Table A. ESJWQC 2012 AMR amendments summary.

ITEM #	AMENDMENTS DESCRIPTIONS	DATE SUBMITTED	2012 AMR ITEMS REVISED
1	Revisions were made to exclude previously reported detections (demeton-s, dimethoate, phosmet, atrazine and cyanazine) and an exceedance (azinphos methyl) at Berenda Slough @ Ave 18 ½ due to a laboratory reporting error. All of these results are below the minimum detection level.	April 30, 2012	Table A, page 2 Table 35, page 112 Table 45, page 136 Appendix II Appendix IV
2	Revisions were made to include a Corrective Actions section for QA/QC results that do not meet acceptance criteria in the Precision, Accuracy and Completeness section. The Table of Contents has been updated to include the new section.	June 15, 2012	Table of Contents, page ii Pages 75-76
3	Environmental sample completeness was updated to exclude environmental samples collected from Lateral 3 along East Taylor Rd. A review of environmental samples collected from Lateral 3 along East Taylor Rd is included in Appendix X.	June 15, 2012	Verbiage, pages 66-67 Table 17, pages 77-79

An assessment of precision, accuracy, and completeness is tabulated in Tables 17-30. The following is a narrative explanation for chemistry and toxicity precision, accuracy, and completeness.

CHEMISTRY

All results are tabulated in the Monitoring Results and Lab and Field Quality Control Results sections of this report (Appendix II, III, and Appendix X for Lateral 3 along East Taylor Rd). Each result is flagged if it does not meet data quality objectives (acceptability criteria) using Surface Water Ambient Monitoring Program (SWAMP) codes and can also be found in the SWAMP comparable database managed by the Coalition. The Coalition works with the Central Valley Regional Data Center (CVRDC) to ensure that all data remain SWAMP comparable and that all data are suitable for uploading to the California Environmental Data Exchange Network (CEDEN). A copy of the database is submitted to the Regional Board with the hardcopy of this report. The database includes all data from 2011.

For some constituents the concentration in the environmental sample may exceed the amount that the detector can detect and therefore the sample requires dilution. The result reported is the amount found in the diluted sample multiplied by the dilution factor to represent the amount of the analyte present in the original sample. The dilution factor is recorded and the reporting limit is increased by multiplying the reporting limit for that analyte by the dilution factor. Therefore, for each dilution that occurs, there is a corresponding increase in the limit of quantification.

For sediment chemistry constituents, varying Minimum Detection Limits (MDLs) and RLs can be due to differing initial weights of the samples or varying dry weight (dw) results of the samples based on a calculated percent solids value.

Chemistry Completeness

The constituents sampled from January through December 2011 are listed by site in Tables 5 and 6. Table 17 includes the specific analyte, the number of environmental samples collected and analyzed (including NM and MPM samples), the number of total samples collected (including environmental and field quality control samples), breakdown of the number and percentage of samples that were field blanks, field duplicates, equipment blanks, travel blanks and an overall assessment of completeness (number of samples collected versus number of samples analyzed). There was 100% completeness for environmental samples collected and analyzed for chemistry analyses except for glyphosate and paraquat (87.6%). Nine sites sampled in February 2011 were scheduled to be analyzed for glyphosate and paraquat. The sample shipment to the laboratory was lost in transit and this analysis did not take place resulting in an overall completeness of 99% for water chemistry and toxicity analysis. There was 100% completeness for sediment toxicity and chemistry for NM samples and 100% completeness for sediment toxicity for MPM samples.

