Conditional Waiver for Irrigated Lands QUALITY ASSURANCE PROJECT PLAN

COMPLETED PLAN PREPARED BY:

[Insert name here]

[Date]

Refer correspondence to:
[Give name, organization, address, telephone, and e-mail]

(Note: Instructions are given in bold *italic* type. Make sure to complete or revise all underlined sections and remove the underlining upon completion. Also, erase the instructions as you complete the QAPP for your specific project. Make changes in other places as necessary)

PLEASE READ THE ENTIRETY OF THIS DOCUMENT. DO NOT FILL IN INFORMATION WITHOUT READING THE WHOLE DOCUMENT. IT IS NECESSARY TO FULLY UNDERSTAND THE CONTENTS OF THIS QAPP IN

ORDER TO CONDUCT THE CONDITIONAL WAIVER MONITORING SUCCESSFULLY. THIS DOCUMENT DESCRIBES RESPONSIBILITIES OF THE ENROLLEE.

1.0 PROJECT MANAGEMENT

1.1 CONTACT INFORMATION

All personnel listed below will receive copies of this Quality Assurance Project Plan (QAPP), and any approved revisions of this plan. Once approved, this QAPP will be available to any interestedparty by requesting a copy from the project management.

Title	Name (Affiliation)	Phone Number/E-mail
Operation Manager	***[Insert name and affiliation]***	***[Insert number and E-mail]***
Primary Field Sampler	***[Insert name and affiliation]***	***[Insert number and E-mail]***
Laboratory Manager	***[Insert name and affiliation]***	***[Insert number and E-mail]***
Laboratory QA/QC officer	***[Insert name and affiliation]***	***[Insert number and E-mail]***
Environmental Scientist	Snejana Toneva Regional Board Staff	213-576-7159 stoneva@waterboards.ca.gov

LABORATORY INFORMATION

[In the table below, please provide the name, contact information and documentation of state certification for the laboratory employed to conduct sample analysis.]

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

1.2 PROJECT OBJECTIVES AND APPROACH

The objective of this document is to identify the quality assurance components that are necessary to implement the monitoring requirements of the Conditional Waiver for Irrigated Lands. This objective will be achieved by using accepted methodology (e.g., U.S. EPA) to collect and analyze water and biota samples.
MONITORING

Required monitoring will begin after issuance of a Notice of Applicability (NOA) by the Executive Officer of the Regional Board. Table 1 lists the constituents that are required to be monitored.

Table 1 Constituents to be monitored

CONSTITUENT	UNIT
Flow	CFS (Ft^3/Sec)
PH	pH units
Temperature	^{0}F
Dissolved Oxygen	mg/L
Turbidity	NTU
Total Dissolved Solids	mg/L
Total Suspended Solids	mg/L
Hardness (as $CaCO_3$)	mg/L
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]
E. *coli*	MPN/100 mL
Organophosphate Suite[5]	μg/L

[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] Oragnophosphate Suite: Bolstar, Chlorpyrifos, Demeton, Diazinon, Dichloorvos, Dimethoate, Disulfoton, Ethoprop, Fenchlorophos,.Fensulfothion, Fenthion, Malathion, Merphos, Methyl Parathion, Mevinphos, Phorate, Tetrachlorvinphos, Tokuthion, Trichloronate

CONSTITUENT	UNIT
Organochlorines Suite[6]	µg/L

1.3 DATA QUALITY OBJECTIVES

The data quality objectives are listed in Table 2.

[Please request this information from the laboratory and complete the tables.]

[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 sufate, Endosulfan-I, Endosulfan-II, Endrin, Endrin Aldehyde, Endrin Ketone

Table 2a Quality Assurance Objectives for Individual Measurements

Parameter	Method	Detection Limit	Sensitivity	Precision	Accuracy	Completeness
Flow						80%
Temperature	e.g. Thermometer (-5 to 50)					80%
Dissolved Oxygen						80%
PH						80%
Turbidity						80%
Total Dissolved Solids						80%
Total Suspended Solids						80%
Chloride						80%
Ammonia						80%
Nitrate						80%
Phosphate						80%
Sulfate						80%
Total Copper						80%
Hardness (as $CaCO_3$)						80%
Bacteria						80%
Toxicity						80%
Toxaphene						80%
Pyrethroids						80%

