

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LOS ANGELES REGION**

**APPENDIX 1**

**MONITORING AND REPORTING REQUIREMENTS**

**UNDER**

**ORDER NO. R4-2010-XXXX**

**CONDITIONAL WAIVER OF WASTE DISCHARGE REQUIREMENTS  
FOR  
DISCHARGES FROM IRRIGATED LANDS**

These Monitoring and Reporting Requirements are issued by the Regional Water Quality Control Board, Los Angeles Region (Regional Board) pursuant to Water Code sections 13267 and 13269. As conditioned by the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Conditional Waiver), Order No. R4-2010-XXXX (Order No. R4-2010-XXXX), Individual Dischargers and Discharger Groups (Dischargers) shall develop a Monitoring and Reporting Plan (MRP) to (i) assess the impacts of waste discharges from irrigated lands, and where necessary, (ii) assess the source(s) of wastes, evaluate the effectiveness of management practices, and track progress in reducing the amount of waste discharged that affects the quality of the waters of the State and their beneficial uses and causes nuisance conditions. In order to support the Conditional Waiver program, the monitoring requirements must be able to detect long-term trends over time, assess areas where water quality benchmarks, as defined in the Order, are not attained, and conduct follow-up investigations to better characterize problems areas. The Monitoring and Reporting Requirements presented in this document describe the minimum MRP requirements for compliance with Order No. R4-2010-XXXX. The Executive Officer of the Regional Board may revise these Monitoring and Reporting Requirements based on site-specific conditions for an Individual Discharger or Discharger Group.

The MRP has three basic purposes:

1. to monitor the discharge of wastes in irrigation return flows, tile drains, stormwater, and waters of the state and identify waste sources;
2. where discharges of waste cause or contribute to exceedances of water quality benchmarks or cause pollution or nuisance, to submit a Water Quality Management Plan (WQMP) to implement targeted management practices to reduce or eliminate the discharges of waste; and
3. report results and other required information on an annual basis.

Dischargers shall prepare and submit to the Regional Board for review and approval by the Regional Board Executive Officer an MRP that meets the minimum requirements of this Order, including sites to be monitored, frequency of monitoring, constituents to be monitored, documentation of monitoring protocols, and sufficient information about the irrigated lands to demonstrate that the proposed MRP adequately documents water quality and waste discharges to waters of the state.

As required, Dischargers shall submit a Water Quality Management Plan (WQMP), if a water quality benchmark<sup>1</sup> is exceeded. WQMPs shall contain the necessary information to (1) assess the impacts of waste discharges from irrigated lands to surface waters, (2) quantify and identify waste sources, (3) identify and implement new and/or revised management practices to reduce or eliminate discharges of waste that cause or contribute to exceedances of water quality benchmarks, (4) document the implementation and maintenance of management practices, and (5) document attainment of water quality benchmarks.

## **1 MONITORING AND REPORTING PLAN**

Dischargers shall submit an MRP to the Regional Board for Executive Officer approval six months after adoption of Order No. R4-2010-XXXX. Specifications in these monitoring requirements are subject to periodic revisions. Monitoring requirements may be modified or revised by the Executive Officer based on review of monitoring data submitted pursuant to this Order.

Other Regional Board programs (e.g. TMDLs) may contain requirements similar to the monitoring requirements for Discharger Groups or Individual Dischargers. If such requirements are in place in another regulatory program, the Executive Officer may modify the monitoring tasks of Dischargers to coordinate between Regional Board Programs.

The sections below outline the requirements for the MRP.

### **Monitoring Sites**

Waters of the state receiving discharges from irrigated lands shall be monitored per monitoring plans approved by the Executive Officer. The number and location of monitoring sites must be based on specific watershed characteristics and be supported by scientific rationale and a detailed discussion of drainage characteristics. Several criteria should be used to identify waterbodies and locations for monitoring. These include, but are not limited to the following:

- waterbodies that are on or proposed for the 303(d) list of impaired waterbodies
- waterbodies that have documented beneficial use impairments due to waste discharges associated with agriculture
- size and complexity of watershed
- watershed hydrology
- size of waterbodies
- flow of waterbodies
- previous or existing monitoring locations

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<sup>1</sup> Benchmark is a requirement established by the Regional Board Basin Plan (including discharge prohibitions and applicable narrative or numeric water quality objectives), criteria established by the United States Environmental Protection Agency (including the California Toxics Rule), and load allocations established pursuant to a total maximum daily load (TMDL) (whether established in the Basin Plan or other lawful means). Benchmarks for discharges from irrigated lands are identified in Appendices 2 and 3 of Order R4-2010-XXXX.