For each sampling event, a field duplicate (FD) and field blank were collected from a station selected as the Quality Assurance/Quality Control (QA/QC) site. In addition, an equipment blank and travel blank were analyzed for dissolved metals and total metals, respectively, for each sampling event. Lateral 3

along East Taylor Rd (previously called Yori Grove Drain) was scheduled as the QA/QC site for five of the 17 events during 2011 and therefore QA/QC samples from this site are included in Table 17 for completeness purposes. However, environmental samples collected from Lateral 3 along East Taylor Rd are not included in Table 17 since they are assessed in Appendix X. Overall, field blanks and field duplicates comprised more than 5% of samples collected for each analyte. Field blanks and field duplicates each comprised 10-11% of organic samples, 10.9% of *E. coli* samples, 9.4-11.1% of physical parameter samples, 10.9% of nutrient samples, 9.4-11.1% of dissolved metals and 9.4-11.1% of total metal samples. Equipment and travel blanks comprised 9.4-11.1% of dissolved and total metal samples, respectively (Table 17).

Field parameter measurements, including DO, discharge, pH, SC, and temperature were taken at each site for all sampling events, with the exception of dry sites. Discharge was measured at 66.3% of site visits and was not measured due to 1) only sediment and toxicity monitoring was conducted and measurement of discharge is not required (21), 3) the water was too deep to safely measure discharge (45), 4) the water being too swift to safely measure discharge (1), and 5) the water was too shallow to measure discharge (1). All instances where discharge was not measured are considered acceptable and do not count against completeness. Overall, all field parameters met 100% of the requirements for completeness (Table 17).

Batch Completeness

All chemistry batches were reviewed for QA/QC completeness. Two batches this sampling period were flagged as having incomplete quality control.

In January 2011, a single sample with a positive result for carbofuran was considered suspect by the laboratory due to possible contamination. The laboratory re-analyzed the sample with similar results. The sample was then re-extracted and re-analyzed in a separate batch outside of hold time with acceptable results. Matrix spikes were not re-extracted and were not run with the new batch due to a laboratory error. The batch duplicate was performed on the Laboratory Control Spike (LCS) meeting the requirements for precision.

In September 2011, a relative percent difference (RPD) criteria discrepancy was noticed by the laboratory for a Total Kjeldahl Nitrogen (TKN) field duplicate and its associated environmental sample. The samples were re-run, disconfirming the original results. Since the sample was also used for the only Matrix Spike (MS)/Matrix Spike Duplicate (MSD) in the original batch it was not possible to report the MS/MSD and due to lack of remaining volume the MS/MSD was unable to be re-analyzed. The batch duplicate was performed on the LCS meeting the requirements for precision.

Hold Time Compliance

Hold times for all chemistry analysis were met, except for one carbofuran batch in January 2011, one set of non-project nitrate + nitrite QC samples in March 2011, and two nitrate batches in June and July 2011. All samples are flagged accordingly. Overall hold time compliance for all chemistry analysis was 99.8%.

One hundred percent of lab blanks and LCS samples met acceptance criteria. Ninety-six percent of laboratory duplicates met acceptance criteria (< RPD 25%). Both the environmental sample and lab duplicate result were less than the RL. A non-project environmental sample and lab duplicate were run with the batch and the associated RPD was less than 25%. Matrix spikes are not performed for total suspended solids.

Turbidity: One hundred percent of field blanks and 100% of field duplicates met acceptability criteria. Laboratory blanks were run with every batch and 100% were less than the reporting limit. The LCS and laboratory duplicates were analyzed with each batch and all of the samples met acceptance criteria. Matrix spike are not performed for turbidity.

TOXICITY

For aquatic toxicity testing, the acceptability of test results is determined primarily by performance-based criteria for test organisms, culture and test conditions, and the results of control bioassays. Control bioassays include monthly reference toxicant testing and negative and solvent controls (for Toxicity Identification Evaluations (TIEs)). Test acceptability requirements are documented in the method documents for each bioassay method and are included in the ESJWQC QAPP. In addition to the quality assurance requirements for the toxicity testing methods, a field duplicate must be collected with each sampling event or every 20 samples, whichever is more frequent. Field duplicates were collected every sampling event. The overall percentage of field duplicates are as follows: *C. dubia* 11.3%, *P. promelas* 11.5%, *S. capricornutum* 10.9%, and *H. azteca* 10.3%.