Table 2b Quality Assurance Objectives for Organophosphate Suite

Parameter	Method	Detection Limit	Sensitivity	Precision	Accuracy	Completeness
Bolstar						80%
Chlorpyrifos						80%
Demeton						80%
Diazinon						80%
Dichloorvos						80%
Dimethoate						80%
Disulfoton						80%
Ethoprop						80%
Fenchlorophos						80%
Fensulfothion						80%
Fenthion						80%
Malathion						80%
Merphos						80%
Methyl Parathion						80%
Mevinphos						80%
Phorate						80%
Tetrachlorvinphos						80%
Tokuthion						80%
Trichloronate						80%

Table 2c Quality Assurance Objectives for Organochlorines Suite

Parameter	Method	Detection Limit	Sensitivity	Precision	Accuracy	Completeness
2,4’ – DDD						80%
2,4’ – DDE						80%
2,4’DDT						80%

Parameter	Method	Detection Limit	Sensitivity	Precision	Accuracy	Completeness
4,4'-DDD						80%
4,4'-DDE						80%
4,4'-DDT						80%
Aldrin						80%
BHC-alpha						80%
BHC-beta						80%
BHC-delta						80%
BHC-gamma						80%
Chlordane-alpha						80%
Chlordane-gamma						80%
Dieldrin						80%
Endosulfan sufate						80%
Endosulfan-I						80%
Endosulfan-II						80%
Endrin						80%
Endrin Aldehyde						80%
Endrin Ketone						80%

1.4 DOCUMENTATION AND RECORDS

All records generated by this project will be stored at ***[insert name here]*** main office. Records stored for this project will include all laboratory records pertinent to this project. Copies of records held by the laboratory will be provided to project manager and maintained in the project file.

Copies of this QAPP will be distributed to all parties involved with the project, including field sampling and laboratory personnel. Any future changes or amendments to the QAPP will be held and distributed in the same fashion. Copies of previous versions of the QAPP will be discarded so as not to create confusion.

The records of all monitoring information and data used to complete the monitoring report will be retained for at least five years from the date of sampling, measurement, report, or application.

2.0 DATA ACQUISITION

2.1 SAMPLING INFORMATION

Information on sample locations can be found in the Monitoring and Reporting Plan. Surface water samples will be collected for chemical analyses and biological toxicity testing. Methods for sample collection in the field will be done according to SWAMP procedures. Proper sampling techniques will be used to ensure that a representative sample is collected

2.2 SAMPLE STORAGE, PRESERVATION AND HOLDING TIMES

Sample containers will be pre-cleaned and certified to be free of contamination according to the United States Environmental Protection Agency (U.S. EPA) specification for the appropriate methods.

Sampling devices and sample bottles (that are not pre-sterilized and do not contain preservatives/fixing agents) will be rinsed three times with sample water prior to collecting each sample. For sterile bottles, whirl-paks, and sample bottles which do contain preservatives/fixing agents (e.g., acids, etc.) never rinse with sample water prior to collecting the sample. Also, never use a sample bottle containing preservatives/fixing agents for sampling; in these cases always use a sampling device to collect the sample prior to transferring the sample into the bottle.

The following table describes sample holding container, sample preservation method and maximum holding time for each parameter.

All samples should be refrigerated or stored on ice (do not freeze) and sent to the laboratory IMMEDIATELY for proper storage and preservation.

Table 3 Sampling Method Requirements

Parameter	Sample Bottle	Typical Sample Volume	Preferred / Maximum Holding Times
Temperature	Plastic Bottle	150 mL	Immediately
Dissolved oxygen	Glass bottle and device to enable sampling without contact with air	150 mL	Immediately / for wet chemistry fix per protocol instructions, continue analysis within 8 hr.
pH	Plastic Bottle or sample directly	150 mL	Immediately
Turbidity	Plastic Bottle	150 mL	Immediately / store in dark for up to 24 hr.
Total Dissolved Solids	Plastic Bottle	1000 ml	7 days at 4°C, dark
Total Suspended Solids	Plastic Bottle	1000 ml (two jars)	7 days at 4°C, dark
Chloride, Sulfate	Plastic Bottle	300 ml	28 days at 4°C, dark
Ammonia	Plastic Bottle	500 ml	Immediately/8 hours if sample acidified with sulfuric acid to less than 3.0 pH
Nitrate	Plastic Bottle	150 ml	48 hours at 4°C, dark
Phosphate	Plastic Bottle	150 ml	8 hours at 4°C, dark
Total Copper	Polyethylene Bottle	150 ml	Cool to 4°C, dark. Acidify in lab within 48 hrs, with pre-acidified container (ultra-pure HNO3), for pH<2. Once sample is acidified, can store up to 6 months at room temperature
Hardness	Polyethylene or Glass Bottle	200 ml	2 days at 4°C, dark or 6 months at 4°C, dark, filter and add 2 ml conc. H2SO4 or HNO3 to pH < 2;
Pesticides and other synthetic organic compounds	1-L I-Chem 200-series amber glass bottle, with Teflon lid-liner (per each sample type)	1000 ml (one container) *Each sample type requires 1000 ml in a separate container	Keep at 4°C, dark, up to 7 days. Extraction must be performed within the 7 days; analysis must
E. coli	Sterile Plastic	100 ml	Sodium thiosulfate; Store at 4°C, 8 hours for compliance monitoring

