NOTICE OF OPPORTUNITY TO COMMENT

On

Draft Revisions to the Monitoring and Reporting Program

for the

City of Salinas Phase I Municipal Stormwater Permit
Monterey County
Order No. R3-2012-0005
NPDES Permit No. CA0049981

NOTICE IS HEREBY GIVEN THAT the California Regional Water Quality Control Board, Central Coast Region (Central Coast Water Board) is accepting comments on draft revisions to the Monitoring and Reporting Program (MRP), for the City of Salinas Phase I Municipal Storm Water Permit.

The City of Salinas concluded the five-year cycle of its 2012 Phase I NPDES Municipal Stormwater Permit, and the Permit expired, on May 2, 2017. Until the Central Coast Water Board re-issues the Permit, the City of Salinas must continue to implement the requirements of the 2012 Permit. The proposed revisions to the City of Salinas Municipal Stormwater MRP are an interim action by the Central Coast Water Board Executive Officer and will serve as a basis for a final MRP Water Board staff will develop and recommend for approval by the Central Coast Water Board through Permit re-issuance when it occurs. The Draft Fact Sheet (attached) describes the proposed revisions to the MRP for Executive Officer approval.

Draft revisions to the MRP are intended to address two primary objectives of urban stormwater monitoring programs, which include: 1) improved understanding of water quality conditions in waters affected by urban runoff, and 2) informed program management, including measuring the effectiveness of stormwater program management actions. As such, the proposed revisions are modest in scope and do not change the objectives of the MRP, but are expected to improve the precision of measurements of stormwater pollutant loading and runoff volume.

Persons wishing to comment on the Draft MRP revisions must submit comments in writing no later than **July 7, 2017** to Dominic.Roques@waterboards.ca.gov, or to the address below:

Central Coast Regional Water Quality Control Board
895 Aerovista Place, Suite 101
San Luis Obispo, CA 93401
Attn: Dominic Roques

For further information, please contact Dominic Roques at Dominic.Roques@waterboards.ca.gov, or 805-542-4780.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
895 Aerovista Place, Suite 101
San Luis Obispo, California 93401-7906

DRAFT FACT SHEET
FOR REVISIONS TO MONITORING AND REPORTING PROGRAM
FOR
ORDER NO. R3-2012-0005
NPDES PERMIT NO. CA0049981
WASTE DISCHARGE REQUIREMENTS
FOR
CITY OF SALINAS
MUNICIPAL STORM WATER DISCHARGES
Monterey County

Introduction

The City of Salinas (City) concluded the five-year cycle of its 2012 Phase I NPDES Municipal Stormwater Permit, and the Permit expired, on May 2, 2017. As stipulated in the Permit, until the Central Coast Water Board re-issues the Permit, the City must implement the requirements of the 2012 Permit. Central Coast Water Board staff has initiated the Permit re-issuance process and as an initial step proposes changes to the Permit's Monitoring and Reporting Program (MRP) that would commence immediately upon approval by the Executive Officer. The proposed MRP would be an interim approach and serve as a basis for a final MRP to be developed and approved through Permit re-issuance by the Central Coast Water Board when it occurs. This Draft Fact Sheet describes the proposed revisions to the MRP for Executive Officer approval.

Legal Authority

The Central Coast Water Board Executive Officer is authorized to revise the Permit's MRP under Permit provision T.2. Also, provisions P.4.a and P.5. specifically authorize the Executive Officer to approve revisions to the MRP's Stormwater Discharge Trend Monitoring and Receiving Water Monitoring requirements that are equivalent to or better than those in the MRP. Central Coast Water Board staff proposes limited revisions to only these components of the MRP. No other modifications to the MRP are proposed. Central Coast Water Board staff finds the MRP with the proposed revisions would be better than the 2012 MRP.

The terms of this MRP solely implement the federal requirements under the CWA sections 402(p) and 303(d), and the associated regulations. This Permit does not constitute an unfunded local government mandate subject to subvention under Article XIIIB, Section (6) of the California Constitution for several reasons including, but not limited to, the following.

First, the MRP does not impose a new program or higher level of service. The modifications to the MRP allows the Permittee to more efficiently monitor stormwater runoff and provide an overall increase in the level of water quality protection without significantly increasing program costs.

Second, this Permit implements federally mandated requirements under CWA § 402, subdivision (p)(3)(8)(33 U.S.C. § 1342(p)(3)(8)). This includes federal requirements to (1) effectively prohibit non-storm water discharges; (2) reduce the discharge of pollutants to the maximum extent practicable by implementing management practices, control techniques, and system, design, and engineering methods; and (3) include such other provisions as the Administrator or the State determines appropriate for the control of such pollutants. The authority exercised under this Permit is not reserved state authority under the Clean Water Act's savings clause (cf. *Burbank v. State Water Resources Control Bd.* (2005) 35 Cal.4th 613, 627-628 [relying on 33 U.S.C. § 1370, which allows a state to develop requirements which are not "less stringent" than federal requirements]), but instead, is part of a federal mandate to develop pollutant reduction requirements for municipal separate storm sewer systems. To this extent, it is entirely federal authority that forms the legal basis to establish the permit provisions. (See, *City of Rancho Cucamonga v. Regional Water Quality Control Bd.-Santa Ana Region* (2006) 135 Cal.App.4th 1377, 1389; *Building Industry Ass'n of San Diego County v. State Water Resources Control Bd.* (2004) 124 Cal.App.4th 866, 882-883.)

