

---

## Central Valley Regional Water Quality Control Board

29 May 2014

Tim Johnson, CEO  
California Rice Commission  
1231 I Street, Suite 205  
Sacramento, CA 95814-2933

Roberta Firoved, Industry Affairs Manager  
California Rice Commission  
1231 I Street, Suite 205  
Sacramento, CA 95814-2933

### **SUBJECT: REVIEW OF 2013 ANNUAL MONITORING REPORT – CALIFORNIA RICE COMMISSION**

Thank you for submitting the California Rice Commission (CRC) Annual Monitoring Report (AMR) on 30 December 2013. This report was submitted to meet the conditions of Monitoring and Reporting Program (MRP) Order R5-2010-0805 and the associated Conditional Waiver of Waste Discharge Requirements for discharges from Irrigated Lands adopted by the Central Valley Water Board on 1 July 2006 (Resolution R5-2006-0053).

The Central Valley Water Board staff's review of the AMR is in the attached memo. The staff review indicates exceedances of water quality objectives for dissolved oxygen were reported as required by the MRP Order, correcting a deficiency found in the 2012 AMR report. The staff review also indicates information related to quality control (QC) analyses for hardness and total dissolved solids were missing for the April, May, and June sampling results. CRC informed the lab of the QC requirements and subsequent lab results for July and August met the QC requirements.

Board's staff review of the 2012 AMR required the CRC to take corrective actions to ensure that all required analyses are performed. Complete QA/QC lab results are required in the 2014 monitoring results.

If you have any questions or comments regarding the review, please contact Margaret Wong at 916-464-4857.

*Original signed by*

Joe Karkoski  
Program Supervisor  
Irrigated Lands Regulatory Program

*Original signed by*

Susan Fregien  
Senior Environmental Scientist  
Irrigated Lands Regulatory Program  
Monitoring & Implementation Unit

Enclosure

**Central Valley Regional Water Quality Control Board**

**TO:** Susan Fregien  
Sr. Environmental Scientist  
Monitoring and Implementation Unit

**FROM:** Margaret Wong  
Water Resources Control Engineer  
Monitoring and Implementation Unit  
**SACRAMENTO OFFICE**

**DATE:** 20 May 2014

**SUBJECT:** REVIEW OF 2013 ANNUAL MONITORING REPORT -- CALIFORNIA RICE COMMISSION

On 30 December 2013, the California Rice Commission (CRC) submitted its 2013 Annual Monitoring Report (AMR) as required by the CRC Monitoring and Reporting Program (MRP) Order R5-2010-0805 for the Irrigated Lands Regulatory Program (ILRP).

Under the MRP Order, the CRC performed core monitoring from May to September at the four primary sites: CBD5, BS1, CBD1, and SSB. The sampling schedule and constituents monitored for the 2013 season are shown in Table 1.

**Table 1. 2013 Monitoring Schedule**

Month	Sample date	Field	TDS	TOC	Hardness
April	4/30/13	√	√	√	√
May	5/28/13	√	√	√	√
June	6/25/13	√	√	√	√
July	7/30/13	√	√	√	√
August	8/27/13	√	√	√	√

Monitoring for field parameters (flow, pH, electrical conductivity [EC], dissolved oxygen [DO], temperature, and turbidity) and general physical/chemical parameters (total dissolved solids [TDS], total organic carbon [TOC], and hardness) were required for each sampling event.

**REVIEW OF THE ILRP AMR REPORT**

The CRC AMR was submitted in electronic format and evaluated by staff for the presence and completeness of the components described in the 2010 MRP Order. An AMR checklist (attached) derived from the MRP Order was used to provide an itemized account of the compliance elements. Most of the required components of the AMR were addressed by the CRC. This memo discusses omissions that should be addressed in future AMRs.

**Monitoring results**

*Field parameters:* The CRC submitted dissolved oxygen (DO) exceedance reports for every sampling event. An exceedance report was submitted for any site that showed less than the cold water quality objective (7.0 mg/L). Table 2 shows the DO exceedance reports submitted for the 2013 season.

**Table 2. Dissolved Oxygen Exceedances reported during 2013**

Sample Event	Sample date	Sites with Exceedance and DO Reading (mg/L)			
		BS1	CBD5	CBD1	SSB
April	4/30/2013	5.57/5.64	NR	NR	NR
May	5/28/2013	6.42/6.83	NR	5.59/5.48	6.57/6.51
June	6/25/2103	6.18/6.23	NR	<b>4.66/4.59</b>	5.37/5.31
July	7/30/2013	6.13/5.98	6.77/6.73	<b>4.84/4.76</b>	<b>4.82/4.71</b>
August	8/27/2013	5.66/5.37	NR	6.05/5.72	5.76/5.40

Notes: Two instruments were used for sampling; results shown as Instrument 1/Instrument 2.