- proximity to agriculture operations
- safe all-weather access locations

The MRP shall describe the general drainage area (e.g. land use, crop type, and cultivation practices, which may affect water quality) of each sampling site and provide GPS coordinates for each site. A topographic map that shows the proposed monitoring site(s), the agricultural land with crop type, and potentially affected waters of the state shall also be included as a part of the MRP.

More than one site may be located on tributaries, if required to distinguish and assess agriculturally-sourced inputs from those of other land uses. Dischargers shall sample no more than 50 feet downstream from the location where the discharge(s) enters the receiving water, to the extent feasible; otherwise, sampling shall occur at the nearest feasible downstream location. The number of discharge locations shall be considered when selecting the number and location of sampling sites required.

### **Monitoring Frequency and Seasonality**

The frequency of monitoring shall be, each year, twice during the dry season and twice during the wet season. Toxicity shall be monitored during one wet season event and the second dry-season sampling event each year. Based on a review of annual monitoring reports, the Executive Officer may increase or decrease the frequency of monitoring. Factors that may inform the Executive Officer's evaluation of the monitoring frequency include, but are not limited to, the exceedances or attainment of applicable water quality benchmarks and the effectiveness of any management measures as a result of WQMP implementation.

Monitoring shall be conducted during the dry season and wet season. The dry season is from May 15 to October 15. The wet season is from October 15 to May 15. The wet-season samples shall be collected within 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 monitoring team. The first wet-season samples shall be collected after the first storm of the year. The first dry-season samples will be collected after the majority of growers in a subwatershed have applied pesticides or fertilizers and during the period where irrigation is required.

### **Monitoring Constituents**

Monitoring is required for all constituents list in Table 1. Owners/Operators of irrigated lands discharging to the subwatersheds listed in Table 2 must monitor for the additional constituents specified in the table.

The MRP shall include chronic toxicity testing to evaluate compliance with the narrative toxicity objective in the Basin Plan. Chronic toxicity testing shall be conducted for three test species: *Pimephales promelas* (fathead minnow), *Ceriodaphnia dubia* (water flea) and *Selenastrum capricornutum* (green algae). Once one toxicity sample has been collected and analyzed in the first year, the Discharger shall select the most sensitive

species for subsequent toxicity monitoring. In addition to the three species toxicity screening, the MRP plan may propose the most relevant species for toxicity testing based on pesticide usage, sample nutrient concentrations, and site conditions for consideration by the Executive Officer. If sampling sites are located in tidally influenced areas, alternative species may be selected for toxicity testing, subject to Executive Officer approval.

The results of toxicity testing will be used to trigger further investigations to determine the cause of observed toxicity. 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. This threshold is consistent with the approach recommended in guidance published by US EPA for conducting TIEs (US EPA, 1996b). During the field collection of samples an adequate volume of water to conduct both toxicity tests and TIEs should be collected from each monitoring site.

**Table 1. List of constituents to be monitored Regionwide**

Constituent	Units
Flow	CFS (Ft <sup>3</sup> /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 <sub>3</sub> )	mg/L
Chloride	mg/L
Ammonia	mg/L
Nitrate-Nitrogen	mg/L
Phosphate	mg/L
Sulfate	mg/L
Total Copper	µg/L
Organophosphate Suite <sup>2</sup>	µg/L
Organochlorine Suite <sup>3</sup>	µg/L
Toxaphene	µg/L
Pyrethroids	µg/L
Toxicity	TU <sub>c</sub> <sup>4</sup>
Trash	Presence/Absence

<sup>2</sup> Organophosphate Suite: Bolstar, Chlorpyrifos, Demeton, Diazinon, Dichlorvos, Dimethoate, Disulfoton, Ethoprop, Fenchlorophos, Fensulfothion, Fenthion, Malathion, Merphos, Methyl Parathion, Mevinphos, Phorate, Tetrachlorvinphos, Tokuthion, Trichloronate

<sup>3</sup> 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

<sup>4</sup> 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.

**Table 2. List of constituents to be monitored in specific subwatersheds based on TMDL requirements**

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	Bacteria	MPN/100 mL
Santa Clara River Estuary	In Fish Tissue: Chlordane Dieldrin Toxaphene  In Water: Chlordane Dieldrin Toxaphene	µg/L

If other Regional Board programs (e.g. TMDLs) are used to monitor the constituents in Table 2 the results of that monitoring must be reported in the Annual Monitoring Report required in Section 3 of this document.