Third, the Permittee's obligations under this MRP are similar to, and in many respects less stringent than, the obligations of non-governmental dischargers who are issued NPDES permits for storm water discharges. With a few inapplicable exceptions, the Clean Water Act regulates the discharge of pollutants from point sources (33 U.S.C. § 1342) and the Porter-Cologne regulates the discharge of waste (Water Code, § 13263), both without regard to the source of the pollutant or waste. As a result, the "costs incurred by local agencies" to protect water quality reflect an overarching regulatory scheme that places similar requirements on governmental and nongovernmental dischargers. (See *County of Los Angeles v. State of California* (1987) 43 Cal.3d 46, 57-58 [finding that comprehensive workers compensation scheme did not create a cost for local agencies that was subject to state subvention].) The Clean Water Act and the Porter-Cologne Water Quality Control Act largely regulate storm water with an even hand, but to the extent there is any relaxation of this even-handed regulation; it is in favor of the local agencies. Except for municipal separate storm sewer systems, the Clean Water Act requires point source dischargers, including discharges of storm water associated with industrial or construction activity, to comply strictly with water quality standards. (33 U.S.C. § 1311 (b)(1)(C), *Defenders of Wildlife v. Browner* (1999) 191 F.3d 1159, 1164-1165 [noting that industrial storm water discharges must strictly comply with water quality standards].) As discussed in prior State Water Resources Control Board decisions, in many respects this MRP does not require strict compliance with water quality standards. (SWRCB Order No. WQ 2001-15, p. 7.) The MRP, therefore, regulates the discharge of waste in municipal storm water more leniently than the discharge of waste from non-governmental sources.

Fourth, the Permittee has the authority to levy service charges, fees, or assessments sufficient to pay for compliance with this Order subject to certain voting requirements contained in the California Constitution. (See California Constitution XIII D, section 6, subdivision (c); see also *Howard Jarvis Taxpayers Association v. City of Salinas* (2002) 98 Cal. App. 4th 1351, 1358-1359.). The ability of a local agency to defray the cost of a program without raising taxes indicates that a program does not entail a cost subject to subvention. (*County of Fresno v. State of California* (1991) 53 Cal.3d 482, 487-488.)

Fifth, the Permittee has requested permit coverage in lieu of compliance with the complete prohibition against the discharge of pollutants contained in federal Clean Water Act section 301, subdivision (a) (33 U.S.C. § 1311 (a)). To the extent that the local agencies have voluntarily availed themselves of the permit, the program is not a state mandate. (Accord *County of San Diego v. State of California* (1997) 15 Cal.4th 68, 107-108.) The local agencies' voluntary

decision to file a report of waste discharge proposing a program based permit is a voluntary decision not subject to subvention. (See *Environmental Defense Center v. USEPA* (9th Cir. 2003) 344 F.3d 832, 845-848.)

Sixth, the local agencies' responsibility for preventing discharges of waste that can create conditions of pollution or nuisance from conveyances that are within their ownership or control under state law predates the enactment of Article XIIIB, Section (6) of the California Constitution.

Objectives of the 2012 MRP

The requirements in the Permit and 2012 MRP are intended to focus the City's monitoring efforts on obtaining information the City can use to help understand the link between stormwater management actions and stormwater discharge quality, and between stormwater management actions and receiving water quality. The MRP includes four elements to achieve this:

1. Urban Catchment Action Level Pilot Projects Monitoring
2. Stormwater Discharge Trend Monitoring
3. Receiving Water Monitoring
4. Background Receiving Water Monitoring

Urban Catchment Action Level Pilot Projects Monitoring:
The purpose of Urban Catchment Action Level Pilot Projects is to assess the water quality of discharges from representative urban catchments in relation to Stormwater Discharge Action Levels identified in the Permit. The monitoring serves both as a means of assessing municipal stormwater management program effectiveness, and to provide triggers for specific actions the City must take in response to exceedances Action Levels. These actions include conducting source analyses, reviewing current BMPs for compliance with the Maximum Extent Practicable (MEP) standard, and modifying BMPs to achieve the MEP standard for relevant pollutants. Beginning in 2014, the City monitored four catchments for this element of the MRP.

Stormwater Discharge Trend Monitoring:
The purpose of the Stormwater Discharge Trend Monitoring requirements is to discern changes in stormwater discharge quality over time. Trends are expected to be statistically detectable over a five-year (or longer) time frame. To obtain sufficient samples for statistical trend analysis while controlling overall costs of monitoring, the monitoring is limited to a single outfall at the Salinas River stormwater Pump Station (309U19). The pump station is located at the downstream end of a 1,660-acre catchment draining approximately 13% of the Permit coverage area.