NR = no reporting required

Gray indicates the cold water quality objective (>7.0 mg/L DO) was not met.

**Bold** indicates the warm water quality objective (>5.0 mg/L) was not met.

Maximum flow at CBD1 for the June and July events were measured at 29.2 ft<sup>3</sup>/sec (cfs) and 521 cfs, with water temperatures at 73.7°F and 77.7°F, respectively. The July event for SSB had a measured flow of 125 cfs with water temperature of 76.9°F. The water temperatures observed during these events were the highest for the monitoring season at the respective site. Warm water temperatures may contribute to the low DO for these exceedances of the 5.0 mg/L objective.

The May event for electrical conductivity at CBD1 was above the 700 µS/cm agricultural guideline. There were no exceedances of the pH (acceptable range 6.5<pH<8.5) water quality objective, nor the turbidity objective during any sampling event.

*Total dissolved solids and total organic carbon:* The highest TDS and TOC values were 430 mg/L and 14.5 mg/L, respectively, found for the June event at CBD1.

*Hardness:* The highest hardness as CaCO<sub>3</sub> value was 200 mg/L found during the June event at CBD1.

**QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) REQUIREMENTS**

*Field QA/QC results:* Field blanks and field duplicates were acceptable for precision and accuracy. There were detections of total hardness and total organic carbon in the field blanks for the June and August events. These results were below the reporting limit (RL), but above the minimum detection level (MDL), and therefore flagged as estimates. Field duplicates for total hardness, total organic carbon (TOC) and total dissolved solids (TDS) were within the acceptable relative percent difference (RPD) for the analysis.

*Laboratory QA/QC results:* The primary laboratory analyzing the physical/chemical parameters was California Laboratory Services (CLS). Laboratory QA/QC requirements for this season include method blanks, lab control spikes (LCS), matrix spikes (MS), and laboratory duplicates.

Method blanks for total hardness, TOC and TDS were all below the analyte method RL.

Table 3 shows the summary QA/QC Lab Batch Comments completed by CLS. Staff review of QA/QC noted that analytes (hardness and TOC) were detected in field blanks for June and August at low concentrations.

**Table 3. Summary QA/QC Lab Batch Comments**

Sampling Event	Analyte	Lab Submission Code	Lab Batch Comment
30 April	TDS	Incomplete	Missing QC: LCS not performed.
	TOC	Acceptable, Minor Deviation	LCS recovery outside of limits. MS/MSD recovery limits acceptable. Lab results accepted.
	Hardness	Incomplete	Missing QC; lab duplicate (LCSD or MSD) not performed.
28 May	TDS	Incomplete	Missing QC, LCS not performed
	TOC	Acceptable, Minor Deviation	MS/MSD and CBD5 samples (including duplicate sample from CBD5) were analyzed under secondary dilution.
	Hardness	Incomplete	Missing QC; lab duplicate (LCSD or MSD) not performed. MS sample recovery outside of limits.
25 June	TDS	Incomplete	Missing QC: LCS not performed.
	TOC	Acceptable, Minor Deviation	Analyte detected in field blank (staff)*. Acceptable; detection below RL.
	Hardness	Incomplete	Missing QC; lab duplicate (LCSD or MSD) not performed. MS sample recovery outside of limits. Analyte detected in field blank (staff)*.
30 July	TDS	Acceptable	Accepted
	TOC	Acceptable	Accepted
	Hardness	Acceptable	Accepted
30 August	TDS	Acceptable	Accepted
	TOC	Acceptable	Accepted. Analyte detected in field blank (staff).
	Hardness	Acceptable, Minor Deviation	QC samples run later than primary samples. Lab indicates this is not to be flagged (have email from lab manager). Analyte detected in field blank (staff)*

\* (staff) indicates Regional Board QA/QC staff review noted the omission and corrected the data entry. The correction was noted on the EDD Feedback package checklist that was sent back to the CRC.

For TDS analyses, CLS did not perform any lab control spikes (LCS) in April, May, or June. To fulfill QC requirements, the lab needed to perform a LCS with one duplicate for the lab batch. After CRC's consultants reviewed the Central Valley Water Board's staff review of the 2012 AMR (which highlighted the same missing QC data for 2012), CLS was notified that the missing data were required. The subsequent event results in July and August had required lab control spikes.