Toxicity	Four 2.25 L amber glass bottles with Teflon lid liner	9000 ml	Refrigerate at 4°C send to lab immediately

SAMPLE IDENTIFICATION

All samples will be identified with a unique number and samples labeled with the following information.

- Sample ID
- Location ID
- Date
- Time
- Initials of sample collector
- Sample type (normal or QC)
- Preservative method (if any)

FIELD MEASUREMENTS

If possible (if equipment is available), water quality parameters including flow rate, pH, dissolved oxygen, and temperature will be measured prior to collecting samples for laboratory analyses.

QC SAMPLE COLLECTION

Equipment blanks, field duplicates, and matrix spikes will be collected at a frequency of about 1 per 20 normal samples, or 1 per sampling event, whichever is greater. Matrix spikes will be collected as normal samples and will be spiked at the laboratory prior to sample preparation.

FIELD INSTRUMENT CALIBRATION

Routine field instrument calibration will be performed at least once per day prior to instrument use to ensure instruments are operating properly and producing accurate and reliable data. Calibration will be performed at a frequency recommended by the manufacturer.

DECONTAMINATION PROCEDURES

All field and sampling equipment that will contact samples will be decontaminated after each use in a designated area.

FIELD DOCUMENTATION

All field activities will be adequately and consistently documented to ensure defensibility of any data used for decision-making and to support data interpretation. In particular if during dry season sampling if there is no irrigation run off available for sampling this needs to be documented and supported in the annual monitoring report.

Pertinent field information, including (as applicable), the width, depth, flow rate of the stream, the surface water condition, crop and cultivation practices and evidence of pesticide/fertilizer or sediment management, and location of the tributaries will be recorded on the field sheets.

2.3 SAMPLE CUSTODY AND DOCUMENTATION

Sample Custody will be traceable from the time of sample collection until results are reported.

DOCUMENTATION PROCEDURES

The primary field sampler will be responsible for ensuring that the field sampling team adheres to proper custody and documentation procedures. A master sample logbook or field datasheets will be maintained for all samples collected during each sampling event.

CHAIN-OF-CUSTODY FORM

When samples are transferred from one sampler to another member of the same organization or from the monitoring group to an outside professional laboratory, then a Chain of Custody (COC) form should be used. This form identifies the site name, sample location, sample number, matrix, date and time of collection, sampler's name, sampling equipment and sample type (i.e., normal field or QC sample), and method used to preserve sample (if any). It also indicates the date and time of transfer, and the name and signature of the sampler and the sample recipient. It is recommended that when a sample leaves the custody of the monitoring group, then the Chain of Custody form used be the one provided by the outside professional laboratory. Similarly, when quality control checks are performed by a professional lab, their samples will be processed under their chain of custody procedures with their labels and documentation procedures.

[Please attach the lab chain of custody form to the end of this document.]

SAMPLE SHIPMENTS AND HANDLING

All sample shipments are accompanied with the COC form, which identifies the contents. The original COC form accompanies the shipment and a copy is retained in the project file.

All shipping containers will be secured with COC seals for transportation to the laboratory. The samples will be placed with ice to maintain the temperature between 2-4 degrees C. The ice packed with samples will be sealed in zip lock bags and contact each sample and be approximately 2 inches deep at the top and bottom of the cooler. Samples will be shipped to the contract laboratories according to Department of Transportation standard.

LABORATORY CUSTODY PROCEDURES

The following sample control activities will be conducted at the laboratory:

- Initial sample login and verification of samples received with the COC form
- Document any discrepancies noted during login on the COC
- Initiate internal laboratory custody procedure
- Verify sample preservation (e.g., temperature)
- Notify the project coordinator if any problems or discrepancies are identified
- Proper samples storage, including daily refrigerator temperature monitoring and sample security.

