

San Mateo Irrigated Lands Group

Monitoring and Reporting Program Plan

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Appendix A. SWAMP Standard Operating Procedure (SOP) and Interim Guidance on Quality Assurance for SWAMP Bioassessments

1.0 PROJECT PERSONNEL

Project Personnel

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

<u>Title</u>	<u>Name (Affiliation)</u>	<u>Phone Number</u>
Operation Manager	John Adriany	619-851-4795
Primary Field Sampler	To be determined	
Laboratory Manager	To be determined	
Laboratory QA/QC officer	To be determined	
Environmental Scientist	To be determined	

2.0 INTRODUCTION

The San Diego Regional Water Quality Control Board (SD-RWQCB) 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.

In the 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.

Conditional Waiver No. 4 governs discharges from agricultural and nursery operations. It is presumed that certain materials can percolate to groundwater or runoff to surface

waters. These discharges from agricultural and nursery operations include discharges resulting from growing operations, irrigation return flows, and storm water runoff which can transport pollutants from agricultural and nursery operations to surface waters and groundwater.

By January 1, 2012, each monitoring group and each individual operation not in a monitoring group must submit one MRPP/QAPP to the San Diego Water Board.

The MRPP/QAPP must include the monitoring locations, frequency of monitoring, constituents of concern to be monitored, documentation of monitoring protocols, and sufficient information about the agricultural and/or nursery operations to demonstrate that the proposed MRPP/QAPP will adequately document water quality and pollutant loadings, and demonstrate compliance with waiver conditions.

The purpose of this Monitoring and Reporting Program (MRP) plan is to characterize the watershed in proximity to participating properties. This characterization by any single group is by necessity fragmentary. The location of the project area in relation to rivers with documented impairment is presented in the following figure.

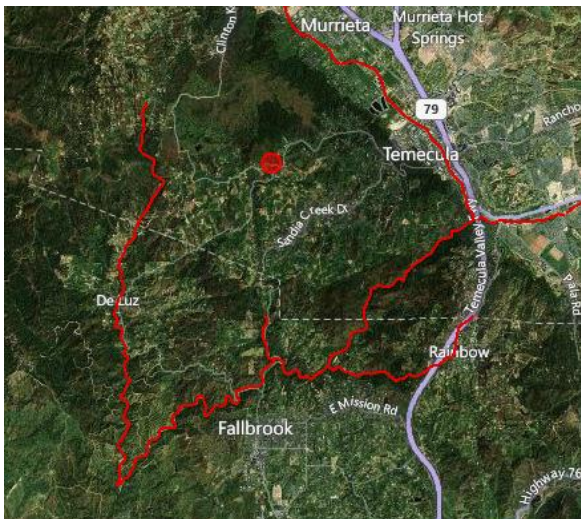


Figure 1 The project area is depicted by the red dot while impacted rivers are denoted as red lines. Impaired rivers are more than 2 miles distant from the project area.

Impaired rivers/streams and estuary in the vicinity

<u>Waterbody Name</u>	<u>Waterbody ID</u>	<u>Location</u>	<u>Waterbody Type</u>	<u>Size</u>	<u>Units</u>	<u>State TMDL Development Status</u>
De Luz Creek	CAR9022100020010924135442		Rivers and Streams	13.5872	miles	
Long Canyon Creek	CAR9028300020011025112509		Rivers and Streams	8.3	miles	
Murrieta Creek	CAR9023200020010924152136		Rivers and Streams	12	miles	
Rainbow Creek	CAR9022200019980803102333		Rivers and Streams	5.01928	miles	
Sandia Creek	CAR9022200019991117132333		Rivers and Streams	1.5	miles	
Santa Margarita Lagoon	CAE9021100019990209155924		Estuary	27.9095	square miles	
Santa Margarita River (Upper)	CAR9022200020011001141050		Rivers and Streams	18	miles	
Temecula Creek	CAR9025100020011025111323		Rivers and Streams	44.1067	miles	

<u>Cause of Impairment</u>	<u>Number of Causes Reported</u>
Iron	4
Total Dissolved Solids (TDS)	4
Manganese	3
Nitrogen	3
Phosphorus	3
Sulfates	2
Eutrophication	1

This MRP plan describes the monitoring efforts that will be undertaken by **San Mateo Irrigated Lands Group** for compliance with the Conditional Waiver, Order No. R9-2011-0020. Section 1 of this document included the approval and personnel page; Section 2 is the introduction.

3.0 MONITORING LOCATIONS

Area 1 – San Mateo Road

The corner of El Prado Road and Calle Mateo represents the geographical center of three adjoining properties planted with avocados. A fourth property also planted with avocados lies off Carancho Road on Corte Bonita. A table of owner/operators of participants is presented in 3.0. The location of the four tracts is presented in 3.1.

The primary crop is avocados, with nearly 15.5 acres planted on three abutting properties. The three properties also are planted with citrus, the aggregate acreage is small less than 3.5 acres. The fourth property, located on Corte Bonita is planted with 8 acres of avocados.

An assessment of runoff and non-point source pollution from tree crop agricultural operations was conducted for each of the properties. The assessment was included in The Notice of Intent to enroll submitted to the SD-RWQCB in December 2010.

Generally emitters on timers limit the volume of return water. Fertilization is by a triple 15 product. BMPs to control the entrainment of sediment were instituted.

Area 2 – Corte Bonito

The property lies to the north of De Luz Road at the southern extent of Corte Bonito. Irrigated crops consist of 8 acres of avocados. An assessment of runoff and non-point source pollution from tree crop agricultural operations was conducted for each of the properties. The assessment was included in The Notice of Intent to enroll submitted to the SD-RWQCB in December 2010.

Key features of the assessment included; the use of emitters on timers limit the volume of return water, fertilization is by a triple 15 product, the use of BMPs to control the

entrainment of sediment, lined conveyances for stormwater were installed to address sediment entrainment and transport.

TYPE OF DISCHARGE

Discharge generated from the site is from stormwater runoff.

Rapid percolation of irrigation water is accommodated by coarse soils, and drip irrigation application lessens the rate of application; consequently irrigation return is not anticipated to be a source of runoff. A walking survey of the properties corroborated this expectation. Photos were taken to document the surface hydrology of the properties.

Steep terrain, impervious tarmac and shallow open channel storm water conveyance bring substantial volumes of water across the properties.

SAMPLING SITE

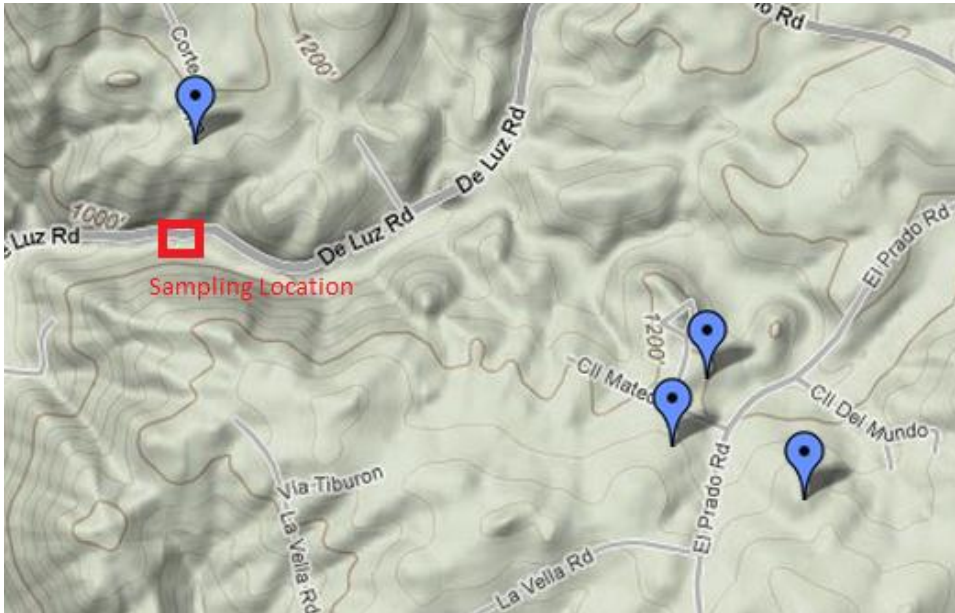


Figure 2. Sampling location relative to participant properties.

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. Participant properties were at elevations more than 200 feet above the De Luz Creek sampling point.

ELEMENTS MONITORED

Table 1 Test Parameter or Field Activity
Nitrate as N (NO ₃)
Nitrite as N (NO ₂)
Nitrogen Total as N
Particulate Nitrogen (PN)
Ammonium as N
Particulate organic carbon (POC)
Dissolved Organic Carbon
Soluble reactive Phosphorus (SRP)
Particulate phosphorus (PP)
Total-P (TP)
Chlorophyll-a
Chloride
Sulfate
TDS - Total Dissolved Solids
TSS - Total Suspended Solids
Algae Ash Free Dry Mass (Algal Density g/m ²)
Algae, Soft community assmt. - Lab Work
Algae, Diatoms community assmt. - Lab Work
Collect sediment & water samples, etc.*
Bioassessment Field Work (algae and benthos and ^PHAB)
Benthic Bioassmt. Lab Work
Water temperature
Dissolved Oxygen
Conductivity
pH
flow velocity and volume
stream width and depth
percent canopy cover over the stream
water turbidity
unshaded solar radiation (cal/cm ² /day)
days of algae accrual in the stream (days since last scour event)

* includes both algae and benthics, also flow measurements, shipping, QA & multiparameter probe

SAMPLE COLLECTION

Sample containers will be cleaned by the laboratory and delivered to the field personnel before each sampling event. The containers will be labeled with the following information:

- Sample ID
- Location ID
- Date
- Time
- Initials of sample collector

The label information will be completed before filling the container with sample water. All samples will 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, again following procedures delineated in SWAMP procedures. Field operators will follow Surface Water Ambient Monitoring Program (SWAMP) Standard Operating Procedures. Detailed information on these procedures will be provided to Operation Managers as needed. 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.

4.0 PROJECT TASKS AND SCHEDULE

A Monitoring Program Report (MRP) must be submitted by December 31, 2012 to the San Diego Water Board.

5.0 FIELD AND LABORATORY METHODS

FIELD METHODS

Methods for sample collection in the field will be done according to SWAMP procedures. SWAMP procedures are included in Appendices A.

LABORATORY METHODS

Laboratories certified by the California Department of Health Services will be selected to perform the testing. The process will begin with the

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.*

6.0 DATA MANAGEMENT AND REPORTING

With each sampling event there shall be a field data/sample log sheet.

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 Monitoring Report will include the following Sections:

1. Introduction: objectives of Annual Monitoring Report
2. Monitoring: samples collected, location, objective and analytical methods
3. Results and discussion:
 - Data presented in clear tabular form
 - Data summarized to demonstrate compliance or noncompliance
 - Data comparison to benchmark values in Conditional Waiver (Order No. R9-2011-0020).
 - Associated laboratory data on QAQC samples
4. Copy of field data/sample log sheet and chain of custody form
5. Affirm in writing that analyses were conducted by a certified laboratory
6. Perjury statement
7. References and appendices, if necessary

San Diego 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)