

[Add the Name of Individual]

Monitoring and Reporting Program Plan

Prepared by: **[Insert Name Here]**

[DATE]

(Note: Instructions are given in bold italic type. Make sure to complete all underlined sections and remove the underlining upon completion. Also, erase the instructions as you complete the MRP for your specific project.)

Please read the entirety of this document. This document describes the responsibilities of the enrollee to meet the monitoring and reporting requirements under the Conditional Waiver of Waste Discharge requirements for Discharges from Irrigated Lands within the Los Angeles Region (Order No. R4-2016-0143).

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1.0 PROJECT PERSONNEL

If there are any changes regarding project personnel the Regional Board will be notified and this document will be updated.

Title	Name (Affiliation)	Phone Number
Operation Manager	<u><i>[Insert name and affiliation]</i></u>	<u><i>[Insert number]</i></u>
Primary Field Sampler	<u><i>[Insert name and affiliation]</i></u>	<u><i>[Insert number]</i></u>
Laboratory Manager	<u><i>[Insert name and affiliation]</i></u>	<u><i>[Insert number]</i></u>
Laboratory QA/QC officer	<u><i>[Insert name and affiliation]</i></u>	<u><i>[Insert number]</i></u>
Environmental Scientist	Snejana Toneva Regional Board Staff	213-576-7159

2.0 INTRODUCTION

The Los Angeles Regional Water Quality Control Board (Los Angeles Regional Board) is a State of California agency that regulates water quality within the coastal watersheds of Ventura and Los Angeles Counties under the authorities of the Federal Clean Water Act and State Porter Cologne Water Quality Control Act. The area under the jurisdiction of the Los Angeles Regional Board is known as the Los Angeles Region.

In the Los Angeles Region, irrigated crops are the dominant agricultural land use. Water quality impacts associated with agriculture can be primarily traced to discharges resulting from irrigation water or stormwater. These discharges typically contain pollutants that have been imported or introduced into the irrigation or stormwater; in addition irrigation practices can mobilize and or concentrate some pollutants. In order to prevent these potentially polluted discharges from impacting the beneficial uses of water bodies within the Region the LA-Regional Board developed a Conditional Waiver for Irrigated Lands as mandated by recent changes in state law and policy.

On April 14, 2016 the Los Angeles Regional Water Quality Control Board adopted a Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands within the Los Angeles Region (Order No. R4-2016-0143). The goal of this program is to protect and improve water quality and attain water quality objectives in the receiving water bodies. This program has been adopted in its current format for 10 years. As a condition of the Conditional Waiver program, individual dischargers are required to develop monitoring programs to assess the impacts of discharges from irrigated lands.

The purpose of this Monitoring and Reporting Program (MRP) plan is to monitor and report the discharge of the constituents in irrigation return flows/tile drains and stormwater shown in Table 1. This MRP plan describes the monitoring efforts that will be undertaken by ***[insert name here]*** for compliance with the Conditional Waiver, Order No. R4-2016-0143. Section 1 of this document included the approval and personnel page; Section 2 is the introduction. The following sections are outlined as follows.

Section 3 - Description of Agricultural Operation

Section 4 - Monitoring Locations, Constituents, and Sample Collection

Section 5 - Project Tasks and Schedule

Section 6 - Field and Laboratory Methods

Section 7 - Data Management and Reporting

3.0 DESCRIPTION OF AGRICULTURAL OPERATION

[Please provide a description of the agricultural operation. Include the following information:

- ***Location***
- ***Size***
- ***Land use – crop and cultivation practices***

- **Fertilizer application practices**
- **Summary of current pesticide use (including top 5 pesticides applied by volume and 5 most frequently applied pesticides).**
- **Water supply and irrigation practices**

Please provide a description of nearby waterbodies (including cement lined channels).]

4.0 MONITORING LOCATIONS, CONSTITUENTS, AND SAMPLE COLLECTION

[The number and location of monitoring sites must be based on site-specific characteristics and be supported by scientific rationale and a detailed discussion of the drainage characteristics of the site. Monitoring sites must be selected to adequately characterize the majority of the discharge from the agricultural operation, based on its typical discharge patterns, including tail water discharges, discharges from tile drains, and stormwater runoff.]

SAMPLING SITES

[Please provide the physical address and/or GPS coordinates (latitude and longitude) of the sampling sites.]

<i>[Add more rows if necessary]</i>

[Please describe the scientific rationale for the sampling site selection process. Example: “Based on the general hydrology of the site the lowest point of discharge for water to leave the site was chosen as the sampling location.”]

TYPE OF DISCHARGE

Discharge generated from the sampling sites

- irrigation and stormwater runoff
- stormwater runoff only

[Please attach a map that shows the location of the agricultural operation and proposed monitoring site(s). Examples of maps that can be used would be a copy of the appropriate Thomas Guide page (or other street map), or printed topographic map from a web site such as www.topozone.com, www.earth.google.com. It is copiers' responsibility that permission is granted and the copy is in compliance with copyrights. The location of the sampling site(s) should be marked on the map along with nearby potentially affected waters of the state. Waters of the state include cement lined and other flood control channels. A hand drawn map depicting the property and the location of sampling site(s) will be accepted along with the street map or topographic map.]

CONSTITUENTS MONITORED

Table 1 presents the constituents that will be monitored at each monitoring site.

Table 1 Constituents to be monitored

CONSTITUENT	UNIT
Flow	CFS (Ft ³ /Sec)
PH	pH units
Temperature	°F
Dissolved Oxygen	mg/L
Turbidity	NTU
Total Dissolved Solids	mg/L
Total Suspended Solids	mg/L
Hardness (as CaCO ₃)	mg/L

CONSTITUENT	UNIT
Chloride	mg/L
Ammonia	mg/L
Nitrate-Nitrogen	mg/L
Total Nitrogen	mg/L
Phosphate	mg/L
Total Phosphorus	mg/L
Sulfate	mg/L
Total Copper	µg/L
Trash ¹	Observations
Toxaphene	µg/L
Pyrethroids ²	µg/L
Toxicity ³	TU _c ⁴
<i>E. coli</i>	MPN/100 mL
Organophosphate Suite ⁵	µg/L
Organochlorines Suite ⁶	µg/L

The chronic toxicity testing will be conducted for three test species: fathead minnow, ceriodaphnia (water flea) and green algae. After one toxicity sample has been collected and analyzed in the first year, the most sensitive species will be selected for subsequent toxicity monitoring.

¹ Methods used in previously approved MRPs under Order No. R4-2010-0186 or adopted Trash TMDLs may be used. The assessment methodology should produce consistent results across watersheds and across counties.

² Pyrethroid Pesticides include: allethrin, bifenthrin, cyfluthrin, cypermethrin, danitol, deltamethrin, esfenvalerate, fenvalerate, lambda-cyhalothrin, permethrin, and prallethrin

³ If toxicity tests indicate the presence of significant toxicity in the sample, Toxicity Identification Evaluation (TIE) procedures shall be initiated to investigate the cause of toxicity. For the purposes of triggering a TIE, significant toxicity is defined as at least 50% mortality.

⁴ Chronic Toxic Unit is the reciprocal of the sample concentration that causes no observable effects on the test organism by the end of a chronic toxicity test.

⁵ Organophosphate Suite: Bolstar, Chlorpyrifos, Demeton, Diazinon, Dichlorvos, Dimethoate, Disulfoton, Ethoprop, Fenchlorophos, Fensulfothion, Fenthion, Malathion, Merphos, Methyl Parathion, Mevinphos, Phorate, Tetrachlorvinphos, Tokuthion, Trichloronate

⁶ Organochlorine Suite: 2,4' – DDD, 2,4' – DDE, 2,4' DDT, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Aldrin, BHC-alpha, BHC-beta, BHC-delta, BHC-gamma, Chlordane-alpha, Chlordane-gamma, Dieldrin, Endosulfan sulfate, Endosulfan-I, Endosulfan-II, Endrin, Endrin Aldehyde, Endrin Ketone

[Please add any of the following constituents for specific subwatersheds to Table 1 as appropriate for your agricultural operation location.]

Subwatershed	Constituent	Units
Calleguas Creek - Reach 2 Revolon Slough Mugu Lagoon	Nickel	µg/L
Calleguas Creek - Reach 2 Revolon Slough Mugu Lagoon	Selenium	µg/L
Calleguas Creek - Reach 2 Revolon Slough Mugu Lagoon	Mercury	µg/L
Mugu Lagoon Calleguas Creek Revolon Slough Arroyo Las Posas Arroyo Simi Conejo Creek	In Sediment: PCBs Chlordane Dieldrin Toxaphene 4,4 DDD 4,4 DDE 4,4 DDT	ng/g
Simi Revolon Slough	Boron	mg/L
Channel Islands Harbor	Total Coliform Fecal Coliform Enterococcus E. coli	MPN/100 mL
Santa Clara River	Total Coliform Fecal Coliform Enterococcus E. coli	MPN/100mL
Santa Clara River Estuary	In Water: Chlordane Dieldrin Toxaphene	µg/L
	In Suspended Sediment¹ Chlordane Dieldrin Toxaphene	µg/kg
Malibu Creek Watershed – Hidden Valley Creek	Total Nitrogen Total Phosphorus	mg/L
Santa Clara River Bacteria TMDL	Total Coliform Fecal Coliform Enterococcus	MPN/100 mL

be collected as grabs, by wading and filling the container directly. Alternative methods including extension of sampling devices from the bank will be used where needed, following SWAMP procedures. All containers should be provided by the laboratory and shall be rinsed three times with ambient water except for any container that contains preservative. Devices will be decontaminated prior to collection at each sampling site. If sampling devices have to be used, it will be noted in the field data sheet. Field operators will fill out the Sampling Log part of the data sheet immediately after sampling. Water samples will be stored appropriately and delivered to the laboratory for analysis within 24 hours of sample collection.

QUALITY ASSURANCE QUALITY CONTROL

In addition to regular samples, field blanks and field duplicates will be used to ensure data quality. Likewise the laboratory will employ the use of equipment blanks and matrix spikes. Quality assurance and quality control (QAQC) measures will be conducted at a frequency of about 1 per 20 normal samples, or 1 per sampling event, whichever is greater. The laboratory will report the results from QAQC samples along with the results of the regular field samples.

5.0 PROJECT TASKS AND SCHEDULE

The monitoring required by the Conditional Waiver program will be conducted annually after issuance of a Notice of Applicability by the Executive Officer of the Regional Board. The monitoring frequency is set at 2 sampling events (1 wet season and 1 dry season) per year. The wet-season samples shall be collected within the first 24 hours of a storm with greater than 0.5 inch rain as measured by the nearest National Weather Service rain gauge, to the extent practicable. Practical constraints on wet season sampling events include but are not limited to (1) lab closures on weekends and holidays, (2) sample holding times, and (3) safety of the monitoring team. Dry-season samples shall be collected after the site has applied pesticides or fertilizers and during an irrigation event. If there is no runoff at the monitoring site, then the observation shall be documented with

photos showing the occurrence of irrigation and the lack of runoff at the monitoring site.

The primary tasks presented in this MRP plan are monitoring and the reporting of the monitoring results to the Regional Board. Table 2 shows an anticipated schedule for when monitoring will be conducted and when annual reports demonstrating the monitoring results are due to the Regional Board.

Table. 2 Schedule for Monitoring and Reporting				
Task	Schedule	Sampling Schedule		
		Wet Season	Dry Season	Sampling Events/Season
Submit NOI, MRP, QAPP	October 14, 2016			
Receive NOA from Regional Board	January 2017			
Conduct Monitoring - year 1		Oct. 15, 2016 - May 15, 2017	May 15 - Oct. 15, 2016	1
Submit Annual Monitoring Report - year 1	January 2018			
Conduct Monitoring - year 2		Oct. 15, 2016 - May 15, 2017	May 15 - Oct. 15, 2017	1
Submit Annual Monitoring Report - year 2	January 2019			
Conduct Monitoring - year 3		Oct. 15, 2017 - May 15, 2018	May 15 - Oct. 15, 2018	1
Submit Annual Monitoring Report - year 3	January 2020			
Conduct Monitoring - year 4		Oct. 15, 2018 - May 15, 2019	May 15 - Oct. 15, 2019	1
Submit Annual Monitoring Report - year 4	January 2021			
Conduct Monitoring - year 5		Oct. 15, 2019- May 15, 2020	May 15 - Oct. 15, 2020	1
Submit Annual Monitoring Report - year 5	January 2022			

6.0 FIELD AND LABORATORY METHODS

FIELD METHODS

Methods for sample collection in the field will be done according to SWAMP procedures.

LABORATORY METHODS

Please provide the contact information for the laboratory that has been retained to conduct sample analysis. The laboratory shall be certified by the California Department of Health Services.

Name	
Address	
Phone	Contact Name
DHS Laboratory Certification No.	Expiration Date

Analytical methods and detection limits for each constituent shall be US EPA Standard or Approved Methods, examples include the following:

- *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater (EPA-600/4-85 054)*
- *U.S. EPA Methods for Chemical Analysis of Water and Wastes (EPA-600/4-79-020, third edition, 1983)*
- *Methods for Determination of Organic Compounds in Drinking Water (EPA-600/4-88/039)*
- *Standard Methods for the Examination of Water and Wastewater*
- *USEPA. 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition. Office of Water, Washington, D.C. EPA-821-R-02-012*

- *USEPA. 2002. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition. Office of Water, Washington, D.C. EPA-821-R-02-013.*
- *USEPA. 1994. Methods for Measuring the Toxicity and Bioaccumulation of Sediment-associated Contaminants with Freshwater Invertebrates. Office of Research and Development, Washington, D.C. EPA-600-R-94-024.*

7.0 DATA MANAGEMENT AND REPORTING

With each sampling event there shall be a field data/sample log sheet. **[An example is provided at the end of this template]** A copy of this document will be retained in the discharger's records and a copy shall be submitted to the Regional Board along with the monitoring results. The discharger shall also retain a copy of the monitoring results for his/her records. An Annual Monitoring Report will be submitted to Regional Board for approval by the Executive Officer.

The Annual Monitoring Report will include the following Sections:

1. Title page
2. Table of contents
3. Description/Summary of Agricultural Operation
4. Monitoring objectives
5. Sampling and analytical methods used, submitted in a tabular format
6. For each monitoring site:
 - a. Site description, including photographs
 - b. Location map of sampling site(s), including GPS coordinates and map(s) of sampling site(s)
 - c. Parameters monitored and frequency
 - d. Tabulated results of analyses
 - e. Data interpretation including assessment of compliance and/or noncompliance with Water Quality Benchmarks and/or discharge limitations
 - f. Results of toxicity tests and results of TIE, where performed
7. Copy of chain of custody, submitted electronically
8. Associated laboratory and field quality control samples results
9. Summary of precision and accuracy
10. Quality control data interpretation, including assessment of data quality objectives

11. If Water Quality Benchmarks are not attained as demonstrated by monitoring, the AMR shall include a statement of intent to prepare a WQMP within six months to address all benchmark exceedances.
12. Documentation that education requirements have been fulfilled

Analytical data from the laboratory shall be reported with one of the following methods, as the case may be:

1. An actual numerical value for sample results greater than or equal to the practical quantification limit (PQL); or
2. "Detected, but Not Quantified (DNQ)" if results are greater than or equal to the laboratory's method detection limits (MDL) but less than the PQL. The estimated chemical concentration of the sample shall also be reported; or
3. "Not-Detected (ND)" for sample result less than the laboratory's MDL with the MDL indicated for the analytical method used.

The PQL employed for an effluent analysis shall be lower than the benchmark value established for a given parameter, unless the discharger can demonstrate that a particular benchmark limit is not attainable and obtains approval for a higher limit from the Executive Officer.

Los Angeles Region Conditional Waiver for Irrigated Lands

Field/Sample Log

Operation Name: _____ Sampling Event: DRY WET (circle one)

Date: _____ Sampling Personnel (print and sign): _____

Weather Conditions: _____ Organization: _____

Sample Number	Sample Collected (mark)		Sample Type (Normal/QC)	Time (hhmm)	Sampling Device (grab/other)	Sample Container (glass/plastic)
	Field Measurements	Lab Sample				

If this is a dry weather sampling event and there was no irrigation discharges available for sampling please provide the information below as documentation. Please note that dry weather sampling is required to be conducted after the site has applied pesticides or fertilizers and during an irrigation event near the end of the irrigation cycle.

Date of Irrigation	
Time of Irrigation	
Length of irrigation cycle	
Time of Sample Investigation	

Los Angeles Region Conditional Waiver for Irrigated Lands				Field Data Sheet		
Operation Name:		Address:				
Date:		Weather Conditions:		Crop Type:		
Type of Irrigation:		Stream Width:		Stream Depth:		
Pesticide Application Time/Type:						
Fertilizer Application Time/Type:						
Location of Tributaries:				Sampling Event: DRY / WET (Circle one)		
Sample Number	Location	Flow Rate	Temperature	pH	Dissolved Oxygen	Turbidity
		cfs	°F		mg/L	NTU
Sampling Personnel:						
Organization:		(Print)		(Sign)		