The City initiated sampling at the Pump Station (309U19) in 2006 via grab sampling, but per the 2012 Permit MRP, the City was required to discontinue grab sampling and instead obtain flow-weighted composite samples. The City therefore instrumented the site with an ISCO 5800 automated sampler, refrigeration unit and digital flow meter and commenced automated sampling. However, under the 2012 Permit MRP, of 37 samples collected from this site, only 7 (20%) have been flow-weighted composites due to operational issues with the sampler, including:

- Challenging physical site conditions including: difficult access to maintain location of sample intake; large amount of trash and debris available to clog intake valve or bias velocity readings; very long tubing and large vertical pull approaching recommended limits of 99-ft horizontal and 28-ft of vertical change for proper operation, per ISCO

manual. Burned out pump and cracked tubing are evidence of challenges to proper operation.
- Pre-event maintenance may not have been conducted as well as needed in the past. Pre-event maintenance is critical to ensure unit is operational, not clogged and programmed correctly prior to targeted event.
- Required expertise to properly program the composite schedules to align with the site hydrology and expected flow conditions for each event. This is learned information that requires expertise and commitment to understand site response to storm predictions.

Receiving Water and Background Receiving Water Monitoring:
In the Receiving Water Monitoring elements of the 2012 MRP, the City is required to conduct monitoring in upstream (background) and downstream receiving waters. Since it is the overall purpose of municipal stormwater regulations to protect receiving water quality, it is essential that Permittees understand the current condition of – and changes to – receiving waters over the long term. Over the short term, receiving water monitoring has limited value for stormwater management decisions in the Permit coverage area due to the variety of inputs and the Permittee's limited ability to control many of these inputs. Over the long term, however, receiving water trend information is crucial to understanding the linkage between stormwater management activities and receiving water conditions. If developed from a well-designed and implemented monitoring program and analyzed appropriately, the City could use receiving water trend information to determine how urban runoff is affecting receiving water quality over time. The same information could potentially indicate whether stormwater management actions are effective.

The Permit thus establishes receiving water monitoring requirements designed to help answer the question: "are receiving water conditions improving, declining, or static?" The monitoring requirements do not attempt to characterize the full variability of the aquatic system (e.g., temporal, spatial, biological, physical, and chemical parameters), but instead provide baseline and long term trend information for a limited set of parameters including key indicators of biological health.

As required by the 2003 Permit, the City began implementing Receiving Water Monitoring in August 2006 and continued with an expanded parameter suite under the 2012 Permit. A substantial data set characterizing receiving water conditions in the City now compliments data sets from other monitoring programs describing conditions around the City, including CCAMP, SWAMP, and the Cooperative Monitoring Program for Agriculture. The City's receiving water data through 2016 show continued variability in pollutant concentrations over the ten plus-year monitoring record. This variability applies as well to results from the upstream/downstream monitoring though for most parameters, downstream concentrations are lower and there are fewer exceedances of key water quality objectives than upstream.

Proposed Changes to MRP

The City's review of monitoring data and operational factors relating to implementation of the 2012 MRP lead it to propose modifications in its Annual Reports for Permit years 2013-2014 and 2014-2015. Central Water Board staff evaluated monitoring data and Annual Reports and finds modifications to the MRP are in order.

The proposed revisions to the City's stormwater monitoring program are expected to more efficiently address the primary concerns of urban stormwater programs, which include: 1) water

quality conditions in waters affected by urban runoff, and 2) informed program management, including the effectiveness of management actions. As such, the proposed revisions do not change the objectives of the 2012 MRP. The primary purpose of the proposed modifications is to improve the precision of measurements of pollutant loading and runoff volume.

The proposed revisions are summarized by the following five items:

1) Implement high precision urban catchment monitoring of hydrology and pollutant loading in urban catchments
2) Commence grab sampling in place of automated sampling at Pump Station stormwater outfall location 309U19
3) Coordinate Background Receiving Water monitoring with Cooperative Monitoring Program for Agriculture
4) Add specific parameters and remove others to address emerging contaminants and improve characterization of urban runoff and receiving water quality
5) Conduct specific analysis of stormwater outfall trend monitoring data

The proposed revisions are described in detail below for each component of the MRP. Because Central Coast Water Board staff proposes no changes beyond those described below, Central Coast Water Board staff is not preparing a revised version of the entire 2012 MRP. The Executive Officer's approval will include the following revisions.

Urban Catchment Action Level Pilot Projects and Stormwater Discharge Trend Monitoring

Changes to the Urban Catchment Action Level Pilot Projects and Stormwater Discharge Trend Monitoring components of the 2012 MRP are proposed to improve efficiencies for both components and allow for higher precision sampling that will enable pollutant load and discharge volume quantification. Table 1 lists the locations for discharge trend monitoring, and Table 2 describes the specific changes to sampling analysis and frequency and compares them to existing 2012 MRP requirements.