3.0 ANALYTICAL REQUIREMENTS

3.1 CHEMISTRY ANALYSES

Pesticide analyses will be conducted on unfiltered (whole) fractions of the samples. Prior to the analyses of any environmental samples, the laboratory must have demonstrated the ability to

meet the minimum performance requirements for each analytical method. Initial demonstration of laboratory capabilities includes the ability to meet the project specified quantitation limits (QL), the ability to generate acceptable precision and recoveries, and other analytical and quality control parameters as stated in this Guide. Analytical Methods used for chemistry analyses must follow a published method (EPA or Standard Method for the Examination of Water and Wastewater) and document the procedure for sample analyses in a laboratory SOP for review and approval.

3.2 TOXICITY TESTING

The ambient water toxicity test results must provide a reliable qualitative prediction of impacts in stream biota. At a minimum the toxicity testing will need to include the 4-day static renewal procedures described in Method for Measuring Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms (US EPA, 2002).

3.3 DETECTION AND QUANTITATION LIMITS

METHOD DETECTION LIMIT STUDIES

Each laboratory performing analyses under this program will routinely conduct method detection limit (MDL) studies to document that the MDLs are less than the project-specified QLs. If any analytes have MDLs that do not meet the project QLs, the following steps will be taken:

1. Perform a new MDL study using concentrations sufficient to prove analyte quantitation at concentrations less than the project-specified QLs per the procedure for the Determination of the Method Detection Limit presented in Revision 1.1," 40 Code of Federal Regulations (CFR) 136, 1984.

2. No samples may be analyzed until the issue has been resolved. MDL study results must be available for review during audits, data review, or as requested. Current MDL study results must be reported at the beginning of every project for review and inclusion in project files.

An MDL is developed from seven aliquots of a standard containing all analytes of interest spiked at five times the expected MDL, which are taken through the analytical method sample processing steps. The data is evaluated and used to calculate the MDL. If the calculated MDL is less than three times below the spiked concentration, another MDL study must be performed using a lower concentration

PROJECT QUANTITATION LIMITS

Laboratories generally establish project quantitation limits (PQLs) that are reported with the analytical results; these may be called reporting limits, detection limits, reporting detection limits, or other terms. These laboratory limits must be less than or equal to the PQLs. PQLs must be lower than the proposed or existing numeric water quality objectives by the Regional Board. The laboratories will have documentation to support quantitation at the required levels.

Laboratories will report analytical results between the MDL and PQL. These results will be reported as numerical valued and qualified as estimates. Reporting as "trace" or "<PQL" is not acceptable.

Sample results less than MDLs will be reported only for GC/MS analyses if the mass spectral fingerprint can prove positive identification; these results must be qualified as estimated values by the laboratory.

3.4 LABORATORY STANDARDS AND REAGENTS

All stock standards and reagents used for extraction and standard solutions will be tracked through the laboratory. The preparation and use of all working standards will be recorded in bound laboratory notebooks that document standard tractability to U.S. EPA, A2LA or National Institute for Standards and Technology (NIST) criteria. Record must have sufficient detail to allow determination of the identity, concentration, and viability of the standards including any dilutions performed to obtain the working standard. Date of preparation, analyte or mixture, concentration, name of preparer, lot or cylinder number, and expiration date, if applicable, must be recorded on each working standard.

3.5 SAMPLE PREPARATION METHODS

Surface water samples will be prepared in solvent or via other extraction techniques prior to sample analyses. All procedures must follow a published method.

4.0 QUALITY CONTROL REQUIREMENTS

The types of quality control assessments required in the monitoring program are discussed below. Detailed procedures for preparation and analysis of quality control samples are provided in the SOPs by the analytical laboratories. **[Please request a copy of the laboratory's SOPs and attach them at the end of this document.]**

4.1 QUALITY ASSURANCE OBJECTIVES (QAOS)

Quality assurance objectives are the detailed QC specifications for precision, accuracy, representativeness, comparability, and completeness (PARC). The QAOs are then used as comparison criteria during data quality review by the group that is responsible for collecting data to determine if the minimum requirements have been met and the data may be used as planned.

4.2 DEVELOPMENT OF PRECISION AND ACCURACY OBJECTIVES

Laboratory control spikes (LCSs) are used to determine the precision and accuracy objectives. The laboratory fortifies the LCSs with target compounds to monitor the laboratory precision and accuracy. Field duplicates measure sampling precision and variability for comparison of project data. Acceptable relative percent difference (RPD) is less than 25 for field duplicate analyses. If field duplicate sample results vary beyond these objectives, the results will be qualified.