Quality control for TOC analyses was acceptable, although minor deviations from the requirements were noted. As noted above, TOC was detected in field blanks at low concentrations (between the MDL and RL) for the June and August events.

For total hardness (as calcium carbonate), CLS did not perform the required duplicate sample for April, May and June. The May and June MS recovery limits were also outside acceptable limits, suggesting matrix bias affected the results. These results were flagged, which is the appropriate lab corrective action.

An *Analysis of Completeness* section in the AMR noted the missing lab QC data for the April, May and June events.

#### **REVIEW OF SUBMITTED ELECTRONIC DATA**

The CRC transmitted an electronic copy, in an Excel worksheet format, of the 2013 monitoring data that included sample results and laboratory and field QA/QC. Central Valley Water Board staff review and comments were noted on the EDD Feedback package checklists and sent to the CRC by email on 13 March 2014. Almost all of the items noted last year were corrected. Overall, staff found very minor corrections were needed.

#### **SUMMARY**

The 2013 AMR contained the necessary components and supporting documentation required to determine completeness. The electronic data submittal was complete in the format required by the MRP with very minor changes noted in the checklist for correction. Staff emailed its review of the electronic data submittal to CRC noting substantial improvement from last year's submittal.

The CRC reported exceedances for DO which may be related to water temperature and low flow velocity of the waterbody. Reports for these exceedances were submitted to the Regional Board as required by the MRP. The CRC did not report the May exceedance for electrical conductivity (trigger limit of 700  $\mu\text{S}/\text{cm}$  based on agricultural use).

Required laboratory QC (lab control spike and/or duplicate) were not met until the last two sampling events when CRC consultants notified CLS the missing QC samples were required. Complete QA/QC lab results are expected for the 2014 season.

Attachment 1. Checklist for CRC AMR 2013 Review

## Attachment 1. Checklist for CRC 2013 AMR Review

Item No.	AMR Component Name	Acceptable	Unacceptable	Incomplete/ Not included	Not Applicable	Page # (Section #)	Comments
<b>1</b>	<b>Signed Transmittal Letter</b>						
1.1	Penalty of Perjury Statement	x					
1.2	Signature of Authorized Coalition Representative	x					
1.3	Dated	x					
1.4	Discussion of exceedances, and corrective actions taken or planned (or reference to previous correspondence)	x					
1.5	Submitted on time	x					
<b>2</b>	<b>Title Page</b>						
2.1	Report title	x					
2.2	Date of the report	x					
2.3	Monitoring date range covered by the report	x					
2.4	Coalition Group name	x					
<b>3</b>	<b>Table of Contents</b>						
3.1	List of sections/chapters, tables, figures, appendices/attachments with page numbers	x				iii-vi	
<b>4</b>	<b>Executive Summary</b>						
4.1	Summary of key results and activities	x				6-1	
4.2	Brief summary of conclusions and recommendations	x				6-1, 6-2	
<b>5</b>	<b>Description of the Coalition Group Geographical Area</b>						
5.1	General description of relevant geographic features of the Coalition area, such as location and extent of area, major landforms, land uses, vegetation types, crop types, climate patterns, key waterways, and cities	x				1-2, Figure 1-1	
<b>6</b>	<b>Monitoring Objectives and Design</b>						
6.1	Brief description of monitoring objectives (references to section and page numbers in MRP Plan or QAPP, as appropriate)	x				3-1	
6.2	Monitoring design aligns with MRP Plan, any deviations from MRP Plan or QAPP are described (references to section and page number in MRP Plan or QAPP, as appropriate)	x					

Item No.	AMR Component Name	Acceptable	Unacceptable	Incomplete/ Not included	Not Applicable	Page # (Section #)	Comments
	6.2.1	Assessment Monitoring: sites, parameters, schedule	x			3-2	Assessment monitoring schedule and parameters discussed, although not performed for CY2013.
	6.2.2	Core Monitoring: sites, parameters, schedule	x			3-2	
	6.2.3	Special monitoring (Management Plan, TMDL, source identification): sites, parameters, schedule			x		
<b>7</b>	<b>Sampling Site Descriptions and Rainfall Records for the time period covered under the AMR</b>						
	7.1	Sampling site name and description (e.g. geographic area, watershed, crop type and drainages that the site represents), or unique information about the site or surrounding area	x			3-3 to 3-10	
	7.2	Rainfall records in graphic or narrative form (in inches of precipitation)	x			Figure 2-2	
<b>8</b>	<b>Location Maps(s) of sampling sites, crops, and land uses</b>						
	8.1	Location maps show sampling sites, crops, and land use with informative level of detail	x			Figure 3-1; Appendix B	
	8.1.1	Datum identified on map ( <u>must be</u> WGS 1984 or NAD 1983)	x			Table 3-1	
	8.1.2	Source and date of all data layers identified on map	x			Various pgs.	All maps include required layer information.
	8.2	Accompanying list or table indicates: site name, ID number, ILRP station code number, and GPS coordinates (latitude and longitude in decimal degrees to at least five decimal places)	x			Table 3-1	
<b>9</b>	<b>Tabulated Results</b>						
	9.1	Data are in tabular form, clearly organized and readily discernible	x			Various tables in Section 4	
	9.2	Tabulated results agree with the electronically submitted data	x			Various tables in Section 4	
	9.3	Previously reported exceedances match exceedances identified in the AMR			x	4-8	One exceedance for EC in 2013 not reported to Regional Board.
	9.4	All required constituents for each site have reported results	x			Various table in Section 4	
	9.5	All necessary re-sampling completed and results reported			x		
<b>10</b>	<b>Data Discussion to Illustrate Compliance</b>						
	10.1	Results discussed in text agree with tabulated data	x			Section 4	

Item No.	AMR Component Name	Acceptable	Unacceptable	Incomplete/ Not included	Not Applicable	Page # (Section #)	Comments
10.2	Discussion illustrates compliance with the Conditional Waiver, or if a required component was not met an explanation of missing data or a reason for non-compliance is included	x				Section 4	
10.3	Results are compared to ILRP requirements, water quality standards and trigger limits; toxicity results, TIE's and possible causes of toxicity are discussed		x			Section 4	Exceedances for DO reported to staff. Exceedance of trigger limit for electrical conductivity not reported (May event at CBD1).
<b>11</b>	<b>Electronic data submitted in a SWAMP comparable format, <u>either</u> Option A or B</b>						
11.1	<u>Option A. Spreadsheet format:</u> Lab data submitted electronically within the SWAMP comparable spreadsheets; Field data submitted electronically, or in paper copy on SWAMP comparable field sheets within AMR				x		
	<u>Option B. SWAMP database format:</u> All field and lab data uploaded into a SWAMP comparable database (following the most current <i>Required Data Submission Format</i> document)	x				Received by email 12/30/13	Data submitted electronically in SWAMP comparable format with required QC data.
11.2	Sample results and required QC results are included: field blanks, field duplicates, lab blanks, spikes (LCS, MS), duplicates (LCD, MSD, replicates), surrogates (for pesticide analyses)	x				Electronic submittal and Appendix B-2	
11.3	Toxicity analyses include: individual sample results, negative control summary results, replicate results, water quality measurements (pH, ammonia, temperature, SC, DO)				x		Core monitoring for CY 2013; no toxicity testing required
11.4	Data not meeting project QA acceptance guidelines are flagged and include brief notes detailing the problem in the <i>Comments</i> field	x				Section 5 and electronic submittal	
<b>12</b>	<b>Description of sampling and analytical methods used</b>						
12.1	Description of sampling methods used (e.g. type of collection, collection containers, sample preservation, transportation, handling, field measurements), with references to SOP's if appropriate	x				Table 3-2, 3-11 to 3-13	
12.2	Description of analytical methods used (references to SOP's and QAPP as appropriate); any deviations from the QAPP are described and explained	x				Table 3-2, Section 5	
<b>13</b>	<b>Copies of chain-of-custody forms and sample receipt documentation</b>						
13.1	Copies of all COCs are included, legible and completed accurately; any anomalies are noted/explained	x				Appendix C-1	Staff reviewed 20% of COCs.
<b>14</b>	<b>Field Data Sheets, Lab Reports, Lab Raw Data</b>						