Water Column Toxicity: Field duplicates were collected during each monitoring event and were tested for toxicity to *C. dubia*, *S. capricornutum* and *P. promelas* (Table 29). All three species had 100% of field duplicates within the acceptability criteria (RPD < 25%) except for *S. capricornutum* (15 of 17 field duplicates had RPDs less than 25%). Neither the *S. capricornutum* field duplicates nor environmental samples associated with the high RPDs (83.3% and 70%) exhibited significant toxicity compared to the control. All tests met holding time requirements (< 36 hours), water quality requirements and control requirements (as listed in the EPA method guidelines).

Sediment Toxicity: Sediment was collected on March 17, 2011 and September 6 and 13, 2011. Three field duplicates were collected and all had RPDs less than 25% (Table 29). One hundred percent of the sediment samples had laboratory control negatives within acceptability criteria. All sediment samples met holding time criteria.

CORRECTIVE ACTIONS

Corrective actions for QA/QC results that did not meet acceptance criteria were addressed in 2011 were performed by Coalition laboratories as outlined in the ESJWQC Quality Assurance Project Plan (QAPP; approved on February 23, 2011) and explained in the above sections if they occurred.

Two analytical batches did not have complete QA/QC performed due to re-analysis and limited sample volume. Since these were isolated events that required additional volumes of water and are not expected to occur again, additional corrective actions were not necessary.

Discharge in 2011 was only calculated for 67.7% of the events due to unsafe conditions that did not allow for samplers to wade the water to take flow measurements necessary to calculate discharge. Samplers recorded an observed flow during all sampling events and recorded this information on field sheets. No corrective action was necessary.

Additional corrective actions occurred in 2011 due to reduced sample completeness (lost samples en route to the laboratory) and hold time violations. Since the incident of lost samples during transit to the laboratory in February 2011, the Coalition has developed an email tracking system to communicate the following between the various parties involved: 1) when samples have been shipped, 2) when samples have been delivered, and 3) when samples have been received by the laboratories. This email tracking system ensures that all samples arrive safely to their destination and enable the sampling agencies to recollect samples in a timely manner if needed.

Hold time violations occurred for samples that had to be reanalyzed due to possible contamination. The laboratory analyzing for nitrate + nitrite has taken additional steps to insure that blank and nitrate + nitrite background levels are within control limits.

Table 1. ESJWQC environmental sample, field quality, and field parameter counts and percentages

Samples collected from January through December 2011; sorted by method and analyte.

Method	Analyte	Env. Samples Collected (#)[1]	Env. Samples Analyzed (#)[1]	Env. Samples Completeness (%)[1]	Env. and Field QC Samples Analyzed (#)	Field Blanks (#)	Field Blanks (%)	Field Dup. (#)	Field Dup. (%)	Equip. Blank (#)	Equip. Blank (%)	Travel Blank (#)	Travel Blank (%)
EPA 8321A CARB	Aldicarb	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 8321A CARB	Carbaryl	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 8321A CARB	Carbofuran	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 8321A CARB	Methiocarb	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 8321A CARB	Methomyl	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 8321A CARB	Oxamyl	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 8321A CARB	Diuron	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 8321A CARB	Linuron	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 619	Atrazine	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 619	Cyanazine	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 619	Simazine	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 547M	Glyphosate	73	64	87.6%	82	9	11.0%	9	11.0%		NA		NA
EPA 549.2M	Paraquat dichloride	73	64	87.6%	82	9	11.0%	9	11.0%		NA		NA
EPA 8081A	DDD(p,p')	73	73	100.0%	93	10	10.8%	10	10.8%		NA		NA
EPA 8081A	DDE(p,p')	73	73	100.0%	93	10	10.8%	10	10.8%		NA		NA
EPA 8081A	DDT(p,p')	73	73	100.0%	93	10	10.8%	10	10.8%		NA		NA
EPA 8081A	Dicofol	73	73	100.0%	93	10	10.8%	10	10.8%		NA		NA
EPA 8081A	Dieldrin	73	73	100.0%	93	10	10.8%	10	10.8%		NA		NA
EPA 8081A	Endrin	73	73	100.0%	93	10	10.8%	10	10.8%		NA		NA
EPA 8081A	Methoxychlor	73	73	100.0%	93	10	10.8%	10	10.8%		NA		NA
EPA 8081A	Aldrin	73	73	100.0%	93	10	10.8%	10	10.8%		NA		NA
EPA 8081A	Chlordane	73	73	100.0%	93	10	10.8%	10	10.8%		NA		NA
EPA 8081A	Heptachlor	73	73	100.0%	93	10	10.8%	10	10.8%		NA		NA
EPA 8081A	Heptachlor epoxide	73	73	100.0%	93	10	10.8%	10	10.8%		NA		NA
EPA 8081A	HCH, alpha	73	73	100.0%	93	10	10.8%	10	10.8%		NA		NA
EPA 8081A	HCH, beta	73	73	100.0%	93	10	10.8%	10	10.8%		NA		NA
EPA 8081A	HCH, delta	73	73	100.0%	93	10	10.8%	10	10.8%		NA		NA
EPA 8081A	HCH, gamma	73	73	100.0%	93	10	10.8%	10	10.8%		NA		NA
EPA 8081A	Endosulfan I	73	73	100.0%	93	10	10.8%	10	10.8%		NA		NA
EPA 8081A	Endosulfan II	73	73	100.0%	93	10	10.8%	10	10.8%		NA		NA
EPA 8081A	Toxaphene	73	73	100.0%	93	10	10.8%	10	10.8%		NA		NA
EPA 8141A OP	Azinphos methyl	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 8141A OP	Chlorpyrifos	136	136	100.0%	170	17	10.0%	17	10.0%		NA		NA
EPA 8141A OP	Diazinon	123	123	100.0%	157	17	10.8%	17	10.8%		NA		NA

Method	Analyte	Env. Samples Collected (#)[1]	Env. Samples Analyzed (#)[1]	Env. Samples Completeness (%)[1]	Env. and Field QC Samples Analyzed (#)	Field Blanks (#)	Field Blanks (%)	Field Dup. (#)	Field Dup. (%)	Equip. Blank (#)	Equip. Blank (%)	Travel Blank (#)	Travel Blank (%)
EPA 8141A OP	Dichlorvos	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 8141A OP	Dimethoate	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 8141A OP	Demeton-s	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 8141A OP	Disulfoton	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 8141A OP	Malathion	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 8141A OP	Methidathion	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 8141A OP	Parathion, Methyl	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 8141A OP	Phorate	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 8141A OP	Phosmet	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 8141A OP	Trifluralin	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 8321A	Methamidophos	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
SM 2340 C	Hardness as CaCO3 (Dissolved)	147	147	100.0%	181	17	9.4%	17	9.4%		NA		NA
EPA 160.1	Total Dissolved Solids	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 160.2	Total Suspended Solids	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 180.1	Turbidity	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 350.2	Ammonia as N	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 351.3	Nitrogen, Total Kjeldahl	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 353.2	Nitrate + Nitrite as N	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 365.2	OrthoPhosphate as P	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 365.2	Phosphate as P	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 415.1	Total Organic Carbon	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
SM 9223B	*E. coli*	122	122	100.0%	156	17	10.9%	17	10.9%		NA		NA
EPA 200.8	Arsenic	84	84	100.0%	108	12	11.1%	12	11.1%		NA	12	11.1%
EPA 200.8	Boron	122	122	100.0%	156	17	10.9%	17	10.9%		NA	17	10.9%
EPA 200.8	Cadmium	84	84	100.0%	108	12	11.1%	12	11.1%		NA	12	11.1%
EPA 200.8	Copper	146	146	100.0%	180	17	9.4%	17	9.4%		NA	17	9.4%
EPA 200.8	Lead	92	92	100.0%	118	13	11.0%	13	11.0%		NA	13	11.0%
EPA 200.8	Molybdenum	84	84	100.0%	108	12	11.1%	12	11.1%		NA	12	11.1%
EPA 200.8	Nickel	122	122	100.0%	156	17	10.9%	17	10.9%		NA	17	10.9%
EPA 200.8	Selenium	117	117	100.0%	149	16	10.7%	16	10.7%		NA	16	10.7%
EPA 200.8	Zinc	122	122	100.0%	156	17	10.9%	17	10.9%		NA	17	10.9%
EPA 200.8	Cadmium (Dissolved)	84	84	100.0%	108	12	11.1%	12	11.1%	12	11.1%		NA
EPA 200.8	Copper (Dissolved)	146	146	100.0%	180	17	9.4%	17	9.4%	17	9.4%		NA
EPA 200.8	Lead (Dissolved)	92	92	100.0%	118	13	11.0%	13	11.0%	13	11.0%		NA
EPA 200.8	Nickel (Dissolved)	122	122	100.0%	156	17	10.9%	17	10.9%	17	10.9%		NA
EPA 200.8	Zinc (Dissolved)	122	122	100.0%	156	17	10.9%	17	10.9%	17	10.9%		NA
Walkley-Black	Total Organic Carbon (sediment)	24	24	100.0%	27		NA	3	11.1%		NA		NA