Sampling Locations

Table1. Locations for Stormwater Discharge Trend Monitoring

Outfall ID	Drainage Area (acres)	% of MS4 area
RD-1200	184	1%
CL-3000	346	3%
CP-518	234	2%
309U19	1,664	13%

The proposed MRP includes changes to monitoring locations, including:

1. Urban Catchment Action Level Pilot Project sampling will go from four to three locations, retaining two of the existing locations, RD-1200 and CL-3000, and adding a new location CP-518. Each catchment is representative of a different mix of land uses. CP-518 is a mix of commercial and residential with a limited amount of manufacturing; CL-3000 in a mix of manufacturing and residential with a limited amount of commercial land use; RD-1200 is dominated by commercial and manufacturing with a lesser amount of residential;
2. Stormwater Discharge Trend sampling will go from just one location – the existing Pump Station site (309-U19) – to four in total, including the three stations used for Urban Catchment Action Level Pilot Project.

In March/April 2017, the City screened 14 urban outfalls that terminate and discharge to Salinas receiving waters. Of those 14, three were prioritized as feasible to instrument and monitor precisely and cost effectively. Each outfall drains urban catchments with high or very high runoff and/or pollutant loading priorities as identified using modeled loading estimates. Maps of urban catchments and contributing land use of the three outfalls are attached. Monitoring of these outfalls in addition to the Pump Station site 309U19 is proposed to begin October 1, 2017 and continue for a 5-year period.

Sample Type

Based on the following considerations, the proposed MRP would discontinue automated sampling at 309U19 and implement grab sampling:

1) Challenges to automated operation of the automated sampler at this location (see above)
1) The duration and primary method of sample collection (90% grab) at this location (2006 – 2017)
2) Pending alteration to pump station operation from implementation of the Pure Water Monterey project (a significant volume of stormwater runoff will be diverted from discharge to Salinas River and sent to treatment facilities, then to groundwater)
3) The cost required to ensure the automated sampler is properly maintained and programmed

Grab samples from the first flush will be collected annually. The samples will be submitted to laboratory for constituents as described in Table 2.

Automated sampling would commence at three stations: RD-1200, CL-3000, and CP518. This modification would make possible high precision monitoring of hydrology and pollutant loading from three urban catchments. The key elements of this approach include:

- Temporally intensive stormwater hydrology monitoring (10-minute intervals) at selected outfalls of urban drainages to capture the extreme variability of urban runoff
- Collection of stormwater samples using protocols that reduce the sampling error and pollutograph variability introduced by manual grab sampling methods
- Integration of local precipitation data to correct pollutant load time series for variability in precipitation
- Consistent implementation for 5 years as water quality improvement actions within the contributing urban catchments are implemented, maintained and adaptively managed

The foundational element of this approach is the intensive hydrology monitoring, which includes continual discharge measurement at 10-minute intervals. This method requires:

- Stage recorders with data loggers secured to base of outfall culvert at downstream end. No effect on culvert flow capacity will occur.
- Two recorders to protect against data gaps. Units obtain stage and temperature data every 10 minutes for the duration of monitoring.
- Survey of culvert slope to develop associated stage-to-discharge rating curve.

Automated event-based sample collection is precise and repeatable and requires:

- Passive samplers installed to collect water samples on rising limb of hydrograph
- Custom fabrication of secure housing external to culvert with no effect on culvert flow capacity
- Four strategically placed vertical ports into culvert to obtain discrete water samples at known stage/discharge values based on site survey. Up to four samples obtained per event

- Passive sampler bottle sizing and material corresponds with analytical requirements

Local Precipitation Data

Proper evaluation of trends in volume and pollutant loads discharged from the urban outfalls requires analytical methods that constrain the variability in precipitation over the monitoring period. A meteorological station, Cooperative Observer Network station 047668 (Salinas 2E), located in the southwestern area of the City is assumed to be representative of the major precipitation pattern for the selected urban catchments. This meteorological station has been in operation since 1958 and is a reliable source of quality precipitation data. Daily precipitation totals are available via direct download from the Western Regional Climate Center.

Parameters and Frequency

The conversion to a more precise sampling program at three Stormwater Discharge Trend locations will increase costs over the 2012 MRP. The additional costs are partially off-set by changing the frequency of parameter analyses. For example, under the 2012 MRP, the City collects and analyzes a composite of five discrete samples for copper and zinc from three storms each year, including the first flush. When the automated sampler is functioning properly, the City collects the sample at the Pump Station (309U19). Under the proposed MRP, the City will only sample the first flush and conduct analysis on a composite of up to four discrete samples. But the City will do this at three locations and take a grab sample from a fourth, the Pump Station. Note however, that the proposed MRP includes additional metals for analysis in these samples, including arsenic, cadmium, and lead. And in addition to pyrethroid pesticides, the proposed MRP includes the pesticide Fipronil because it is widely used in urban areas and it is a known cause of toxicity in receiving waters.