4.3 INTERNAL QUALITY CONTROL (QC)

Internal quality control (QC) is achieved by collecting and/or analyzing a series of duplicate, blank, spike, and spike duplicate samples to ensure that analytical results are within the specified QC objectives. The QC sample results are used to quantify precision and accuracy and identify any problem or limitation in the associated sample results. The internal QC components of a sampling and analyses program will ensure that the data of known quality are produced and

documented. The internal QC samples, frequency, acceptance criteria, and corrective action must meet the minimum requirements presented in the following sections.

4.4 FIELD QUALITY CONTROL

Field QC samples are used to assess the influence of sampling procedures and equipment used in sampling. They are also used to characterize matrix heterogeneity.

For basic water quality analyses, quality control samples to be prepared in the field will consist of equipment blanks, field duplicates, and matrix spikes (when applicable).

EQUIPMENT BLANKS

Equipment blanks will be collected and analyzed for all analytes of interest along with the associated environmental samples. Equipment blanks will consist of laboratory-prepared blank water (certified contaminate free) processed through the sampling equipment using the same procedures used for environmental samples.

FIELD DUPLICATES

Field duplicates will be collected at the rate of 1 per 20 normal samples, or 1 per sampling event, which ever is greater. Field duplicates will be collected at the same time as environmental samples or of two grab samples collected in rapid succession, and will be analyzed along with the associated environmental samples. If the relative percent difference (RPD) of field duplicate results in greater than 25% and the absolute difference is greater than the RL, both samples should be reanalyzed.

MATRIX SPIKES AND MATRIX SPIKE DUPLICATES

Matrix spikes and matrix spike duplicates will be analyzed at the rate of one pair per sample batch. Matrix spike samples are collected at the same time as the environmental samples and are spiked at the laboratory. Laboratory acceptance criteria should be submitted to the Regional Board staff for review and approval as part of the development and approval of the Scope of Work for monitoring.

4.5 LABORATORY QUALITY CONTROL

For basic water quality analyses, quality control samples prepared in the contract laboratory will typically consist of method blanks, laboratory control samples, laboratory duplicates, and surrogate added to each sample (organic analysis).

METHOD BLANKS

Method blanks will be prepared and analyzed by the contract laboratory with each batch of samples. If any analyte is detected in the blank, the blank and the associated samples must be re-extracted and re-analyzed.

LABORATORY CONTROL SAMPLES AND SURROGATE

Laboratory control samples (LCS) will be analyzed at the rate of one per sample batch. Surrogate may be added to samples for organic analyses.

Overall, laboratory acceptance criteria are shown below.

*[**Please request this information from the laboratory and complete the table.]***

Table 4 Analytical Quality Control

Laboratory QC	Frequency/Number	Acceptance Limits
Method Blank		
Reagent Blank		
Storage Blank		
Instrument Blank		
Lab. Duplicate		
Lab. Matrix Spike		
Matrix Spike Duplicate		
Lab. Control sample		
Surrogates		
Internal Standards		
Others:		

5.0 INSTRUMENTATION AND EQUIPMENT PREVENTIVE MAINTENANCE

5.1 SAMPLE EQUIPMENT CLEANING PROCEDURES

Equipment used for sample collection must be cleaned and maintained in accordance with proper field practices and the SWAMP guidelines.

5.2 ANALYTICAL INSTRUMENT AND EQUIPMENT TESTING PROCEDURES AND CORRECTIVE ACTIONS

[Submit Laboratory Quality Assurance Manual or SOPs for review and approval prior to start of sampling and analyses.]

5.3 INSTRUMENT CALIBRATIONS AND FREQUENCY

ANALYTICAL PROCEDURES AND CALIBRATION

This section briefly describes analytical methods and calibration procedures for samples that will be collected under this monitoring program.

Analytical methods that will be used in this program will need to follow the general guidance of any of the following methods:

- *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* (APHA 1998)

- *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.*

- *U.S. EPA. 2007. Standard Method 9223B (Colilert/Colisure)*

- *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.*

For this program, only linear calibration with either an average response factor or a linear regression is acceptable for organic analyses. Non-linear calibration is not allowed since using this calibration option creates a potential for poor quantitation or biased concentration of compounds at low or high concentrations (near the high and low ends of the calibration range).