Item No.	AMR Component Name	Acceptable	Unacceptable	Incomplete/ Not included	Not Applicable	Page # (Section #)	Comments
14.1	Copies of all field data sheets (attached/provided electronically on CD) are included, legible, contain the required elements in the ILRP template, and are completely filled out	x				Appendix C-1	
14.2	All analytical reports (attached/provided on CD) are included, complete, and signed by authorized laboratory representative	x				Appendix C-2	
14.2.1	Sample results with units, RLs and MDLs	x				Appendix C-2 and electronic submittal	
14.2.2	Sample preparation, extraction and analysis dates	x				Appendix C-2 and electronic data	
14.2.3	Results for all QC samples: field and laboratory blanks, lab control spikes, matrix spikes, field and laboratory duplicates, surrogate recoveries	x				Tables 5-2 to 5-6 and electronic submittal	
14.2.4	Chemistry lab narrative describes all QC failures, analytical problems and anomalous occurrences.	x				Section 5, 5-10 to 5-11	
14.3	All toxicity lab reports (attached/provided on CD) are included, complete, and signed by authorized lab representative				x		No toxicity testing in CY 2013
14.3.1	All toxicity sample results included				x		
14.3.2	Results for all QC samples: field duplicate, negative control, narrative summary of reference toxicant results				x		
14.3.3	All raw data (including failed tests) and original bench sheets showing individual replicates				x		
14.3.4	Toxicity lab narrative describes all QC failures, analytical problems and anomalous occurrences				x		
<b>15</b>	<b>Associated laboratory and field quality control samples results</b>						
15.1	Chemical analyses include: field blank, field duplicate, lab blank, matrix spike and MSD, lab control spike and LCSD		x			Appendix C-2 and electronic submittal	Missing some MS/MSD and LCS/LCSD info; see memo
15.2	Microbiological analyses include: field blank, field duplicate, negative control, positive control				x		No microbiological test in CY 2013
15.3	Toxicity tests include: field duplicate, negative control, reference toxicant (narrative OK, raw data not required)				x		
<b>16</b>	<b>Summary of Quality Assurance Evaluation results</b>						

Item No.		AMR Component Name	Acceptable	Unacceptable	Incomplete/ Not included	Not Applicable	Page # (Section #)	Comments
16.1		Acceptance criteria for all field and laboratory QA/QC measurements identified and in agreement with ILRP requirements; any adjustments to acceptance criteria documented and discussed	x				Section 5 and electronic submittal	Section 5: Review of Quality Assurance/Quality Control
16.2		Summary of accuracy (lab control spike and matrix spike recovery) and precision (RPD for field duplicate, LCS/LCSD and MS/MSD pairs) included for all constituents and tests	x				Section 5	Tables 5-1 to 5-6.
16.3		QA/QC results that did not meet acceptance criteria identified in a table or narrative description that is prepared by the Coalition (not laboratories)	x				Section 5	Analysis of precision and accuracy discussed in Table 5-7.
	16.3.1	Discussion of how the failed QA/QC results affect the validity of the reported data	x				Section 5	Report noted QC samples not meeting the acceptance criteria and evaluated how those results affect usability of data.
	16.3.2	Corrective actions for QA/QC results that did not meet acceptance criteria are described, laboratory exception reports are included when samples are reanalyzed due to exceedance of the linear range	x				Section 5; Appendix C-2	
16.4		Both field and laboratory completeness are calculated and reported; overall Project completeness is determined	x				Section 5, 5-4	Completeness calculated in AMR.
<b>17</b>	<b>Flow Monitoring Method(s)</b>							
	17.1	The method used to obtain flow measurement at each monitoring site during each monitoring event is listed	x				4-17.	
<b>18</b>	<b>Monitoring Site Photos</b>							
	18.1	Photos are included for each monitoring site, either electronically or in hard copy	x				4-14 to 4-17	
	18.2	Each photo is clearly labeled with site ID and date	x				4-14 to 4-17	
	18.3	Photos are descriptive and useful	x				4-14 to 4-17	
<b>19</b>	<b>Summary of Exceedance Reports submitted during the reporting period and related pesticide use information</b>							
	19.1	Summary of all Exceedance Reports submitted during the AMR period is included	x				Table 4-12, Appendix D	
	19.2	Pesticide use data for all pesticide and toxicity exceedances occurring during the AMR time period (unless under a Management Plan): all chemicals applied within the monitoring site subwatershed during the four weeks prior to the measured exceedance	x				Section 2, Tables 2-5 to 2-10	

Item No.		AMR Component Name	Acceptable	Unacceptable	Incomplete/ Not included	Not Applicable	Page # (Section #)	Comments
<b>20</b>		<b>Actions Taken to Address Water Quality Exceedances</b>						
	20.1	Discussion of actions taken to address water quality exceedances during the time frame of the AMR is included	x				Section 4, 4-9, Table 4-12	DO exceedances associated with high water temperature and low flows.
	20.2	Updates or additional management practices implemented (Attachment A of the MRP Order, p. 4)				x		
<b>21</b>		<b>Status update on preparation and implementation of all management plans and other special projects</b>						
	21.1	Brief update on status of all Management Plans and special projects that are in preparation or being implemented				x		
<b>22</b>		<b>Conclusions and Recommendations</b>						
	22.1	Conclusions are supported by the data presented in the AMR	x				Section 6	
	22.2	Recommendations are appropriate and adequately detailed	x				Section 6	