Other modifications to sampling frequency and parameters are proposed for the Stormwater Discharge Trend and Receiving Water Monitoring components of the MRP (see Table 2). Taken as a whole, the revisions proposed do not represent a decrease in effort over the 2012 MRP.

Data Analysis and Reporting

Continuous discharge time series data will allow quantification of annual, seasonal and select event runoff volumes discharged from three selected urban catchments. The discharge time series will be adjusted for precipitation variability using the Salinas 2E meteorological station to report precipitation-adjusted runoff volumes and evaluate trends.

First Flush: Event runoff volumes and associated event pollutant mass loading rates will be quantified for all constituents sampled for first flush events. Total rainfall depth that drives first flush events will be quantified using the Salinas 2E meteorological station data. Trends over time will be detected with statistical testing that incorporates factors to account for variations in rainfall and flow such as event discharge, event rainfall totals, antecedent rainfall totals, and hydrograph position. This will increase the City's capacity for isolating the signal of loading changes that are due to management actions rather than these other sources of variability.

Annual Load: All constituent data will be used to determine the event mean concentration (EMC) for each runoff discharge interval for each catchment. EMCs will be used to assign a constituent concentration to all un-sampled flows that occur throughout the water year allowing a precise computation of event and annual loads for the relevant constituents. Precipitation data from the Salinas 2E meteorological station will be used to quantify annual and select event rainfall. These data are necessary to calculate precipitation-adjusted loading rates and evaluate trends discharged to the receiving water from each catchment over time.

Receiving Water Monitoring

As with the outfall monitoring, the combination of changes to sampling frequencies and parameters analyzed in the Receiving Water component of the proposed MRP do not represent a decrease in effort over the 2012 MRP. The City will continue to conduct receiving water monitoring at the existing Rec Ditch receiving water site (309ALD) over the 5-year term of the MRP. Background Receiving Water sites 309NAD and 309GAB are currently included in the Ag Cooperative Monitoring Program. Since the Cooperative Monitoring Program (CMP) for Agriculture is sampling and analyzing the majority of constituents under the MRP, the City has the option of coordinating with the CMP to ensure continuation of the current monitoring. In that instance, the City must ensure analysis and reporting on fecal coliform done at stations 309NAD and 309GAB.

Parameters and Frequencies

The proposed MRP eliminates analysis of several organic chemicals no longer in use, not elevated in samples previously analyzed, or more commonly associated with agricultural land use, including: Diuron, glyphosate, simazine, carbaryl, malathion, 2,4-D, Tricolpyr, and Dicamba. Phenolic compounds are also eliminated since they were not elevated in samples previously analyzed. In place of these organics, the proposed MRP includes pyrethroids, Imidacloprid and Fipronil in water.

The proposed MRP includes one additional receiving water location on the Salinas River at Davis Road (309DAV) for biological monitoring. The City would sample once in the permit term in spring to conduct bioassessment. Bioassessment would then occur in two locations (309ALD and 309DAV) and would be expanded to include algae in addition to benthic invertebrates. Adding algae and the additional site, 309DAV, leverages existing monitoring and will contribute to the understanding of the health of receiving waters downstream of the City's discharges. While toxicity and pesticide monitoring is conducted six times per year in spring and early summer by the Department of Water Resources and SWAMP at 309DAV, bioassessment is a data gap that the City's monitoring would fill at that location.

Additional modifications to toxicity testing include changing the test organisms to those with sensitivity to emerging compounds such as Imidacloprid and Fipronil (see Table 2), and reducing the frequency of water and sediment toxicity and organics sampling to once in the five-year MRP term.

The frequencies remain similar, but the timing of wet season sampling will shift from November – May, to October – April to increase the likelihood of capturing the first flush event. This change in timing is supported by the MRP sampling history, which indicates October often includes first flush events and May is usually dry.

REPORTING

Reporting requirements in the 2012 MRP remain unchanged, except for the addition of specific analysis the City will conduct from the new Stormwater Discharge Trend monitoring data. Specifically, the City will report analytical results quantifying annual and event-based pollutant loads and discharge volumes from Stormwater Discharge Trend Monitoring.

Table 2: Comparison of 2012 Permit MRP and Proposed MRP[1]

	2012 PERMIT MRP	PROPOSED MRP
	Urban Catchment Action Level Pilot Projects	**Urban Catchment Action Level Pilot Projects**
Purpose	Assess attainment of Stormwater Discharge Action Levels in 4 large catchments with representative land uses	Assess attainment of Stormwater Discharge Action Levels in 3 large catchments with representative land uses
Locations	Urban Catchment Outfalls: RD-1200 CL-3000 RD-6000 MS-3000	Urban Catchment Outfalls: RD-1200 CL-3000 CP-518
Parameters	Temperature	Temperature
Frequency	2 wet weather, including first flush	Annually, continuous at 10-minute intervals
Parameters	Turbidity	Turbidity
	Fecal coliform	Fecal Coliform
Frequency	2 wet weather, including first flush	Annually, at least three significant rain events each rainy season, including first flush, up to 4 discrete samples per event
Parameters	pH	pH
	Electrical Conductivity	Electrical Conductivity
	Orthophosphate	Orthophosphate
Frequency	2 wet weather, including first flush	Annually, first flush only, up to 4 discrete samples per event
Parameters	Copper (total)	Copper (total)
	Zinc (total)	Zinc (total)
Frequency	2 wet weather, including first flush	Annually, first flush only, composite of up to 4 discrete samples per event

[1] No changes proposed to Analytical Methods or Reporting Limits unless noted.