Laboratories shall prepare an initial 5-point calibration curve, where the low level standard concentrations is less than or equal to the analyte quantitation limits.

6.0 DATA MANAGEMENT

Copies of field logs, a copy of COC forms, original preliminary and final lab reports, and electronic media reports will be kept for review by the Regional Board Staff. The field crew will retain original field logs. The contract laboratory will retain COC forms. The contract laboratory will retain copies of the preliminary and final data reports.

Field data sheets are checked and signed in the field by the monitoring leader. The monitoring leader will identify any results where holding times have been exceeded, sample identification information is incorrect, samples were inappropriately handled, or calibration information is missing or inadequate. Such data will be marked as unacceptable by the monitoring leader and will not be entered into the electronic data base.

Independent laboratories will report their results to the monitoring leader. The leader will verify sample identification information, review the chain-of-custody forms, and identify the data appropriately in the database.

Concentrations of chemicals and toxicity endpoints, and all numerical biological parameters will be calculated as described in the referenced method document for each analyte or parameter, or a laboratory operating procedures. The data generated will be converted to a standard database format maintained by the responsible party and available for the Regional Board staff review. After data entry or data transfer procedures are completed for each sample event, data will be inspected for data transcription errors, and corrected as appropriate. After the final QA checks for errors are completed, the data will be added to the final database.

6.1 DATA ASSESSMENT PROCEDURES

Data must be consistently assessed and documented to determine whether project quality assurance objectives (QAOs) have been met, quantitatively assess data quality and identify potential limitations on data use. Assessment and compliance with quality control procedures will be undertaken during data collection phase of the project.

6.2 DATA TO BE INCLUDED IN DATA REPORTS

For each sampling event, the field team will provide copies of the field data sheets (relevant pages of field logs) and copies of the COC forms for all samples submitted for analysis. At minimum, the following sample-specific information must be provided for each sampling program to the Regional Board staff:

- Sample Identification
- Monitoring location/ field descriptions
- Sample type, e.g. grab or composite type (Cross-sectional, flow-proportional, etc.)
- QC sample type and frequency
- Data and time(s) of sample collection
- Requested analyses (specific parameters or method references)
- Results of samples collected and all laboratory QC samples (calibrations, blanks, surrogates, laboratory spikes, matrix spikes, reference materials, etc.) and the identification of each analytical sample batch.

6.3 REPORTING FORMAT

All results meeting data quality objectives and results having satisfactory explanations for deviations from objectives will be reported from the Laboratory Results Report. The final results will include the results of all field and laboratory quality control samples. Results will be reported to the Regional Board on an annual basis as described in Monitoring and Reporting Program Plan and the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands with the Los Angeles Region (R4-2016-0143).

7.0 DATA VALIDATION AND USABILITY

7.1 LABORATORY DATA REVIEW, VERIFICATION, AND REPORTING

The laboratory quality assurance manual will be used to accept, reject or qualify the data generated by the laboratory. The laboratory management will be responsible for validating the data generated by the laboratory.

The laboratory personnel will verify that the measurement process was “in control” (i.e., all specified data quality objectives were met or acceptable deviations explained) for each batch of samples before proceeding with analysis of a subsequent batch. In addition, each laboratory will establish a system for detecting and reducing transcription and/or calculation errors prior to reporting data.

Only data, which have met data quality objectives, or data, which have acceptable deviations explained will be submitted by the laboratory. When QA requirements have not been met, the

samples will be reanalyzed when possible and only the results of the reanalysis will be submitted, provided they are acceptable.

7.2 DATA SYSTEM AUDITS

The Regional Board staff may audit laboratories during conducting sample analyses for this program.

8.0 REFERENCES

U.S. EPA 2001. Laboratory Documentation Requirements for Data Evaluation (R9QA/004.1)

U.S. EPA 1983. Methods for Chemical Analysis of Water and Wastes. EPA-600/4-79-020, third edition

U.S. EPA 1988. Methods for Determination of Organic Compounds in Drinking Water (EPA-600/4-88/039)

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-02-01

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-R94-024.

ATTACHMENTS

FIELD DATA SHEET

STANDARD OPERATING PROCEDURES

[Attach all SOPs, methods, and laboratory procedures mentioned in your QAPP.

Contact your lab and have them provide all SOPs, methods, and laboratory procedures

These documents must be reviewed and approved by the Regional Board.]

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

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 on the same day as irrigation 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	^{o}F		mg/L	NTU

Sampling Personnel:

(Print) (Sign)

Organization: