
Project Number: CE16012802 CVSC @ Avenue

Work Order Number: B6A2675
Received on Ice (Y/N): Yes Temp: 4 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6B02098 - EPA 200.2 SOP M02C											
Matrix Spike Dup (6B02098-MSD1)		**Source: B6A2781-01**		Prepared & Analyzed: 02/03/16							
Antimony	344	10	0.40	ug/L	334	0.568	103	70-130	4.66	20	
Arsenic	333	5.0	1.2	ug/L	334	3.10	98.8	70-130	1.41	20	
Barium	365	20	0.18	ug/L	334	25.2	102	70-130	1.54	20	
Beryllium	342	10	0.26	ug/L	334	ND	102	70-130	2.76	20	
Cadmium	322	2.0	0.26	ug/L	334	ND	96.6	70-130	3.42	20	
Total Chromium	326	20	1.9	ug/L	334	2.29	97.1	70-130	2.72	20	
Copper	318	10	0.64	ug/L	334	5.50	93.8	70-130	2.78	20	
Lead	337	10	0.19	ug/L	334	0.346	101	70-130	1.11	20	
Mercury	2.49	0.20	0.055	ug/L	2.78	ND	89.6	70-130	1.40	20	
Nickel	311	20	0.20	ug/L	334	1.94	92.5	70-130	3.19	20	
Selenium	323	5.0	1.4	ug/L	334	ND	96.9	70-130	1.83	20	
Silver	331	10	0.22	ug/L	334	ND	99.2	70-130	2.61	20	
Thallium	322	200	0.20	ug/L	334	ND	96.6	70-130	0.740	20	
Zinc	328	10	1.5	ug/L	334	14.3	94.1	70-130	3.27	20	
Batch 6B03090 - Filter if turbid.-IC											
Blank (6B03090-BLK1)				Prepared & Analyzed: 02/03/16							
Hexavalent Chromium	ND	1.0	0.013	ug/L							
LCS (6B03090-BS1)				Prepared & Analyzed: 02/03/16							
Hexavalent Chromium	5.09	1.0	0.013	ug/L	5.00		102	90-110			
LCS Dup (6B03090-BSD1)				Prepared & Analyzed: 02/03/16							
Hexavalent Chromium	5.04	1.0	0.013	ug/L	5.00		101	90-110	0.880	20	
Duplicate (6B03090-DUP1)		**Source: B6A2675-02**		Prepared & Analyzed: 02/03/16							
Hexavalent Chromium	0.0352	1.0	0.013	ug/L		0.0380			7.65	20	J

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: CVWD Storm Water - WWR Mo
Project Number: CE16012802 CVSC @ Avenue

Work Order Number: B6A2675
Received on Ice (Y/N): Yes Temp: 4 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6B03090 - Filter if turbid.-IC											
Matrix Spike (6B03090-MS1)		**Source: B6A2675-02**		Prepared & Analyzed: 02/03/16							
Hexavalent Chromium	5.31	1.0	0.013	ug/L	5.00	0.0380	105	84-122			
Matrix Spike Dup (6B03090-MSD1)		**Source: B6A2675-02**		Prepared & Analyzed: 02/03/16							
Hexavalent Chromium	5.19	1.0	0.013	ug/L	5.00	0.0380	103	84-122	2.27	20	

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Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 20 of 22
Contact:	Steve Bigley	Project Name:	CVWD Storm Water - WWR Mo
Address:	P.O. Box 1058	Project Number:	CE16012802 CVSC @ Avenue
	Coachella, CA 92236		
Report Date:	28-Oct-2016	**Work Order Number:**	**B6A2675**
		Received on Ice (Y/N):	Yes Temp: 4 °C

Miscellaneous Organic Compounds - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 6B05056 - None											
Blank (6B05056-BLK1)					Prepared & Analyzed: 02/05/16						
Ethylene Glycol	ND	1.0	1.0	mg/L*							
LCS (6B05056-BS1)					Prepared & Analyzed: 02/05/16						
Ethylene Glycol	4.00	1.0	1.0	mg/L*	5.00		80.0	50-150			
Matrix Spike (6B05056-MS1)		**Source: B6A2675-05**			Prepared & Analyzed: 02/05/16						
Ethylene Glycol	4.50	1.0	1.0	mg/L*	5.00	ND	90.0	50-150			
Matrix Spike Dup (6B05056-MSD1)		**Source: B6A2675-05**			Prepared & Analyzed: 02/05/16						
Ethylene Glycol	5.00	1.0	1.0	mg/L*	5.00	ND	100	50-150	10.5	40	

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CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119

BABCOCK Laboratories, Inc.
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Client Name:	Coachella Valley Water Dist.	Analytical Report:	
Contact:	Steve Bigley	Project Name:	CVWD Storm Water - WWR Mo
Address:	P.O. Box 1058 Coachella, CA 92236	Project Number:	CE16012802 CVSC @ Avenue
Report Date:	28-Oct-2016	**Work Order Number:**	**B6A2675**
		Received on Ice (Y/N):	Yes Temp: 4 °C

Notes and Definitions

Cr+6:	Regulatory 15 minute holding time for sample filtration and preservation exceeded	B6A2675-02

J Estimated value

NRLrcf RL for analyte does not meet the SWAMP/ CTR required RL.

ND: Analyte NOT DETECTED at or above the Method Detection Limit **(if MDL is reported)**, otherwise at or above the Reportable Detection Limit (RDL)

NR: Not Reported

RDL: Reportable Detection Limit

MDL: Method Detection Limit

* / (Non-NELAP): NELAP does not offer accreditation for this analyte/method/matrix combination

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Approval

Enclosed are the analytical results for the submitted sample(s). Babcock Laboratories certify the data presented as part of this report meet the minimum quality standards in the referenced analytical methods. Any exceptions have been noted. Babcock Laboratories and its officers and employees assume no responsibility and make no warranty, express or implied, for uses or interpretations made by any recipients, intended or unintended, of this report.

Amanda Porter

cc:

e-Standard.rpt

Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Analytical Report:
Project Name: CVWD Storm Water - WWR Moı
Project Number: CE16012802 CVSC @ Avenue

Work Order Number: B6A2675
Received on Ice (Y/N): Yes Temp: 4 °C

To: BABCOCK

4°C

COACHELLA VALLEY WATER DISTRICT
P.O. Box 1058; Coachella, CA 92236
Chain of Custody

CE16012802

PLEASE RETURN ☐ CLIENT ICE CHEST(S) AND ICE PACKS ☐ Requires State Forms Turn Around Time: ☐ Standard or ☐ RUSH

COC #: CE16012802 342 - Stormwater - Dry Weather-Babcock - 01/27/201
Received Date Time: Comments:

CVWD Log Number / Sample Date / Time	Sampler	Sample Pt ID	Sample Site Name / Sample Point Name	SM	CM	ST	Preservative / No Bttls / Container	pH	EC (µhmo/cm)	Temp°	Cl2 (mg/L) Free / Total	Comments
20160127-014 / 160128 / 1028	843	17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	HNO3 Poly 1L					...
Requested Analysis: Antimony - Babcock, Silver - Babcock, Zinc - Babcock, Total Chromium - Babcock, Lead - Babcock, Barium - Babcock, Cadmium- Babcock, Selenium - Babcock, Beryllium - Babcock, Thallium - Babcock, Hexavalent Chromium - Babcock, Nickel - Babcock, Arsenic - Babcock, Mercury - Babcock, Copper - Babcock												
20160127-015 / 1029		17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	Iced Poly 2L					...
Requested Analysis: Nitrite - Babcock, MBAS - Babcock, TDS - Babcock, TSS - Babcock, Orthophosphate - Babcock, Nitrate - Babcock												
20160127-016 / 1030		17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	Iced 500 mL - Glass					...
Requested Analysis: Oil & Grease - Babcock												
20160127-017 / 1031		17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	H2SO4 Poly 1L					...
Requested Analysis: Ammonia-N - Babcock, Nitrogen-Kjeldahl - Babcock, Phosphorus-Total - Babcock, Nitrogen-Total - Babcock												
20160127-018 / 1032		17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	None 500 mL - Glass					...
Requested Analysis: Ethylene Glycol - Babcock												
20160127-019 / 1033		17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	H2SO4 Amber 1L					... B6A2675 VEV
Requested Analysis: Total Petroleum Hydrocarbons - Babcock												

JAN 28 2016

Sample Matrix (SM): W = Water; S = Soil; Sl = Sludge || Collection Method (CM): G = Grab; CF = Flow composite; CT = Time Composite; CS = Spatial Composite
Sample Type (ST): FF = First Flush; RT = Routine; Rp = Repeat; Rm = Replacement; Nw = New; Rs = Resample; Ts = Test; Sp = Special; 24 = 24 Hour; 4Q = 4 Quarters; 7s = 7 samples

Released By	ID#	Company	Received By	ID##	Company	Date	Time	Temp °C Iced (✓) Refrigerated ( )
[signature]	843	CVWD	[signature]	541	CVWD	160128	1110	8.4°C
[signature]	541	CVWD	[signature]		ESB	160128	1230	
		ESB	[signature]		ESB	160128	1500	

page 1 of 1

884D2

Final Analytical Report

Sample Number
20160127-012

QAp
02/25/2016

Coachella Valley Water District
Water Quality Laboratory
ELAP No. 1780
P.O. Box 1058
Coachella, CA 92236
Telephone: (760) 398-2651

Location: CVSC @ Avenue 52 Bridge
Sample Type Desc: Water
ollected Date/Time: 1/28/2016 10:35
eceived Date/Time: 1/28/2016 11:10
Sample Status: Complete
Subcontract Lab: N/A
Sample Comment:

Sample Point: 719CVS884
State Well Number: N/A
Collected By: SAM
Received By: CPR
Completed Date/Time: 2/5/2016 9:32
Report Date/Time: 2/10/2016 7:58

Analyte(s)	Result	Units	MDL	RL	MCL	Method	Date/Time	Analyst	Flag
ysical-Chemical Characteristics									
Field - Specific Conductance (EC)	1100	µmhos/cm				SM 2510	1/28/2016 10:35	SAM	
Temperature, Field	16.5	Degrees C				SM 2550 B	1/28/2016 10:35	SAM	
Field Turbidity	14.90	NTU			5	SM 2130 B	1/28/2016 ~~3:01~~ 10:35	SAM	
Field pH	7.7	SU					1/28/2016 ~~3:01~~ 10:35	SAM	per COC
cteriological Analyses									
E. coli	350	MPN/100mL	1.8			SM 9221	1/28/2016 13:32	JFS	
ner									
Dissolved Oxygen	3.89	mg/L				SM 4500 OG	1/28/2016 10:35	SAM	

WATER POLLUTION PREVENTION

FUNDED BY THE CITIES AND COUNTY OF RIVERSIDE

QAp

FIELD DATA SHEET

Rev 07/02/2015 - CVWD

STATION ID: 719CVS884 **SAMPLE DATE** (MM/DD/YYYY): 7/30/2015

STATION NAME: 884 - CVSC at Avenue 52 Bridge WATERSHED: ☐SAR ☐SMR ☒WWR

PROJECT NAME: *Whitewater River Region Monitoring Program - 2013 Order* Within: ☐Unincorp. or ☒City of Coachella

CONVEYANCE TYPE: Open Channel ☐Receiving Water

GPS INFO: Lat 33° 40.35 Long 116° 8.97 GPS Unit: ___ ☒Outfall, Owner: City of Coachella

PRINTED NAMES of Sampling Team: Joe Ramirez ☐Other: ____

SIGNATURE of lead sampler: Joe Ramirez Sampling AGENCY: *Coachella Valley Water District*

SAMPLE INFORMATION

☐ VISITED, NOT SAMPLED (TIME: ____)

EVENT CATEGORY:

☐ Wet Weather (Storm) OR
☒Dry Weather
☒1st ☐2nd ☐3rd ☐4th
☐ Recon, IC/ID, or Complaint
☐ Other ____

SAMPLE ID(s) [# of Bottles]: 7 CE15073001; CE15073002

STREAM FLOW:

Dry: ☐Yes ☒No Ponded: ☐Yes ☒No
Rising Groundwater: ☐Yes ☒No
Connects to Surface Receiving Water ☐Yes ☐No
Dry weather event u/s influence: ☐Yes ☐No

TYPE (check all that apply):

☒Grab [SAMPLE TIME: 11:02 am]
☐ ~~Composite(-01-C) [SAMPLE TIME: ____]~~ COC last aliquot
☐ Field DUP(-02) ☐ Field Blank(-03) ☐ Travel Blank(-04)
☐ Other:

FIELD PARAMETERS

Time Measured: 11:07 am

	Result (primary/dup)	Units	Meter	Calibration Date
☐ Water Temp	30	C	HQ40D	7/30/2015
☐ pH	7.3	SU	HQ40D	7/30/2015☐
EC	1223	uS/cm	HQ40D	7/30/2015
☐ Turbidity	16.4	NTU	2100P	6/23/2014
☐ DO	4.17	mg/L	HQ300	7/30/2015
☐				
☐				
☐				

FLOW ESTIMATION:

☐ USGS Gauge height/stage ____ ft Q (cfs) = 26.7

[Gauge Name/No.: ____]

☐ Calculation by visual measurement: Q (cfs) = ____

= [Coef(1,$^2/_3$,____)]*[depth____ft]*[width____ft]*[vel____fps]

Circular pipe: [vel____fps][depth____ft][width____ft][R=____ft]

COMPOSITE Samples: Auto/Grab, Flow/Time Weighted, ____ Hrs

	Time	H(in.)	Flow(cfs)	%		Time	H(in.)	Flow(cfs)	%
1					13				
2					14				
3					15				
4					16				
5					17				
6					18				
7					19				
8					20				
9					21				
10					22				
11					23				
12					24				

SITE CONDITIONS

PRECIPITATION:

NOW: ☒None ☐ Drizzle/Sprinkle ☐ Rain ☐ Hail/Snow

[APPROX. STORM START TIME: ____]

>72 hrs since previous (>0.1") rainfall event: ☐ Yes ☐ No

ODOR: ☒None ☐ Sulfides ☐ Sewage ☐ Smoke ☐ Petroleum ☐ Other: ____

☐ Floatables ____ ☐ Settleables ____
☐ Vegetation ____ ☐ Staining ____

COLOR: ☒Colorless ☐ Green ☐ Yellow ☐ Brown ☐ Other

CLARITY: ☒Clear (see bottom) ☐ Cloudy ☐ Murky
Sheen Present: ☐ Yes ☐ No

TRASH: ☐ Yes ☒No
From: ☐ Flows ☐ Litter ☐ Dumping ☐ Other____

Observations/Notes ☒ Photograph(s)

(If conducting Outfall Monitoring, provide estimate of the surface flows for both the Outfall and prox. Receiving Water as applicable.)

☐ **Associated monitoring u/s, d/s** *(circle one or both and complete required FDS(s))* **at:**

Coachella Valley Water District
Clean Water Act Division

7/30/2015

DATA FORM FOR CALCULATING FLOW

Solving the equation: Flow = $\frac{A\,L\,C}{T}$

Where:

A = Average cross-sectional area of the stream. L = Length of the stream reach measured (usually 20 ft.). C = A coefficient or correction factor (0.8 for rocky-bottom streams or 0.9 for muddy-bottom streams). T = Time, in seconds, for the float to travel the length of L.

A: Average Cross-Sectional Area

Transect #1 (upstream)

Interval width (feet)		Depth (feet)	
A to B =	___	___	(at B)
B to C =	___	___	(at C)
C to D =	___	___	(at D)
D to E =	___	___	(shoreline)
Totals	☐	☐	÷ 4

= Avg. depth ☐ ft

Cross-sectional area of Transect #1

= Total width (ft) X Avg. depth (ft)

19.4 X 1.3 = 25.2 ft²

Transect #2 (downstream)

Interval width (feet)		Depth (feet)	
A to B =	___	___	(at B)
B to C =	___	___	(at C)
C to D =	___	___	(at D)
D to E =	___	___	(shoreline)
Totals	☐	☐	÷ 4

= Avg. depth ☐ ft

Cross-sectional area of Transect #2

= Total width (ft) X Avg. depth (ft)

☐ X ☐ = ☐ ft²

(Cross-sectional area of Transect #1 + Cross-sectional area of Transect #2) ÷ 2 = Average Cross-sectional area

A = (☐ ft² + ☐ ft²) ÷ 2 = ☐ ft²

L: Length of Stream Reach

10 ft

C: Coefficient

.9

T: Travel Time

	Travel Time of Float (sec.)
Trial #1	8.35
Trial #2	8.62
Trial #3	8.49
Total	25.46 ÷ 3

= Avg. time 8.48 sec.

Flow = $\frac{A\,L\,C}{T}$ = $\frac{25.2 \quad 10 \quad .9}{8.48}$ = 26.7 ft³/sec.

To: Babcock - Lab

COACHELLA VALLEY WATER DISTRICT
P.O. Box 1058; Coachella, CA 92236
Chain of Custody

CE15073002

PLEASE RETURN ☐ CLIENT ICE CHEST(S) AND ICE PACKS ☐ Requires State Forms Turn Around Time: ☐ Standard or ☐ RUSH

COC #: CE15073002 342 - Stormwater - Dry Weather-Babcock - 07/29/201

Received Date Time: Comments:

CVWD Log Number / Sample Date / Time	Sampler	Sample Pt ID	Sample Site Name / Sample Point Name	SM	CM	ST	Preservative / No Btls / Container	pH	EC (µmho/cm)	Temp°	Cl2 (mg/L) Free / Total	Comments
20150729-028 / 150730 / 1101	254	17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	Iced / Poly 2L					
Requested Analysis: Antimony - Babcock, Nitrite - Babcock, Nickel - Babcock, Thallium - Babcock, Selenium - Babcock, Arsenic - Babcock, Cadmium- Babcock, Total Chromium - Babcock, Mercury - Babcock, MBAS - Babcock, TDS - Babcock, Beryllium - Babcock, Copper - Babcock, Silver - Babcock, Zinc - Babcock, TSS - Babcock, Barium - Babcock, Lead - Babcock, Orthophosphate - Babcock, Nitrate - Babcock, Hexavalent Chromium - Babcock												
20150729-029 / 1102		17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	HNO3 / Poly 1L					
Requested Analysis: Antimony - Babcock, Copper - Babcock, Silver - Babcock, Zinc - Babcock, Total Chromium - Babcock, Lead - Babcock, Barium - Babcock, Cadmium- Babcock, Selenium - Babcock, Beryllium - Babcock, Thallium - Babcock, Hexavalent Chromium - Babcock, Nickel - Babcock, Arsenic - Babcock, Mercury - Babcock												
20150729-030 / 1103		17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	Iced / 500 mL - Glass					
Requested Analysis: Oil & Grease - Babcock												
20150729-031 / 1104		17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	H2SO4 / Poly 1L					
Requested Analysis: Ammonia-N - Babcock, Nitrogen-Kjeldahl - Babcock, Phosphorus-Total - Babcock, Nitrogen-Total - Babcock												
20150729-032 / 1105		17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	None / 500 mL - Glass					
Requested Analysis: Ethylene Glycol - Babcock												
20150729-033 / 1106		17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	H2SO4 / Amber 1L					
Requested Analysis: Total Petroleum Hydrocarbons - Babcock												

Completed 7/30/15

Sample Matrix (SM): W = Water; S = Soil; Sl = Sludge || Collection Method (CM): G = Grab; CF = Flow composite; CT = Time Composite; CS = Spatial Composite
Sample Type (ST): FF = First flush; RT = Routine; Rp = Repeat; Rm = Replacement; Nw = New; Rs = Resample; Ts = Test; Sp = Special; 24 = 24 Hour; 4Q = 4 Quarters; 7s = 7 samples

Released By	ID#	Company	Received By	ID##	Company	Date	Time	Temp °C Iced (X). Refrigerated ( )
[signature]	254	CVWD	[signature]	333	CVWD	150730	1123	15.2°C

To: CWD - LAB

COACHELLA VALLEY WATER DISTRICT
P.O. Box 1058; Coachella, CA 92236
Chain of Custody
CE15073001

PLEASE RETURN ☐ CLIENT ICE CHEST(S) AND ICE PACKS ☐ Requires State Forms Turn Around Time: ☐ Standard or ☐ RUSH

COC #: CE15073001 272 - Stormwater - Dry Weather - 07/29/2015
Received Date Time: Comments:

CVWD Log Number / Sample Date, Time	Sampler	Sample Pt ID / Sample Point Name	Sample Site Name	SM	CM	ST	Preservative No Btls / Container	pH	EC (µhmo/cm)	Temp°	Cl2 (mg/L) Free / Total	Comments
20150729-026 / 150730 1107	254	17062 / 719CVS884	CVSC @ Avenue 52 Bridge	W	G	O	Na2S2O3 Bacterial 100 mL	7.32	1223	20.0		D.O 4.17 Mg/L TURB 16.4 NTU

Requested Analysis: DO - Field, Turbidity - Field, pH - Field, E. coli by MTF 3x5, EC - Field, Temperature - Field

Completed 7/30/15

Sample Matrix (SM): W = Water; S = Soil; Sl = Sludge || Collection Method (CM): G = Grab; CF = Flow composite; CT = Time Composite; CS = Spatial Composite
Sample Type (ST): FF = First flush; RT = Routine; Rp = Repeat; Rm = Replacement; Nw = New; Rs = Resample; Ts = Test; Sp = Special; 24 = 24 Hour; 4Q = 4 Quarters; 7s = 7 samples

Released By	ID#	Company	Received By	ID##	Company	Date	Time	Temp °C Iced (X) Refrigerated ( )
[signature]	254	CVWD	[signature]	759	CVWD	150730	1123	15.2°C

Photos:

Photo 1: Avenue 52 Bridge

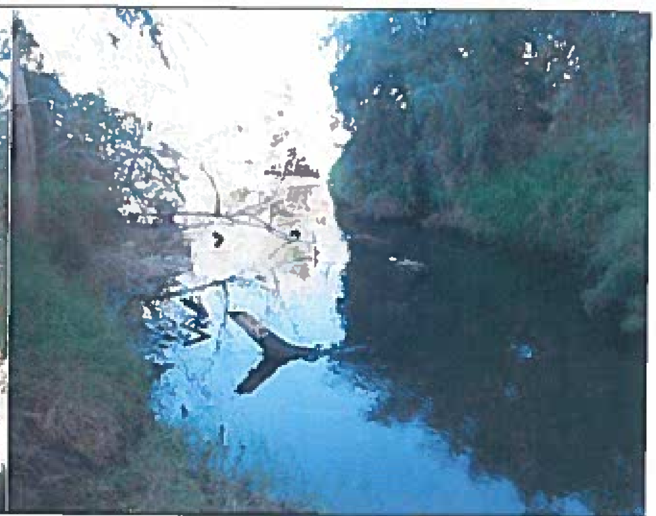

Photo 2: Avenue 52 Bridge

Photo 3: Avenue 52 Bridge

Photo 4: Portola Outfall

Photo 5: Portola Outfall

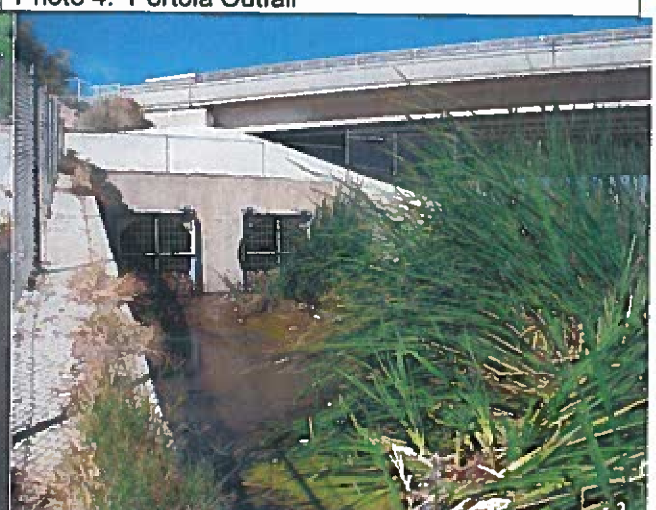

Photo 6: Portola Outfall

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QAp
10/31/2016

Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 1 of 22
Contact:	Steve Bigley	Project Name:	Coachella Valley WD-Blanket Pu
Address:	P.O. Box 1058	Project Number:	CE15073002
	Coachella, CA 92236		
Report Date:	28-Oct-2016	**Work Order Number:**	**B5G3220**

Received on Ice (Y/N): Yes Temp: 4 °C

Attached is the analytical report for the sample(s) received for your project. Below is a list of the individual sample descriptions with the corresponding laboratory number(s). Also, enclosed is a copy of the Chain of Custody document (if received with your sample(s)). Please note any unused portion of the sample(s) may be responsibly discarded after 30 days from the above report date, unless you have requested otherwise.

Thank you for the opportunity to serve your analytical needs. If you have any questions or concerns regarding this report please contact our client service department.

Sample Identification

Lab Sample #	Client Sample ID	Matrix	Date Sampled	By	Date Submitted	By
B5G3220-06	CVSC @ Avenue 52 Bridge 20150729-033 Grab	Liquid	07/30/15 11:06	254	07/30/15 16:00	Steven Cortez
B5G3220-05	CVSC @ Avenue 52 Bridge 20150729-032 Grab	Liquid	07/30/15 11:05	254	07/30/15 16:00	Steven Cortez
B5G3220-04	CVSC @ Avenue 52 Bridge 20150729-031 Grab	Liquid	07/30/15 11:04	254	07/30/15 16:00	Steven Cortez
B5G3220-03	CVSC @ Avenue 52 Bridge 20150729-030 Grab	Liquid	07/30/15 11:03	254	07/30/15 16:00	Steven Cortez
B5G3220-02	CVSC @ Avenue 52 Bridge 20150729-029 Grab	Liquid	07/30/15 11:02	254	07/30/15 16:00	Steven Cortez
B5G3220-01	CVSC @ Avenue 52 Bridge 20150729-028 Grab	Liquid	07/30/15 11:01	254	07/30/15 16:00	Steven Cortez

GOOD

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: Coachella Valley WD-Blanket Pu
Project Number: CE15073002

Work Order Number: B5G3220
Received on Ice (Y/N): Yes Temp: 4 °C

Laboratory Reference Number
B5G3220-01

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
CVSC @ Avenue 52 Bridge 20150729-028	Liquid	07/30/15 11:01	07/30/15 16:00

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Anions								
Nitrate	13	1.0	0.47	mg/L	EPA 300.0	07/30/15 20:55	ss	NRLrcf
Solids								
Total Dissolved Solids	710	20	12	mg/L	SM 2540C	08/04/15 21:00	miv	NRLrcf
Total Suspended Solids	20	5	4	mg/L	SM 2540D	08/05/15 20:45	cdcs	NRLrcf
Surfactants								
MBAS	ND	0.08	0.08	mg/L	SM 5540C	08/01/15 01:00	aam	
Nutrients								
Nitrite as N	0.77	0.10	0.046	mg/L	SM 4500NO2 B	07/30/15 22:00	lfs	NRLrcf
Total Nitrogen	31	0.1	0.05	mg/L	Calculation			
Ortho Phosphate Phosphorus	1.3	0.10	0.0056	mg/L	SM 4500P E	07/31/15 01:50	aam	NRLrcf
Metals and Metalloids								
Antimony	0.61	10	0.40	ug/L	EPA 200.8	08/05/15 19:30	MEL	NRLrcf, J
Arsenic	1.2	5.0	1.2	ug/L	EPA 200.8	08/05/15 16:57	MEL	NRLrcf, J
Barium	45	20	0.18	ug/L	EPA 200.8	08/05/15 16:57	MEL	NRLrcf
Beryllium	ND	10	0.26	ug/L	EPA 200.8	08/05/15 16:57	MEL	NRLrcf
Cadmium	ND	2.0	0.26	ug/L	EPA 200.8	08/05/15 16:57	MEL	NRLrcf
Total Chromium	2.5	20	1.9	ug/L	EPA 200.8	08/05/15 16:57	MEL	J, NRLrcf
Hexavalent Chromium	0.32	1.0	0.013	ug/L	EPA 218.6	07/31/15 23:47	dcb	J, NRLrcf
Copper	3.6	10	0.64	ug/L	EPA 200.8	08/05/15 16:57	MEL	J, NRLrcf
Lead	0.51	10	0.19	ug/L	EPA 200.8	08/05/15 16:57	MEL	NRLrcf, J
Mercury	ND	0.20	0.055	ug/L	EPA 200.8 ATP	08/05/15 16:57	MEL	NRLrcf
Nickel	2.2	20	0.20	ug/L	EPA 200.8	08/05/15 16:57	MEL	NRLrcf, J
Selenium	ND	5.0	1.4	ug/L	EPA 200.8	08/05/15 16:57	MEL	NRLrcf
Silver	ND	10	0.22	ug/L	EPA 200.8	08/05/15 16:57	MEL	NRLrcf

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: Coachella Valley WD-Blanket Pu
Project Number: CE15073002

Work Order Number: B5G3220
Received on Ice (Y/N): Yes Temp: 4 °C

Laboratory Reference Number
B5G3220-01

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
CVSC @ Avenue 52 Bridge 20150729-028	Liquid	07/30/15 11:01	07/30/15 16:00

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Metals and Metalloids								
Thallium	ND	200	0.20	ug/L	EPA 200.8	08/05/15 16:57	MEL	NRLrcf
Zinc	7.8	10	1.5	ug/L	EPA 200.8	08/05/15 16:57	MEL	NRLrcf, J

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: Coachella Valley WD-Blanket Pu
Project Number: CE15073002

Work Order Number: B5G3220
Received on Ice (Y/N): Yes Temp: 4 °C

Laboratory Reference Number
B5G3220-02

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
CVSC @ Avenue 52 Bridge 20150729-029	Liquid	07/30/15 11:02	07/30/15 16:00

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Metals and Metalloids								
Antimony	0.40	10	0.40	ug/L	EPA 200.8	08/05/15 19:34	MEL	NRLrcf, J
Arsenic	1.2	5.0	1.2	ug/L	EPA 200.8	08/05/15 17:00	MEL	NRLrcf, J
Barium	45	20	0.18	ug/L	EPA 200.8	08/05/15 17:00	MEL	NRLrcf
Beryllium	ND	10	0.26	ug/L	EPA 200.8	08/05/15 17:00	MEL	NRLrcf
Cadmium	ND	2.0	0.26	ug/L	EPA 200.8	08/05/15 17:00	MEL	NRLrcf
Total Chromium	1.9	20	1.9	ug/L	EPA 200.8	08/05/15 17:00	MEL	NRLrcf, J
Copper	3.7	10	0.64	ug/L	EPA 200.8	08/05/15 17:00	MEL	NRLrcf, J
Lead	0.56	10	0.19	ug/L	EPA 200.8	08/05/15 17:00	MEL	NRLrcf, J
Mercury	ND	0.20	0.055	ug/L	EPA 200.8 ATP	08/05/15 17:00	MEL	NRLrcf
Nickel	2.0	20	0.20	ug/L	EPA 200.8	08/05/15 17:00	MEL	NRLrcf, J
Selenium	1.4	5.0	1.4	ug/L	EPA 200.8	08/05/15 17:00	MEL	NRLrcf, J
Silver	ND	10	0.22	ug/L	EPA 200.8	08/05/15 17:00	MEL	NRLrcf
Thallium	ND	200	0.20	ug/L	EPA 200.8	08/05/15 17:00	MEL	NRLrcf
Zinc	8.0	10	1.5	ug/L	EPA 200.8	08/05/15 17:00	MEL	NRLrcf, J

Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 5 of 22
Contact:	Steve Bigley	Project Name:	Coachella Valley WD-Blanket Pu
Address:	P.O. Box 1058	Project Number:	CE15073002
	Coachella, CA 92236		
Report Date:	28-Oct-2016	**Work Order Number:**	**B5G3220**

Received on Ice (Y/N): Yes Temp: 4 °C

Laboratory Reference Number

B5G3220-03

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
CVSC @ Avenue 52 Bridge 20150729-030	Liquid	07/30/15 11:03	07/30/15 16:00

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Aggregate Organic Compounds								
Oil & Grease (HEM)	2.1	2.5	0.9	mg/L	EPA 1664A	08/11/15 17:00	mcm	N_pAdl, J

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: Coachella Valley WD-Blanket Pu
Project Number: CE15073002

Work Order Number: B5G3220
Received on Ice (Y/N): Yes Temp: 4 °C

Laboratory Reference Number
B5G3220-04

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
CVSC @ Avenue 52 Bridge 20150729-031	Liquid	07/30/15 11:04	07/30/15 16:00

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Nutrients								
Ammonia-Nitrogen	15	1.0	0.59	mg/L	SM4500NH3H	08/03/15 14:21	sll	NRLrcf
Kjeldahl Nitrogen	17	1.0	0.63	mg/L	EPA 351.2	08/10/15 19:52	jma	NRLrcf
Total Phosphorus	2.2	0.05	0.02	mg/L	SM 4500P B E	08/06/15 00:25	aam	

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: Coachella Valley WD-Blanket Pu
Project Number: CE15073002

Work Order Number: B5G3220
Received on Ice (Y/N): Yes Temp: 4 °C

Laboratory Reference Number
B5G3220-05

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
CVSC @ Avenue 52 Bridge 20150729-032	Liquid	07/30/15 11:05	07/30/15 16:00

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Miscellaneous Organic Compounds								
Ethylene Glycol	ND	1.0	1.0	mg/L*	Purpald-Periodate	08/03/15 15:02	acw	

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Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: Coachella Valley WD-Blanket Pu
Project Number: CE15073002

Work Order Number: B5G3220
Received on Ice (Y/N): Yes Temp: 4 °C

Laboratory Reference Number
B5G3220-06

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
CVSC @ Avenue 52 Bridge 20150729-033	Liquid	07/30/15 11:06	07/30/15 16:00

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Aggregate Organic Compounds								
Total Petroleum Hydrocarbons	0.44	0.89	0.44	mg/L	EPA 418.1	08/18/15 17:05	adh	J

* NELAP does not offer accreditation for this analyte/method/matrix combination

mailing
P.O Box 432
Riverside, CA 92502-0432

location
6100 Quail Valley Court
Riverside, CA 92507-0704

P 951 653 3351
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www.babcocklabs.com

CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119

Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
Coachella, CA 92236

Report Date: 28-Oct-2016

Project Name: Coachella Valley WD-Blanket Pu
Project Number: CE15073002

Work Order Number: B5G3220
Received on Ice (Y/N): Yes Temp: 4 °C

Anions - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5G29131 - Analyzed as Received IC											
Blank (5G29131-BLK1)				Prepared & Analyzed: 07/30/15							
Nitrate	ND	1.0	0.47	mg/L							
LCS (5G29131-BS1)				Prepared & Analyzed: 07/30/15							
Nitrate	50.4	1.0	0.47	mg/L	50.0		101	90-110			
Matrix Spike (5G29131-MS1)		**Source: B5G3057-01**		Prepared & Analyzed: 07/30/15							
Nitrate	17.3	1.0	0.47	mg/L	20.0	ND	86.3	75-131			
Matrix Spike Dup (5G29131-MSD1)		**Source: B5G3057-01**		Prepared & Analyzed: 07/30/15							
Nitrate	14.9	1.0	0.47	mg/L	20.0	ND	74.7	75-131	14.4	20	QMSD

ESB
BABCOCK Laboratories, Inc.
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Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 10 of 22
Contact:	Steve Bigley	Project Name:	Coachella Valley WD-Blanket Pu
Address:	P.O. Box 1058	Project Number:	CE15073002
	Coachella, CA 92236		
Report Date:	28-Oct-2016	**Work Order Number:**	**B5G3220**
		Received on Ice (Y/N):	Yes Temp: 4 °C

Solids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5H04139 - Analyzed as received											
Blank (5H04139-BLK1)				Prepared & Analyzed: 08/04/15							
Total Dissolved Solids	ND	10	5.8	mg/L							
LCS (5H04139-BS1)				Prepared & Analyzed: 08/04/15							
Total Dissolved Solids	724	20	12	mg/L	746		97.1	90-110			
Duplicate (5H04139-DUP1)		**Source: B5G3232-01**		Prepared & Analyzed: 08/04/15							
Total Dissolved Solids	526	20	12	mg/L		521			0.955	20	
Duplicate (5H04139-DUP2)		**Source: B5G3255-03**		Prepared & Analyzed: 08/04/15							
Total Dissolved Solids	166	20	12	mg/L		163			1.82	20	
Batch 5H05139 - Analyzed as received											
Blank (5H05139-BLK1)				Prepared & Analyzed: 08/05/15							
Total Suspended Solids	ND	5	4	mg/L							
LCS (5H05139-BS1)				Prepared & Analyzed: 08/05/15							
Total Suspended Solids	503	10	7	mg/L	500		101	90-110			
Duplicate (5H05139-DUP1)		**Source: B5G3209-03**		Prepared & Analyzed: 08/05/15							
Total Suspended Solids	752	40	30	mg/L		728			3.24	25	
Duplicate (5H05139-DUP2)		**Source: B5H0295-01**		Prepared & Analyzed: 08/05/15							
Total Suspended Solids	590	100	74	mg/L		590			0.00	25	

Client Name: Coachella Valley Water Dist.
Contact: Steve Bigley
Address: P.O. Box 1058
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Report Date: 28-Oct-2016

Project Name: Coachella Valley WD-Blanket Pu
Project Number: CE15073002

Work Order Number: B5G3220
Received on Ice (Y/N): Yes Temp: 4 °C

Aggregate Organic Compounds - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5H11095 - Solvent Extraction.											
Blank (5H11095-BLK1)					Prepared & Analyzed: 08/11/15						
Oil & Grease (HEM)	2.20	2.5	0.9	mg/L							J
LCS (5H11095-BS1)					Prepared & Analyzed: 08/11/15						
Oil & Grease (HEM)	41.9	2.5	0.9	mg/L	40.0		105	78-114			
LCS Dup (5H11095-BSD1)					Prepared & Analyzed: 08/11/15						
Oil & Grease (HEM)	35.9	2.5	0.9	mg/L	40.0		89.8	78-114	15.4	18	
Matrix Spike (5H11095-MS1)		**Source: B5H0527-02**			Prepared & Analyzed: 08/11/15						
Oil & Grease (HEM)	40.4	2.5	0.9	mg/L	40.4	2.47	93.9	78-114			
Batch 5H18058 - Solvent Extraction											
Blank (5H18058-BLK1)					Prepared & Analyzed: 08/18/15						
Total Petroleum Hydrocarbons	ND	1.0	0.50	mg/L							
LCS (5H18058-BS1)					Prepared & Analyzed: 08/18/15						
Total Petroleum Hydrocarbons	4.64	1.0	0.50	mg/L	5.00		92.8	69-110			
LCS Dup (5H18058-BSD1)					Prepared & Analyzed: 08/18/15						
Total Petroleum Hydrocarbons	4.36	1.0	0.50	mg/L	5.00		87.1	69-110	6.30	20	
Matrix Spike (5H18058-MS1)		**Source: B5H0757-01**			Prepared & Analyzed: 08/18/15						
Total Petroleum Hydrocarbons	8.46	1.0	0.50	mg/L	10.5	ND	80.4	69-110			

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Project Number: CE15073002

Work Order Number: B5G3220
Received on Ice (Y/N): Yes Temp: 4 °C

Surfactants - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5G30077 - Solvent Extraction.											
Blank (5G30077-BLK1)					Prepared & Analyzed: 07/31/15						
MBAS	ND	0.08	0.08	mg/L							
LCS (5G30077-BS1)					Prepared & Analyzed: 07/31/15						
MBAS	0.283	0.08	0.08	mg/L	0.320		88.4	62-123			
Duplicate (5G30077-DUP1)		**Source: B5G1207-52**			Prepared & Analyzed: 07/31/15						
MBAS	0.240	0.20	0.20	mg/L		0.232			3.17	20	
Matrix Spike (5G30077-MS1)		**Source: B5G3182-01**			Prepared & Analyzed: 08/01/15						
MBAS	0.169	0.08	0.08	mg/L	0.160	ND	106	47-132			
Matrix Spike Dup (5G30077-MSD1)		**Source: B5G3182-01**			Prepared & Analyzed: 08/01/15						
MBAS	0.166	0.08	0.08	mg/L	0.160	ND	104	47-132	1.79	20	

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Client Name: Coachella Valley Water Dist.
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Report Date: 28-Oct-2016

Project Name: Coachella Valley WD-Blanket Pu
Project Number: CE15073002

Work Order Number: B5G3220
Received on Ice (Y/N): Yes Temp: 4 °C

Nutrients - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5G30082 - Filter if turbid.											
LCS (5G30082-BS1)					Prepared & Analyzed: 07/30/15						
Nitrite as N	0.970	0.050	0.046	mg/L	1.00		97.0	90-110			
Matrix Spike (5G30082-MS1)		**Source: B5G3182-11**			Prepared & Analyzed: 07/30/15						
Nitrite as N	0.990	0.050	0.046	mg/L	1.00	ND	99.0	80-120			
Matrix Spike Dup (5G30082-MSD1)		**Source: B5G3182-11**			Prepared & Analyzed: 07/30/15						
Nitrite as N	0.980	0.050	0.046	mg/L	1.00	ND	98.0	80-120	1.02	20	
Batch 5G30085 - Filter if turbid.											
LCS (5G30085-BS1)					Prepared & Analyzed: 07/31/15						
Ortho Phosphate Phosphorus	0.519	0.050	0.0028	mg/L	0.500		104	90-110			
Matrix Spike (5G30085-MS1)		**Source: B5G3217-01**			Prepared & Analyzed: 07/31/15						
Ortho Phosphate Phosphorus	0.519	0.050	0.0028	mg/L	0.500	0.0220	99.4	80-120			
Matrix Spike Dup (5G30085-MSD1)		**Source: B5G3217-01**			Prepared & Analyzed: 07/31/15						
Ortho Phosphate Phosphorus	0.530	0.050	0.0028	mg/L	0.500	0.0220	102	80-120	2.10	20	
Batch 5H03092 - Analyzed as received											
Blank (5H03092-BLK1)					Prepared & Analyzed: 08/03/15						
Ammonia-Nitrogen	ND	0.10	0.059	mg/L							
LCS (5H03092-BS1)					Prepared & Analyzed: 08/03/15						
Ammonia-Nitrogen	0.741	0.10	0.059	mg/L	0.780		94.9	90-110			

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Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 14 of 22
Contact:	Steve Bigley	Project Name:	Coachella Valley WD-Blanket Pu
Address:	P.O. Box 1058	Project Number:	CE15073002
	Coachella, CA 92236		
Report Date:	28-Oct-2016	**Work Order Number:**	**B5G3220**

Received on Ice (Y/N): Yes Temp: 4 °C

Nutrients - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5H03092 - Analyzed as received											
Matrix Spike (5H03092-MS1)		**Source: B5G3024-01**			Prepared & Analyzed: 08/03/15						
Ammonia-Nitrogen	0.861	0.10	0.059	mg/L	0.780	0.0842	99.6	80-120			
Matrix Spike Dup (5H03092-MSD1)		**Source: B5G3024-01**			Prepared & Analyzed: 08/03/15						
Ammonia-Nitrogen	0.851	0.10	0.059	mg/L	0.780	0.0842	98.3	80-120	1.18	20	
Batch 5H04110 - Acid Digest											
LCS (5H04110-BS1)					Prepared: 08/04/15 Analyzed: 08/06/15						
Total Phosphorus	0.533	0.05	0.02	mg/L	0.500		107	85-115			
Matrix Spike (5H04110-MS1)		**Source: B5G3182-11**			Prepared: 08/04/15 Analyzed: 08/06/15						
Total Phosphorus	1.90	0.05	0.02	mg/L	0.500	1.33	115	80-120			
Matrix Spike Dup (5H04110-MSD1)		**Source: B5G3182-11**			Prepared: 08/04/15 Analyzed: 08/06/15						
Total Phosphorus	1.95	0.05	0.02	mg/L	0.500	1.33	125	80-120	2.64	20	QMSD
Batch 5H08067 - Acid Digest											
Blank (5H08067-BLK1)					Prepared: 08/08/15 Analyzed: 08/10/15						
Kjeldahl Nitrogen	0.0648	0.10	0.063	mg/L							J
LCS (5H08067-BS1)					Prepared: 08/08/15 Analyzed: 08/10/15						
Kjeldahl Nitrogen	0.996	0.10	0.063	mg/L	1.00		99.6	80-120			
Matrix Spike (5H08067-MS1)		**Source: B5G3177-01**			Prepared: 08/08/15 Analyzed: 08/10/15						
Kjeldahl Nitrogen	2.25	0.10	0.063	mg/L	1.00	1.32	92.2	44-159			

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Report Date: 28-Oct-2016

Project Name: Coachella Valley WD-Blanket Pu
Project Number: CE15073002

Work Order Number: B5G3220
Received on Ice (Y/N): Yes Temp: 4 °C

Nutrients - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5H08067 - Acid Digest											
Matrix Spike (5H08067-MS2)		**Source: B5G3177-02**			Prepared: 08/08/15	Analyzed: 08/10/15					
Kjeldahl Nitrogen	203	8.0	5.0	mg/L	80.0	102	127	44-159			

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Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 16 of 22
Contact:	Steve Bigley	Project Name:	Coachella Valley WD-Blanket Pu
Address:	P.O. Box 1058	Project Number:	CE15073002
	Coachella, CA 92236		
Report Date:	28-Oct-2016	**Work Order Number:**	**B5G3220**
		Received on Ice (Y/N):	Yes Temp: 4 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5G31028 - Filter if turbid.-IC											
Blank (5G31028-BLK1)				Prepared & Analyzed: 07/31/15							
Hexavalent Chromium	ND	1.0	0.013	ug/L							
LCS (5G31028-BS1)				Prepared & Analyzed: 07/31/15							
Hexavalent Chromium	4.76	1.0	0.013	ug/L	5.00		95.3	90-110			
LCS Dup (5G31028-BSD1)				Prepared & Analyzed: 07/31/15							
Hexavalent Chromium	4.77	1.0	0.013	ug/L	5.00		95.3	90-110	0.0420	20	
Duplicate (5G31028-DUP1)		**Source: B5G3220-01**		Prepared & Analyzed: 08/01/15							
Hexavalent Chromium	0.182	1.0	0.013	ug/L		0.320			55.0	20	QRPDI, J
Matrix Spike (5G31028-MS1)		**Source: B5G3220-01**		Prepared & Analyzed: 08/01/15							
Hexavalent Chromium	5.25	1.0	0.013	ug/L	5.00	0.320	98.6	81-123			
Matrix Spike Dup (5G31028-MSD1)		**Source: B5G3220-01**		Prepared & Analyzed: 08/01/15							
Hexavalent Chromium	5.45	1.0	0.013	ug/L	5.00	0.320	103	81-123	3.78	20	
Batch 5H04104 - EPA 200.2 SOP M02C											
Blank (5H04104-BLK1)				Prepared & Analyzed: 08/05/15							
Antimony	ND	10	0.18	ug/L							
Arsenic	ND	5.0	1.2	ug/L							
Barium	ND	20	0.18	ug/L							
Beryllium	ND	10	0.26	ug/L							
Cadmium	ND	2.0	0.26	ug/L							
Total Chromium	ND	20	1.9	ug/L							
Copper	ND	10	0.29	ug/L							
Lead	ND	10	0.19	ug/L							
Mercury	ND	0.20	0.055	ug/L							
Nickel	ND	20	0.20	ug/L							
Selenium	ND	5.0	1.4	ug/L							
Silver	ND	10	0.22	ug/L							
Thallium	ND	200	0.20	ug/L							
Zinc	ND	10	1.5	ug/L							

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Project Name: Coachella Valley WD-Blanket Pu
Project Number: CE15073002

Work Order Number: B5G3220
Received on Ice (Y/N): Yes Temp: 4 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5H04104 - EPA 200.2 SOP M02C											
LCS (5H04104-BS1)				Prepared & Analyzed: 08/05/15							
Antimony	318	10	0.18	ug/L	334		95.4	85-115			
Arsenic	336	5.0	1.2	ug/L	334		101	85-115			
Barium	328	20	0.18	ug/L	334		98.3	85-115			
Beryllium	315	10	0.26	ug/L	334		94.6	85-115			
Cadmium	333	2.0	0.26	ug/L	334		99.8	85-115			
Total Chromium	330	20	1.9	ug/L	334		98.9	85-115			
Copper	324	10	0.29	ug/L	334		97.2	85-115			
Lead	329	10	0.19	ug/L	334		98.8	85-115			
Mercury	3.83	0.20	0.055	ug/L	3.34		115	85-115			
Nickel	312	20	0.20	ug/L	334		93.6	85-115			
Selenium	327	5.0	1.4	ug/L	334		97.9	85-115			
Silver	324	10	0.22	ug/L	334		97.2	85-115			
Thallium	307	200	0.20	ug/L	334		92.2	85-115			
Zinc	328	10	1.5	ug/L	334		98.3	85-115			
LCS Dup (5H04104-BSD1)				Prepared & Analyzed: 08/05/15							
Antimony	329	10	0.18	ug/L	334		98.8	85-115	3.48	20	
Arsenic	339	5.0	1.2	ug/L	334		102	85-115	0.962	20	
Barium	332	20	0.18	ug/L	334		99.6	85-115	1.30	20	
Beryllium	317	10	0.26	ug/L	334		95.2	85-115	0.636	20	
Cadmium	338	2.0	0.26	ug/L	334		101	85-115	1.52	20	
Total Chromium	333	20	1.9	ug/L	334		99.9	85-115	1.04	20	
Copper	332	10	0.29	ug/L	334		99.6	85-115	2.38	20	
Lead	333	10	0.19	ug/L	334		99.9	85-115	1.12	20	
Mercury	3.89	0.20	0.055	ug/L	3.34		117	85-115	1.45	20	QLrpd
Nickel	318	20	0.20	ug/L	334		95.5	85-115	1.96	20	
Selenium	328	5.0	1.4	ug/L	334		98.2	85-115	0.280	20	
Silver	333	10	0.22	ug/L	334		99.8	85-115	2.67	20	
Thallium	316	200	0.20	ug/L	334		94.7	85-115	2.67	20	
Zinc	333	10	1.5	ug/L	334		99.7	85-115	1.42	20	

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Contact: Steve Bigley
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Report Date: 28-Oct-2016

Project Name: Coachella Valley WD-Blanket Pu
Project Number: CE15073002

Work Order Number: B5G3220
Received on Ice (Y/N): Yes Temp: 4 °C

Metals and Metalloids - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5H04104 - EPA 200.2 SOP M02C											
Matrix Spike (5H04104-MS1)		**Source: B5G3127-01**		Prepared & Analyzed: 08/05/15							
Antimony	321	10	0.18	ug/L	334	1.08	95.8	70-130			
Arsenic	332	5.0	1.2	ug/L	334	2.64	98.7	70-130			
Barium	359	20	0.18	ug/L	334	39.4	95.9	70-130			
Beryllium	291	10	0.26	ug/L	334	ND	87.3	70-130			
Cadmium	316	2.0	0.26	ug/L	334	ND	94.8	70-130			
Total Chromium	313	20	1.9	ug/L	334	4.49	92.5	70-130			
Copper	427	10	0.29	ug/L	334	127	89.8	70-130			
Lead	313	10	0.19	ug/L	334	1.63	93.2	70-130			
Mercury	3.63	0.20	0.055	ug/L	3.34	ND	109	70-130			
Nickel	294	20	0.20	ug/L	334	3.01	87.2	70-130			
Selenium	318	5.0	1.4	ug/L	334	ND	95.4	70-130			
Silver	311	10	0.22	ug/L	334	ND	93.1	70-130			
Thallium	300	200	0.20	ug/L	334	ND	89.9	70-130			
Zinc	402	10	1.5	ug/L	334	103	89.6	70-130			
Matrix Spike (5H04104-MS2)		**Source: B5H0342-01**		Prepared & Analyzed: 08/05/15							
Antimony	310	10	0.18	ug/L	334	ND	92.9	70-130			
Arsenic	322	5.0	1.2	ug/L	334	1.44	96.2	70-130			
Barium	366	20	0.18	ug/L	334	70.3	88.5	70-130			
Beryllium	264	10	0.26	ug/L	334	ND	79.2	70-130			
Cadmium	303	2.0	0.26	ug/L	334	1.98	90.3	70-130			
Total Chromium	303	20	1.9	ug/L	334	ND	90.9	70-130			
Copper	291	10	0.29	ug/L	334	2.71	86.4	70-130			
Lead	293	10	0.19	ug/L	334	ND	87.9	70-130			
Mercury	3.53	0.20	0.055	ug/L	3.34	ND	106	70-130			
Nickel	304	20	0.20	ug/L	334	18.9	85.5	70-130			
Selenium	315	5.0	1.4	ug/L	334	2.66	93.7	70-130			
Silver	291	10	0.22	ug/L	334	ND	87.2	70-130			
Thallium	285	200	0.20	ug/L	334	ND	85.5	70-130			
Zinc	320	10	1.5	ug/L	334	36.4	85.1	70-130			

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Contact: Steve Bigley
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Report Date: 28-Oct-2016

Project Name: Coachella Valley WD-Blanket Pu
Project Number: CE15073002

Work Order Number: B5G3220
Received on Ice (Y/N): Yes Temp: 4 °C

Miscellaneous Organic Compounds - Batch Quality Control

Analyte(s)	Result	RDL		Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag
Batch 5H03097 - None											
Blank (5H03097-BLK1)				Prepared & Analyzed: 08/03/15							
Ethylene Glycol	ND	1.0	1.0	mg/L*							
LCS (5H03097-BS1)				Prepared & Analyzed: 08/03/15							
Ethylene Glycol	4.50	1.0	1.0	mg/L*	5.00		90.0	50-150			
Matrix Spike (5H03097-MS1)		**Source: B5G3220-05**		Prepared & Analyzed: 08/03/15							
Ethylene Glycol	5.00	1.0	1.0	mg/L*	5.00	ND	100	50-150			
Matrix Spike Dup (5H03097-MSD1)		**Source: B5G3220-05**		Prepared & Analyzed: 08/03/15							
Ethylene Glycol	5.00	1.0	1.0	mg/L*	5.00	ND	100	50-150	0.00	40	

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Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 20 of 22
Contact:	Steve Bigley	Project Name:	Coachella Valley WD-Blanket Pu
Address:	P.O. Box 1058 Coachella, CA 92236	Project Number:	CE15073002
Report Date:	28-Oct-2016	**Work Order Number:**	**B5G3220**

Received on Ice (Y/N): Yes Temp: 4 °C

Notes and Definitions

J	Estimated value
N_pAdl	Sample was submitted with proper preservation however additional preservation was needed to obtain required conditions.
NRLrcf	RL for analyte does not meet the SWAMP/ CTR required RL.
ND:	Analyte NOT DETECTED at or above the Method Detection Limit **(if MDL is reported)**, otherwise at or above the Reportable Detection Limit (RDL)
NR:	Not Reported
RDL:	Reportable Detection Limit
MDL:	Method Detection Limit

* / (Non-NELAP): NELAP does not offer accreditation for this analyte/method/matrix combination

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Client Name:	Coachella Valley Water Dist.
Contact:	Steve Bigley
Address:	P.O. Box 1058 Coachella, CA 92236
Report Date:	28-Oct-2016

Project Name:	Coachella Valley WD-Blanket Pu
Project Number:	CE15073002
Work Order Number:	**B5G3220**

Received on Ice (Y/N): Yes Temp: 4 °C

Approval

Enclosed are the analytical results for the submitted sample(s). Babcock Laboratories certify the data presented as part of this report meet the minimum quality standards in the referenced analytical methods. Any exceptions have been noted. Babcock Laboratories and its officers and employees assume no responsibility and make no warranty, express or implied, for uses or interpretations made by any recipients, intended or unintended, of this report.

Amanda Porter

e-Standard.rpt

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The Standard of Excellence for Over 100 Years

Client Name:	Coachella Valley Water Dist.	Analytical Report:	Page 22 of 22
Contact:	Steve Bigley	Project Name:	Coachella Valley WD-Blanket Pu
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To: BABCOCK - LAB

B5G3220W

JUL 30 2015

WATER DISTRICT

COACHELLA VALLEY WATER DISTRICT
P.O. Box 1058; Coachella, CA 92236

Chain of Custody

CE15073002

PLEASE RETURN ☐ CLIENT ICE CHEST(S) AND ICE PACKS ☐ Requires State Forms Turn Around Time: ☐ Standard or ☐ RUSH

COC #: CE15073002 342 - Stormwater - Dry Weather-Babcock - 07/29/201

Received Date Time: Comments:

CVWD Log Number / Sample Date	Time	Sampler	Sample Pt ID	Sample Site Name / Sample Point Name	SM	CM	ST	Preservative / No Btls / Container	pH	EC (µhmo/cm)	Temp°	Cl2 (mg/L) Free / Total	Comments
20150729-028 / 150730	1101	254	17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	Iced / Poly 2L	✓				...
Requested Analysis: Antimony - Babcock, Nitrite - Babcock, Nickel - Babcock, Thallium - Babcock, Selenium - Babcock, Arsenic - Babcock, Cadmium- Babcock, Total Chromium - Babcock, Mercury - Babcock, MBAS - Babcock, TDS - Babcock, Beryllium - Babcock, Copper - Babcock, Silver - Babcock, Zinc - Babcock, TSS - Babcock, Barium - Babcock, Lead - Babcock, Orthophosphate - Babcock, Nitrate - Babcock, Hexavalent Chromium - Babcock													
20150729-029	1102		17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	HNO3 / Poly 1L	✓				...
Requested Analysis: Antimony - Babcock, Copper - Babcock, Silver - Babcock, Zinc - Babcock, Total Chromium - Babcock, Lead - Babcock, Barium - Babcock, Cadmium- Babcock, Selenium - Babcock, Beryllium - Babcock, Thallium - Babcock, Hexavalent Chromium - Babcock, Nickel - Babcock, Arsenic - Babcock, Mercury - Babcock													
20150729-030	1103		17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	Iced / 500 mL - Glass	✓				...
Requested Analysis: Oil & Grease - Babcock													
20150729-031	1104		17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	H2SO4 / Poly 1L	✓				...
Requested Analysis: Ammonia-N - Babcock, Nitrogen-Kjeldahl - Babcock, Phosphorus-Total - Babcock, Nitrogen-Total - Babcock													
20150729-032	1105		17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	None / 500 mL - Glass	✓				...
Requested Analysis: Ethylene Glycol - Babcock													
20150729-033	1106		17062	CVSC @ Avenue 52 Bridge / 719CVS884	W	G	O	H2SO4 / Amber 1L	✓				...
Requested Analysis: Total Petroleum Hydrocarbons - Babcock													

4°

Sample Matrix (SM): W = Water; S = Soil; SI = Sludge || Collection Method (CM): G = Grab; CF = Flow composite; CT = Time Composite; CS = Spatial Composite
Sample Type (ST): FF = First flush; RT = Routine; Rp = Repeat; Rm = Replacement; Nw = New; Rs = Resample; Ts = Test; Sp = Special; 24 = 24 Hour; 4Q = 4 Quarters; 7s = 7 samples

Released By	ID#	Company	Received By	ID##	Company	Date	Time	Temp °C Iced (X) Refrigerated ( )
[signature]	254	CVWD	[signature]	333	CVWD	150730	1123	15.2°C
[signature]	541	CVWD			ESB	7/30/15	1245	
		ESB	[signature]		ESB	7/30/15	1600	4°

page 1 of 1

884D1

Final Analytical Report

Sample Number

20150729-026

Coachella Valley Water District
Water Quality Laboratory
ELAP No. 1780
P.O. Box 1058
Coachella, CA 92236
Telephone: (760) 398-2651

Location: CVSC @ Avenue 52 Bridge
Sample Type Desc: Water
Collected Date/Time: 7/30/2015 11:07
Received Date/Time: 7/30/2015 11:23
Sample Status: Complete
Subcontract Lab: N/A
Sample Comment:

Sample Point: 719CVS884
State Well Number: N/A
Collected By: JRR
Received By: MAS
Completed Date/Time: 9/1/2015 15:05
Report Date/Time: 2/22/2017 7:45

Analyte(s)	Result	Units	MDL	RL	MCL	Method	Date/Time	Analyst	Flag
Physical-Chemical Characteristics									
Field - Specific Conductance (EC)	1223	µmhos/cm				SM 2510	7/30/2015 11:07	JRR	
Temperature, Field	30.0	Degrees C				SM 2550 B	7/30/2015 11:07	JRR	
Field Turbidity	16.4	NTU			5	SM 2130 B	~~8/28/2015 1:08~~ 7/30/15 11:07	PSA	
Field pH	7.3	SU					7/30/2015 ~~2:07~~ 11:07	JRR	
Bacteriological Analyses									
E. coli	79.0	MPN/100mL	1.8			SM 9221	7/30/2015 14:15	JFS	
Other									
Dissolved Oxygen	4.17	mg/L				SM 4500 OG	7/30/2015 11:07	JRR	

per COC

Attachment E

Description of Parameters Analyzed within the Current Whitewater River Region MS4 Monitoring Program (Monitoring Under the 2013 MS4 Permit)

Parameters Analyzed within the Current Whitewater River Region MS4 Monitoring Program

The following parameters have been monitored in the current MS4 Monitoring Program. The paragraphs below describe the parameter's importance to Urban Runoff water quality and the types of industries likely to discharge it into their waste stream. Many of the parameter descriptions are taken from Water Quality Criteria, 2nd Edition, J. McKee and H. Wold, State Water Resources Control Board, July 1978.

Ammonia-nitrogen

Ammonia may be found naturally in surface or groundwaters from the decomposition of nitrogenous organic matter, being one of the constituents of the complex nitrogen cycle. Rivers known to be unpolluted have very low ammonia concentrations, generally less than 0.2 mg/L as N. Ammonia may be discharged in industrial wastes. Ammonia is also a component of fertilizer and urine, and its presence may indicate agricultural use or over-application in domestic and recreational areas. In water, ammonia occurs in two forms, which together are called the total ammonia nitrogen. Chemically, these two forms are represented as ionized ammonia (NH_4) and un-ionized ammonia (NH_3). This is important to know, since NH_3, un-ionized ammonia, is the form that is toxic. Water temperature and pH will affect which form of ammonia is predominant at any given time in an aquatic system.

Arsenic

Elemental arsenic may be found to a small extent in nature, mostly as the arsenides of true metals or pyrites. Its major use, however, is as a component of pesticides (insects, weeds, fungi) and as a wood preservative.

Bacteria: *Escherichia Coli*

Escherichia coli is a specific strain of bacteria that is one of the main species of bacteria that live in the lower intestines of mammals and is of special concern to human health. *E. coli* is considered to be a more specific and reliable indicator of fecal pollution than the more general fecal coliform category.

Barium

Barium is not normally present in natural surface or groundwaters. Industrial uses of barium and its salts include metallurgy, paint manufacturing, cement production (for mixtures designed to withstand salt water), and in ceramic and glass manufacturing.

Beryllium

Beryllium can be found naturally in pegmatite bodies, silicate and feldspar minerals, and fossil fuels. It is not likely to be found in natural water sources above trace levels due to the insolubility of oxides and hydroxides at a normal pH range. Beryllium enters the environment primarily from coal combustion, but has also been found in ashes and wastewater from power plants. Industrially it has been used as a hardener in alloys, space vehicles, navigation and optical equipment, and missile fuel. (EPA, 2010)

Cadmium

Cadmium has many industrial uses, including metallurgy, electroplating, ceramics, pigmentation, photography, and textile printing. Cadmium salts are sometimes employed as insecticides and antihelminthics. Cadmium is also used in some brake parts, especially rotors, and is found in runoff associated with roads (McKenzie et. al., 2009). Cadmium can concentrate in the liver, kidneys, pancreas, and thyroid of humans and animals, and tends to persist.

Chromium, all valences
Chromium wastes occur mostly in the hexavalent form, but can occur in the trivalent form. Chromium occurs naturally in the groundwaters within the Whitewater River Region. Industrial sources of hexavalent chromium include metal pickling and plating operations, aluminum anodizing, cooling water antifouling, and in the manufacture of paints, dyes, explosives, ceramics, and paper. Industrial sources of trivalent chromium salts include textile dyeing, ceramic and glass manufacturing, and in photography.

Conductance, specific
Specific conductance measures the ion concentration of water. Increased conductivity increases the osmotic pressure of water, which can be harmful to aquatic organisms. Natural inland waters usually contain small quantities of mineral salts in solution, but waters containing brine, chemical, and agricultural irrigation wastes may have excessive levels of specific conductance.

Copper
Copper is found naturally in the Earth's crust and is essential in low concentrations to plant and animal life (EPA, 2015a). At higher concentrations, copper may adversely impact growth, reproduction and survival of organisms in aquatic ecosystems. Multiple studies indicate that copper in stormwater may originate from brake pads or industrial (e.g., the textile industry) and mining sources (Lee and Lee, 2000; EPA 2015a). In September of 2010, the Governor of California signed Senate Bill 346 which set milestones to reduce the amount of copper in brake pads. By 2025 the amount of copper permitted in brake pads will be approaching zero (DTSC, 2015).

Discharge
Also known as the flow rate, high discharge rates may cause erosion in an earthen channel. Used along with chemical concentration to calculate mass loading.

Ethylene Glycol
Ethylene glycol is a colorless, odorless water-soluble liquid used an ingredient in antifreeze and de-icing solutions. It is also used in heating and cooling systems, hydraulic brake fluids, latex paints, and some cosmetics. Ethylene glycol is poisonous to humans and animals in its concentrated form (National Library of Medicine, 2015).