	Stormwater Discharge Trend	Stormwater Discharge Trend
Purpose	Characterize storm loading of pollutants with sufficient frequency that changes in event mean concentrations and pollutant loads can be detected over time. Uses flow-proportioned intervals composited throughout storm events; each composite consists of a minimum of 5 discrete samples collected throughout the event. Flow volume estimated for entire period of each sampled storm; average pollutant concentrations and total loads reported for each sampled storm.	Characterize storm loading of pollutants with sufficient frequency that changes in event mean concentrations and pollutant loads can be detected over time. Uses automated sampling of rising limb of hydrograph and both discrete and composited sample analysis to calculate precipitation-adjusted loading rates and trends in loads discharged to the receiving water from 3 three catchments. Flow measured continuously at 10-minute intervals.
Locations	Pump Station: 309U19 (flow-interval composite sample)	Urban Catchment Outfalls (flow-interval discrete and composite samples): RD-1200 CL-3000 CP-518 Pump Station: 309U19 (grab sample)
Parameters	Precipitation	Precipitation
	Discharge	Discharge
		Temperature
Frequency	Annually, at least three significant rain events each rainy season, including first flush	Annually, continuous at 10-minute intervals
Parameters	Turbidity	Turbidity
	Fecal and Total Coliform	Fecal Coliform
		TDS
		TSS
Frequency	Annually, at least three significant rain events each rainy season, including first flush, composite of at least 5 discrete samples each event	Annually, at least three significant rain events each rainy season, including first flush, up to 4 discrete samples per event
Parameters	pH	pH
	Hardness	Hardness
	Electrical Conductivity	Electrical Conductivity
	Nitrate + Nitrite (as N)	Nitrate + Nitrite (as N)
	Ammonia, Total	Ammonia as N

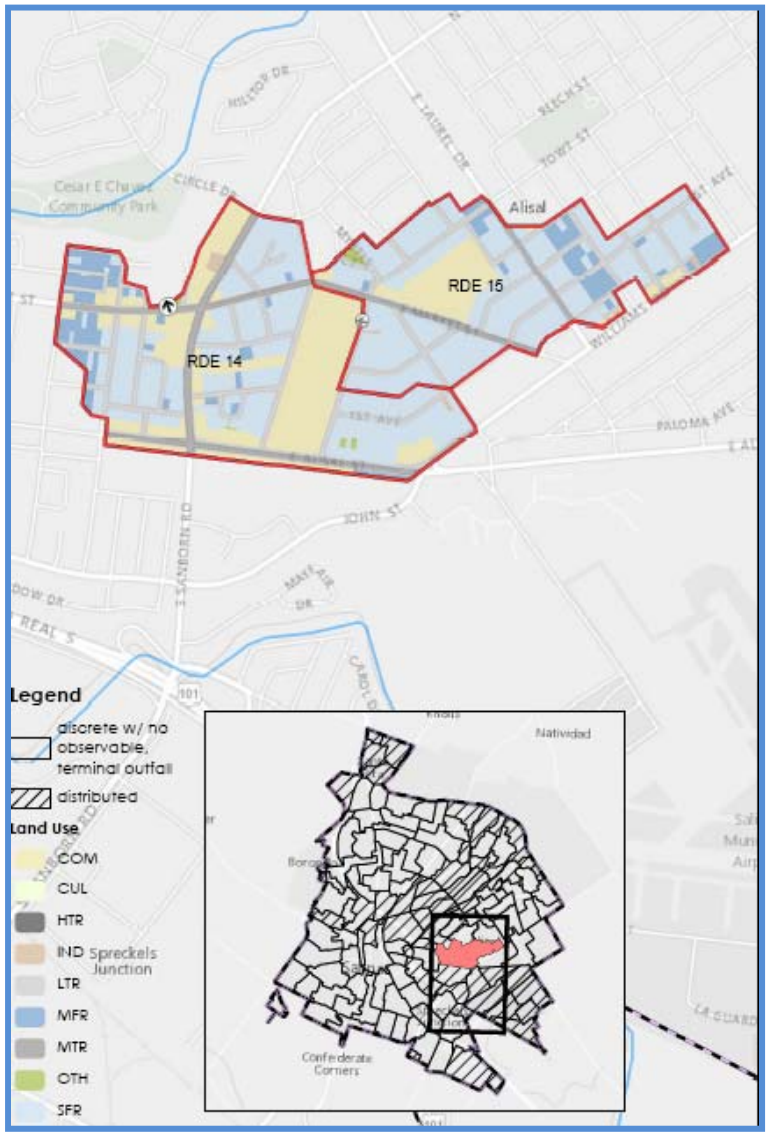
	Ammonia, Unionized[3]	Ammonia, Unionized
	Ortho-phosphate	Orthophosphate
Frequency	Annually, at least three significant rain events each rainy season, including first flush, composite of at least 5 discrete samples each event	Annually, first flush only, up to 4 discrete samples per event
Parameters	Copper (total)	Copper (total)
	Zinc (total)	Zinc (total)
		Arsenic (total)
		Cadmium (total)
		Lead (total)
Frequency	Annually, at least three significant rain events each rainy season, including first flush, composite of at least 5 discrete samples each event	Annually, first flush only, composite of up to 4 discrete samples per event
Parameters	Pyrethroid Pesticides	Pyrethroid Pesticides
		Fipronil
Frequency	Annually, at least three significant rain events each rainy season, including first flush, composite of at least 5 discrete samples each event	Year 1 and Year 5, first flush only, composite of up to 4 discrete samples per event
	Receiving Water	**Receiving Water**
	Coordinated with the Background Receiving Water Monitoring to achieve time-paired sampling at the upstream and downstream sampling sites.	*Coordinated with the Background Receiving Water Monitoring to achieve time-paired sampling at the upstream and downstream sampling sites.*
Purpose	Track status and long-term trends (five years or more) in receiving water (Rec Ditch) quality and beneficial uses.	Track status and long-term trends (five years or more) in receiving water (Rec Ditch) quality and beneficial uses.
Parameters	Photo monitoring (each event)	Photo monitoring (each event)
	Flow (CFS)	Flow (CFS)
	pH	pH
	Electrical Conductivity	Electrical Conductivity
	Dissolved Oxygen	Dissolved Oxygen
	Temperature	Temperature