### **Santa Clara River Watershed Toxaphene Monitoring**

The SCR Estuary is identified on the 1998, 2002 and 2006 Clean Water Act (CWA) 303(d) list of impaired water bodies as impaired due to toxaphene and a TMDL is required for this waterbody-pollutant combination. This TMDL will be adopted and implemented through requirements contained in Conditional Waiver Order No. R4-2010-XXXX.

In addition to the requirements for all Dischargers covered by the Conditional Waiver, owners/operators of irrigated lands discharging to the Santa Clara River Estuary and the

Santa Clara River Reaches 1 and 2 shall conduct water quality monitoring and implement BMPs, as necessary, to address the toxaphene impairment in the Santa Clara River Estuary. Monitoring and analyses for measuring toxaphene in water and fish tissue shall be proposed in the Discharger's MRP for review and approval by the Executive Officer in accordance with the TMDL for toxaphene in fish tissue in the Santa Clara River Estuary. The minimum frequency for fish tissue analysis shall be every three years.

### **Methods and Quality Assurance Project Plan**

A discussion of monitoring event preparation and field protocols for sample collection and sample handling (including chain of custody requirements) shall be included in the MRP. Additionally, the MRP shall present the quality control (QC) samples that will be collected in conjunction with environmental samples to verify data quality. All samples shall be collected utilizing field techniques consistent with the State Water Resources Control Board's (State Water Board) Surface Water Ambient Monitoring Program (SWAMP). Moreover, all monitoring instruments and devices used by the Discharger for the prescribed field monitoring and sample collection shall be properly maintained and calibrated to ensure proper working condition and continued accuracy.

Dischargers shall submit a Quality Assurance Project Plan (QAPP) for Executive Officer approval six months after adoption of the Conditional Waiver. The QAPP shall describe the quality assurance requirements for the MRP. The QAPP will ensure that data are collected and analyzed consistent with State and Regional Board monitoring programs and are of high quality. The QAPP shall be consistent with the SWAMP QAPP. As such, the Discharger's QAPP shall include at least the following four sections (1) Project Management, (2) Data Generation and Acquisition, (3) Assessment and Oversight, and (4) Data Validation and Usability. A QAPP template is available through the SWAMP website.

The QAPP shall include the location of sample site(s) and the sampling schedule. The QAPP shall include data quality objectives including, but not limited to the following:

- Representativeness
- Comparability
- Accuracy
- Precision
- Recovery
- Reporting limits
- Completeness

The analytical methods, including method detection limits and reporting limits shall be presented in the QAPP. In general, the method detection limits shall be at or below applicable water quality benchmarks. However, several of the constituents of concern have water quality benchmarks that are lower than the readily available detection limits. As analytical methods and detection limits continue to improve (i.e., development of lower detection limits) and become more environmentally relevant, Dischargers shall incorporate new method detection limits in the MRP and QAPP. In the meantime, the detection limits for these constituents shall be set at levels achievable by professional analytical labs, subject to Executive Officer approval.

A laboratory that is certified by the Department of Health Services shall conduct all laboratory analysis according to standard methodologies (e.g. USEPA methods and/or Standard Methods for the Examination of Water and Wastewater). Laboratory analytical methods must be included as an appendix of the QAPP. All data will be submitted in both electronic and written tabular formats to the Regional Board. These formats will be specified by the Executive Officer. The QAPP shall include the laboratory's Standard Operating Procedures (SOPs).

Toxicity testing shall be conducted in accordance with USEPA *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms* (EPA-821-R-02-013) and *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Third Edition* (EPA-821-R-02-014), as appropriate. Additionally, toxicity testing will be implemented in accordance with State Water Board and Regional Board plans, policies and guidance at the time that toxicity monitoring is conducted. The Regional Board may review Order No. R4-2010-XXXX at the time the State Water Resources Control Board adopts a policy for Whole Effluent Toxicity Assessment and Control and modify the Monitoring and Reporting Requirements pertaining to toxicity monitoring and TIE. Toxicity testing shall be implemented as a trigger for initiation of the TIE process as outlined in USEPA's *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the National Pollutant Discharge Elimination System Program* (2000) and *Clarifications Regarding Toxicity Reduction and Identification Evaluations in the National Pollutant Discharge Elimination System Program* (March 27, 2001).

The fish collection and analysis shall be conducted in accordance with the USEPA *Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories: Volume 1 Fish Sampling and Analysis* (EPA 823-B-00-0007) or updates.

## **2 WATER QUALITY MANAGEMENT PLAN**

If water quality monitoring data, collected as described above, indicate exceedances of applicable water quality benchmarks, the Dischargers shall implement management practices on site in accordance with a WQMP to attain water quality benchmarks. Dischargers shall submit a WQMP within six months after the submittal of the annual monitoring report. The WQMP shall outline specific steps with milestones that work to attainment of water quality benchmarks through the use of management practices. Management practices must be designed and implemented to reduce or eliminate waste discharges to surface waters and groundwater in order to achieve water quality benchmarks. Management practices may include those recommended by organizations such as Natural Resources Conservation Service and University of California Cooperative Extension. The WQMP is subject to Executive Officer approval. In order to address high priority water quality problems, the Executive Officer may require additional monitoring.

## **Elements of the Water Quality Management Plan**

The elements of the WQMP shall include:

### Assessment of Existing Conditions

- A summary review of monitoring objectives and sample locations including GPS coordinates and maps.
- An assessment of the impacts of waste discharges from irrigated lands to waters of the State, including a summary of water quality benchmark exceedances.
- Determination of pollutant loading from irrigated agricultural land, where practicable.
- Identification of likely waste sources, review of possible correlations between sampling conditions (e.g., time and weather), seasonal growing activities, and water quality results.
- Follow-up monitoring, which may include edge of field monitoring, as needed, to improve understanding of the nature and source of wastes and/or to document attainment of water quality benchmarks. Follow-up monitoring may be proposed as a revision to the MRP.
- A description and documentation of existing management practices, including the degree and location of implementation.
- A review of existing management practice maintenance.

### Proposed Onsite and/or Subwatershed Modifications

- Identification of priority areas for management practice implementation, follow-up monitoring, and focused outreach and education. Information, such as the severity of water quality problems, existence of TMDL load allocations, and availability of other data sources to inform decision-making, should be considered when identifying priority areas.
- Description and location of management practices (new or revised) which will be implemented to address water quality impairments. Proposed management practices shall be based on a quantitative assessment of practice performance and expected attainment of water quality benchmarks. Management practices shall address both surface water and groundwater water quality impairments, as necessary.
- Explanation of the management practice selection process and how the new or revised management practices implemented will address water quality benchmark exceedances.

- A time-certain schedule and strategy for the implementation of new and/or revised management practices.
- Pesticide use evaluation assessment should include the timing of pesticide applications, the application rates, the amounts of pesticide applied, and the points of application. Compare changes in pesticide concentrations at specific monitoring sites to pesticide use patterns for land areas upstream. This comparison may demonstrate how a change in pesticide use patterns could impact water quality. Changing pesticide use patterns is a management practice and may be included in a WQMP.
- Tracking of management practice implementation and maintenance. Compile information on the type of management practices that are being used, the degree and locations of implementation in the area, and the effectiveness of the practices in protecting waters of the state. Data should be collected in several broad areas: (1) fertilizer and pesticide application and post-application practices, (2) management practices to address other wastes (salt, sediment, nitrogen, etc.), and (3) operational practices. If more effective management practices are available and practicable, a time-specific plan to change management practices shall be included.
- An approach to determine the effectiveness of management practices at reducing waste discharge and protecting water quality. This may require follow-up monitoring. As the program develops, revisions to the WQMP should document effective management practices.
- An evaluation of compliance with water quality benchmarks to determine if additional implementation of management practices are necessary to improve and/or protect water quality. Alternatively, provide technical documentation of natural, historical, or existing conditions that are causing noncompliance.

### **3 REPORTING REQUIREMENTS**

Pursuant to Water Code Section 13267 and 13269, the following Reports are required to be submitted to the Regional Board by the deadlines identified below.

#### **Monitoring and Reporting Plan**

**DUE: 6 months after Conditional Waiver adoption**

The MRP must include the components of the monitoring and reporting requirements as stated in this document. The MRP for receiving waters shall include the following elements:

1. Title page and Table of Contents
2. Description of the Individual Discharger or Discharger Group

3. Summary of Discharger Group membership and setting, including characteristics relevant to the monitoring
4. Summary of the historical data and/or on-going monitoring at each monitoring site
5. Monitoring periods and sites with GPS coordinates
6. Maps showing property boundaries, land use, topography, waters of the state, crop types, and any other features which may affect water quality
7. Summary of current pesticide use practices (including top 5 pesticides applied by volume and 5 most frequently applied pesticides).
8. Monitoring constituents and frequency of sampling to include all constituents in Table 1 and 2
9. A QAPP consistent with the requirements described in Section 1
10. Documentation of monitoring protocols including sample collection and handling methods
11. Individual or Discharger Group contact information

### **Annual Monitoring Report**

**Due: Annually beginning 1 year after issuance of NOA**

The Annual Monitoring Report (AMR) shall be prepared after monitoring events have been completed and shall include a review of the results of the data collected and data evaluation. The AMR shall include the following components:

1. Title page
2. Table of contents
3. Description/Summary of Individual or Discharger Group membership and setting
4. Updated membership list, submitted electronically
5. Monitoring objectives
6. Sampling site descriptions, including photographs
7. Location map of sampling sites including GPS coordinates of sampling sites
8. Parameters monitored and frequency
9. Sampling and analytical methods used, submitted in a tabular format
10. Tabulated results of analyses
11. Data interpretation including assessment of compliance and/or noncompliance with water quality benchmarks
12. Results of toxicity exceedances and results of TIE, clearly identified in the report as a separate section
13. Copy of chain of custody, submitted electronically
14. Associated laboratory and field quality control samples results
15. Summary of precision and accuracy
16. Quality control data interpretation, including assessment of data quality objectives
12. If water quality benchmarks are not attained as demonstrated by monitoring, then the AMR shall include a statement of intent to prepare a WQMP within six months to address all benchmark exceedances.
13. Documentation that education requirements have been fulfilled by the Individual Discharger or each group member of a Discharger Group

## 17. Conclusions and recommendations

Dischargers eligible under this Order bear the responsibility to inform the Regional Board, maintain records, and submit regular reports detailing the types of discharges, monitoring results for required constituents, participants in the Group, the type of management practices implemented (including changes in pesticides applied), how those measures have changed water quality, and other basic information that the Executive Officer may determine is required. Copies of all field documentation and laboratory original data must be included in the annual monitoring report as attachments. The annual monitoring report should also provide a characterization of the field conditions during each sampling event, including a description of the weather, rainfall, temperature, photographs, stream flow, color of the water, odor, crop type, cultivation practices and pesticide, fertilizer or sediment control measures, which may affect water quality, and other relevant information that can help in data interpretation.

Monitoring and analyses event records shall include the following information: (1) date and time of sampling, (2) sample location (GPS coordinates), (3) individual(s) who performed the sampling or measurements, (4) date(s) analyses were performed, (5) laboratory and/or individual(s) who performed the analyses, (6) the analytical techniques or method used, and (7) the results of such analyses.

The monitoring data will be submitted in a format consistent with SWAMP reporting requirements, both electronically and in written tabular form.

### **Water Quality Management Plan**

**Due: Annually 6 months after first AMR with exceedances**

The WQMP shall be prepared if monitoring results document the exceedances of water quality benchmarks. The required elements of a WQMP are presented in Section 3 of this document.

### **Other Reporting Requirements**

1. A transmittal letter shall accompany each report. This letter shall include a brief discussion of any violations of the Conditional Waiver that were found during the reporting period or outline implementation of actions to be taken under a WQMP. The transmittal letter shall be signed and shall contain a penalty of perjury statement by the Individual Discharger, Discharger Group, or the Discharger Group's authorized agent. This statement shall state:

*"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 knowingly submitting false information, including the possibility of fine and imprisonment for perjury."*

2. If Dischargers monitor any constituent more frequently than required by the Conditional Waiver, the discharger shall submit the monitoring results to the Regional Board.
3. The Dischargers shall retain records of all monitoring information including all calibration and maintenance records, copies of all reports required by this Order, and records of all data used to complete the application for this Order.
4. Records shall be maintained for a minimum of five years from the date of the sample, measurement, or report. This period may be extended during the course of any unresolved enforcement action, including, but not limited to, litigation regarding this discharge, or when requested by the Executive Officer.
5. Each monitoring report must affirm in writing that "All analyses were conducted at a laboratory certified for such analyses by the California Department of Health Services, and in accordance with current USEPA guideline procedures, or as specified in this Monitoring Program."
6. If there is no discharge during any reporting period, the report shall so state. The Discharger shall submit an annual report to the Regional Board within one year of the date of Notice of Applicability and at the same date each year thereafter. Monitoring reports must be provided in electronic format to be specified by the Executive Officer, and a paper copy must be provided and addressed to the Regional Board, Attention: Irrigated Lands Regulatory Program.
7. Records and reports submitted to the Regional Board are public documents and shall be made available for inspection during normal business hours at the Regional Board office.