Hardness, total ($CaCO_3$)
Total hardness measures the concentration of the following ions (converted to an equivalent concentration of $CaCO_3$):
Ca^{+2} HCO_3^- Mg^{+2} SO_4^{-2} Na^+ Cl^- K^+
Analyses of specific ions are included elsewhere in this section. Hardness in water may be caused by the natural accumulation of salts (primarily calcium and magnesium ions) from contact with soil and geological formations. Other sources may include irrigation return flows. Imported water may also be a source of elevated hardness levels; for example, Colorado River Water has an average hardness of 250-300 mg/L, which is considered hard water.

Lead
Lead is a harmful substance that can lead to neurological damage. Natural sources of lead in water include leaching from mountain limestone and galena. Potential industrial sources of lead may include legacy pollution from use in motor fuels and use in solder in electronics and piping. Lead and other metals can also be washed from natural areas that have been burned. Lead is naturally present in the groundwater within the Whitewater River Region (Presser, 1994).

Mercury
Mercury can appear in the metallic state in some natural waters, but the ionic form is most harmful to aquatic life. Industrial sources of mercury include use in scientific and electrical instruments, dentistry, solders, the manufacture of lamps and batteries, and improper disposal of thermostat switches and old thermometers and manometers.

Methylene Blue Active Substances (MBAS [Surfactants])
MBAS are synthetic detergents or surfactants that may disrupt the stability of the interface between water and normally insoluble substances, allowing them to be dispersed into the environment. Substances that may be dispersed by surfactants include toxic compounds adhered to bottom sediments or floating on the surface of water bodies. In addition, MBAS themselves may be toxic to some aquatic life. Since 1965, detergents resistant to biological degradation have generally been replaced by more biodegradable detergents (USGS, 1984).

Nitrogen, Nitrate (as N)
Nitrates are an essential fertilizer for plant life, and are therefore rarely found in natural surface waters at elevated concentrations. Nitrates may also be present in groundwater as a result of excessive application of fertilizer or cesspool or septic tank leachate. Industrial uses of nitrogen include chemical fertilizer production, field application of fertilizer, livestock wastes, and irrigated agriculture.

Nitrogen: Nitrite (as N)
Nitrites are usually quickly oxidized to nitrates by bacterial action in natural waters and are, therefore, seldom found at significant concentrations. The presence of nitrite alone does not always signify the presence of pollution, but in conjunction with ammonia and nitrate, often indicate anthropogenic sources.

Nitrogen: Total (as N) = TKN + Nitrate + Nitrite
Nitrogen is present in natural and polluted waters as ammonia, organic nitrogen, nitrites, and nitrates. The total concentration of nitrogen is not as important as the form in which it exists. Organic nitrogen, amino acids, and ammonia may inhibit biological growth whereas nitrates stimulate phytoplankton growth. Industrial sources of the various components of total nitrogen are discussed under separate headings in this section.

Nitrogen: total Kjeldahl (as N) (TKN) = Ammonia + Organic Nitrogen
Sources of TKN "include the decay of organic material such as plant material and animal wastes and urban and industrial disposal of sewage and organic waste. Large amounts of ammonia and organic nitrogen are applied to cropland as fertilizer. Both ammonia and organic nitrogen are relatively immobile in soils and groundwater because of adsorption on soil surfaces and particulate filtering, but are susceptible to nitrification under aerobic conditions". (USGS Online, http://va.water.usgs.gov/chesbay/RIMP/waterchem.html, 2004, last visited 2010). High total Kjeldahl nitrogen concentrations may also indicate the presence of treated effluent or manure-based wastes.

Oil and Grease
Oil and grease includes a variety of organic compounds with differing physical and chemical properties, and may include petroleum constituents, animal fats, soaps, and vegetable oils. Oil and grease in stormwater represents low-level chronic releases of oil and grease as opposed to oil spills. Sources of oil and grease in stormwater include roads, parking lots, and industrial facilities (California EPA, 2006).

Oxygen, dissolved
Dissolved oxygen is a function of the oxygen levels in water and the capacity of water to dissolved oxygen is affected by the temperature and salinity of water. Increasing temperature or salinity results in a decreasing oxygen-holding capacity of water. Dissolved oxygen is not constant in a natural system, as organisms, chemical reactions, and physical conditions use or generate oxygen at various rates. As dissolved oxygen levels decrease, aquatic life suffers or dies, and in the absence of oxygen, anaerobic decomposition may lead to unfavorable odors and colors in the water.

pH
pH is not a pollutant in itself, but an indicator of pollution. Natural waters and treated sewage is usually neutral or slightly alkaline, but many industrial wastes are strongly acidic or alkaline. Acid wastes include tan liquors, acid dyes, sulfite waste liquors, pickling liquors, and some brewery wastes. Alkaline wastes include soda- and sulfate-pulp rinse waters, laundry wastes, and bottle wash waters.

Petroleum hydrocarbons, total (TPH)
TPH concentrations provide a measure of petroleum-based compounds in stormwater, as opposed to oil and grease, which includes non-petroleum sources (California EPA, 2006).

Phosphorus, ortho (as P)
Orthophosphate is a chemical added to treated drinking water to prevent pipe corrosion during transport. By coating the pipe, orthophosphate prevents lead from leaching into the water. Orthophosphate is also used as a food additive to control alkalinity/acidity in food and beverages. Similar to phosphorus, orthophosphate is an essential nutrient for plant and animal growth (EPA, 2009).

Phosphorus, total (as P)
Phosphorus in nature is found in the form of phosphates in several minerals and it is a constituent of fertile soils, plants, and the protoplasm, nervous tissue and bones of animals. It is an essential nutrient for plant and animal growth. Excessive phosphorus leads to an overabundance of algae growth. Studies have suggested that, in particular, increased nutrient loads of phosphorus and nitrogen occur after wildfires. Furthermore, evidence associates higher levels of phosphorus with higher sediment loads due to post-fire erosion because phosphorus is primarily transported with sediment loads. (USFS, 2009; Meixner & Wohlgemuth, 2004; SCCWRP, 2009)

Selenium
Selenium occurs naturally in soils in the environment and is an essential element for both plants and animals. Sources of selenium in stormwater include irrigation of soils high in selenium (such as those in the western United States) and mining activities, as well as effluents from coal fired power plants or oil refineries (EPA, 2015b). In higher concentrations selenium may impact juvenile growth and survival in the offspring of adult fish exposed to elevated levels. The route of exposure to aquatic organisms and birds is through ingestion, as selenium bioaccumulates in tissue. Selenium may also be found in the municipal sewage from industrial communities. Selenium is naturally present in the groundwater within the Whitewater River Region (Presser, 1994).

Silver
Silver occurs in nature in the form of very insoluble sulfides, oxides, and salts. Anthropogenic silver sources in runoff include industrial wastes such as those from smelting, electrical supply operations, and disposal of photographic materials. Silver as silver iodide is also used in cloud seeding operations and may be transported large distances in precipitation. Silver shows a strong affinity for

fine aquatic sediments. Toxicity of silver to aquatic plants and animals is influenced by water hardness and associated factors (EPA, 1987).

Solids, total dissolved (TDS)
In natural waters the dissolved solids consist mainly of carbonates, bicarbonates, chlorides, sulfates, phosphates, and possibly nitrates of calcium, magnesium, sodium, and potassium, with traces of iron, manganese and other substances. Sources of dissolved solids include chemical wastes, dissolved salts, acids, alkalis, or drainage waters from irrigated land.

Solids, total suspended (TSS)
Significant change in loading of suspended and bedded sediments is a major cause of water quality impairment in the U.S. In addition to the issues caused directly by increased sediments loads, pollutants such as nutrients, metals, and organic compounds adhere to fine sediment particles and may be transported with those sediments. Increased TSS may cause issues associated with increased turbidity and, in extreme cases, may cause burial or smothering of benthic organisms (EPA, 2003).

Temperature, field
Water temperature in natural waters is influenced by ambient air temperature, vegetative cover, nature of bed material (e.g., gravel vs. sand), and stream depth. Many industrial and agricultural wastes lead to raising of water temperatures, as does concrete-lining of streams. Increased water temperature may result in decreased oxygen capacity, generation of anaerobic zones, and fungal growth.

Turbidity
The turbidity of a sample is a measure of the change in the intensity of light as it passes through water. Turbidity in water is attributable to suspended and colloidal matter, which diminishes light penetration. Increased turbidity may also indicate the presence of pathogens. Natural sources of turbidity include microorganisms or organic detritus; silica or other mineral substances including zinc, iron, and manganese compounds; and clay or silt. Erosion may also lead to increased turbidity as well as domestic sewage and industrial wastes, such as dredging, and pulp and paper manufacturing.

Thallium
Thallium is a relatively stable heavy metal that is usually found in the environment associated with other elements in inorganic compounds. Thallium is generally water-soluble and tends to adhere to so and sediments and bioaccumulate in aquatic plants and animals. Sources of thallium include processes such as coal burning and smelting, in which thallium is a trace contaminant in the raw materials utilized in these processes (Agency for Toxic Substances and Disease Registry, 1992).

Zinc
Heavy metals, including zinc, are one of the most prevalent pollutants found in urban runoff and may potentially cause toxicity to aquatic plants and animals. Major sources of zinc in urban runoff include galvanized surfaces and tire wear debris, while other more minor sources include vehicle brake pad wear and runoff from industrial facilities (California Stormwater Quality Association, 2015).