	Turbidity	Turbidity
	Hardness	Hardness
	Total Dissolved Solids	Total Dissolved Solids
	Total Suspended Solids	Total Suspended Solids
	Total Nitrogen	Total Nitrogen
	Nitrate + Nitrite (as N)	Nitrate + Nitrite (as N)
	Total Ammonia	Total Ammonia
	Unionized Ammonia	Unionized Ammonia
	Total Phosphorus (as P)	Total Phosphorus (as P)
	Orthophosphate	Orthophosphate
	Fecal and Total Coliform	Fecal Coliform
	Copper (total)	
	Zinc (total)	
	Algae cover, Floating Mats, Percent coverage	
	Algae cover, Attached, Percent coverage	
Frequency	Monthly sampling November through May, including two storm events, and in July and September. Storm event sampling shall include the first flush	Monthly sampling October through April, including two storm events, and in July and September. Storm event sampling shall include the first flush
Location	309ALD	309ALD
Parameters	Water Column Toxicity Test	Water Column Toxicity Test
	Water Flea – *Ceriodaphnia dubia* (7-day chronic)	Hyalella Azteca (96-hour). Method: EPA-821-R-02-012
		Chironomus (96-hr)
	Algae -*Selenastrum capricornutum (*4-day)	
	Fathead Minnow - *Pimephales promelas* (7-day chronic*)*	
Frequency	Annually - Once in dry season, once in rainy season, from grab samples	One Year Only - Once in dry season, once in rainy season, from grab samples
Location	309ALD	309ALD
Parameters	Toxicity Identification Evaluation	Toxicity Identification Evaluation
	As directed by Central Coast Water Board Executive Officer	As directed by Central Coast Water Board Executive Officer
Parameters	Pesticides and Herbicides:	
	Diuron	*Discontinued*
	Glyphosate	

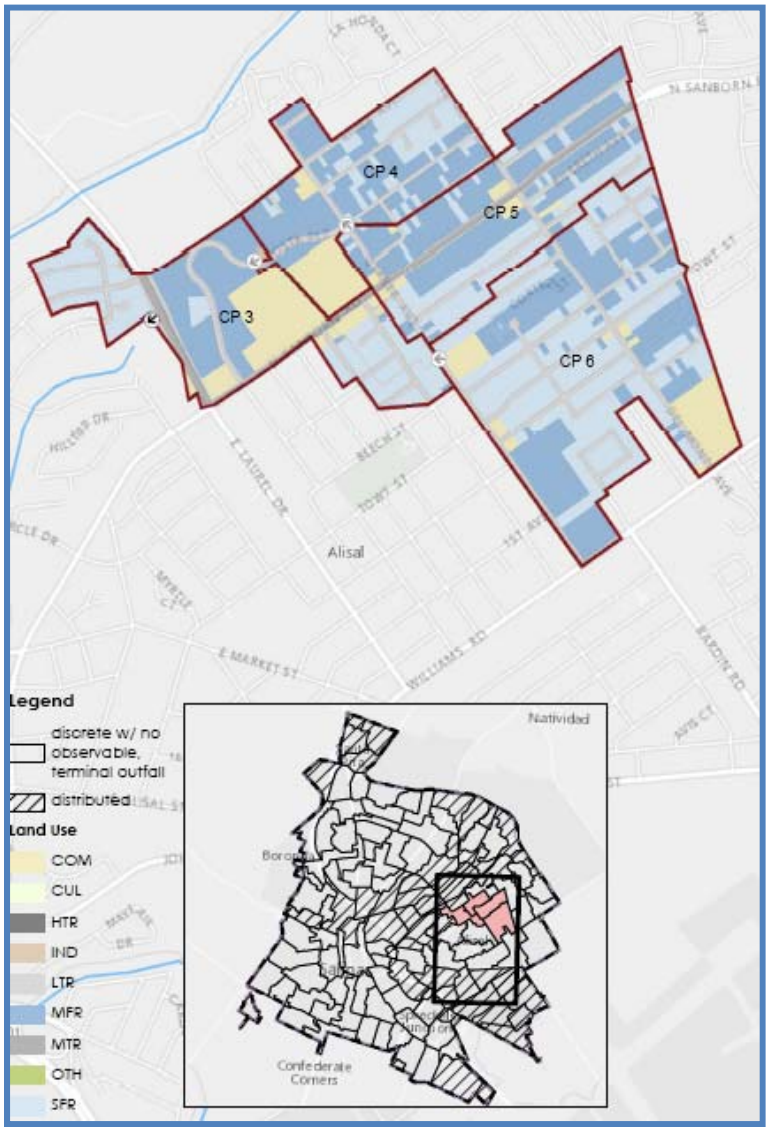
	Simazine	
	Carbaryl	
	Malathion	
	2,4-D	
	Triclopyr	
	Dicamba	
		Pyrethroids
		Imidacloprid
Frequency	Annually, once in dry season, once in rainy season, concurrent with water column toxicity monitoring in Year 2 and Year 4, from grab samples	One Year Only – Once in dry season, once in rainy season, concurrent with water column toxicity monitoring, from grab samples
Location	309ALD	309ALD
Parameters	Arsenic (total)	Arsenic (total)
	Cadmium (total)	Cadmium (total)
	Copper (total)	Copper (total)
	Lead (total)	Lead (total)
	Nickel (total)	Nickel (total)
	Zinc (total and dissolved)	Zinc (total and dissolved)
	Total Phenolic Compounds	
Frequency	Once in dry season, once in rainy season, from grab samples, concurrent with water column toxicity monitoring, during Year 2 and Year 4	One Year Only – Once in dry season, once in rainy season, from grab samples, concurrent with water column toxicity monitoring
Location	309ALD	309ALD
Parameters	Benthic Invertebrate Assessment and Associated Physical Habitat Assessment[5]	Benthic Invertebrate and Algae Bioassessment and Associated Physical Habitat Assessment (SWAMP Standard Operating Procedures)
Frequency	Annually, during May - July	One Year Only - once in spring
Location	309ALD	309ALD 309DAV
Parameters	Sediment Toxicity - Hyalella azteca 10-day	Sediment Toxicity - Hyalella azteca 10-day
Frequency	Annually, concurrent with bioassessment	One Year Only, concurrent with bioassessment
Location	309ALD	309ALD

Parameters	Pyrethroid Pesticides in Sediment	Pyrethroid Pesticides in Sediment
	Sediment Grain Size Analysis	Sediment Grain Size Analysis
	Total Organic Carbon	Total Organic Carbon
Frequency	Year 2 and Year 4, concurrent with bioassessment	One Year Only, concurrent with bioassessment
Location	309ALD	309ALD
	Background Receiving Water	**Background Receiving Water**
	Coordinated with Receiving Water Monitoring to achieve time-paired sampling at upstream and downstream sites.	*Coordinated with Receiving Water Monitoring to achieve time-paired sampling at upstream and downstream sites.*
Purpose	Provide a basis for comparing pollutant loads between points upstream and downstream of the Permit coverage area	Provide a basis for comparing pollutant loads between points upstream and downstream of the Permit coverage area
Location	Upstream of urban influences: Gabilan Creek: 309GAB Natividad Creek: 309NAD	Upstream of urban influences: Gabilan Creek: 309GAB Natividad Creek: 309NAD
Parameters	Nitrate + Nitrite (as N)	Nitrate + Nitrite (as N)
	Orthophosphate	Orthophosphate
	Zinc (total)	Zinc (total)
	Copper (total)	Copper (total)
	Fecal Coliform	Fecal Coliform
	Flow	Flow
	Hardness	Hardness
Frequency	Monthly sampling November through May, including two storm events, and in July and September. Storm event sampling shall include the first flush	Monthly sampling October through April, including two storm events, and in July and September. Storm event sampling shall include the first flush

Catchment CP-518



Catchment CL-3000



Catchment RD-1200