Method	Analyte	Env. Samples Collected (#)[1]	Env. Samples Analyzed (#)[1]	Env. Samples Completeness (%)[1]	Env. and Field QC Samples Analyzed (#)	Field Blanks (#)	Field Blanks (%)	Field Dup. (#)	Field Dup. (%)	Equip. Blank (#)	Equip. Blank (%)	Travel Blank (#)	Travel Blank (%)
EPA 8270M_NCI	Bifenthrin	1	1	100.0%	2		NA	1	50%		NA		NA
EPA 8270M_NCI	Chlorpyrifos	1	1	100.0%	2		NA	1	50%		NA		NA
EPA 8270M_NCI	Cyfluthrin	1	1	100.0%	2		NA	1	50%		NA		NA
EPA 8270M_NCI	Cyhalothrin, lambda	1	1	100.0%	2		NA	1	50%		NA		NA
EPA 8270M_NCI	Cypermethrin	1	1	100.0%	2		NA	1	50%		NA		NA
EPA 8270M_NCI	Deltamethrin:Tralomethrin	1	1	100.0%	2		NA	1	50%		NA		NA
EPA 8270M_NCI	Esfenvalerate/Fenvalerate	1	1	100.0%	2		NA	1	50%		NA		NA
EPA 8270M_NCI	Fenpropathrin	1	1	100.0%	2		NA	1	50%		NA		NA
EPA 8270M_NCI	Permethrin	1	1	100.0%	2		NA	1	50%		NA		NA
EPA 821/R-02-012	*Ceriodaphnia dubia*	124	124	100.0%	141		NA	17	12.1%		NA		NA
EPA 821/R-02-012	*Pimephales promelas*	122	122	100.0%	139		NA	17	12.2%		NA		NA
EPA 821/R-02-013	*Selenastrum capricornutum*	129	129	100.0%	144		NA	15	10.4%		NA		NA
EPA 600/R-99-064	*Hyalella azteca*	24	24	100.0%	27		NA	3	11.1%		NA		NA
USGS R2Cross streamflow or DWR Gauge	Discharge, cfs	202	134	66.3%	NA		NA		NA		NA		NA
SM 4500-O	Dissolved Oxygen, mg/L	202	202	100.0%	NA		NA		NA		NA		NA
EPA 150.1	pH	202	202	100.0%	NA		NA		NA		NA		NA
EPA 120.1	Specific Conductivity, uS/cm	202	202	100.0%	NA		NA		NA		NA		NA
SM 2550	Temperature, Deg C	202	202	100.0%	NA		NA		NA		NA		NA
	TOTAL	**8873**	**8787**	**99.0%**	**9947**	**1019**	**10.2%**	**1083**	**10.9%**	**76**	**10.1%**	**133**	**10.8%**

[1] Environmental samples from Lateral 3 along East Taylor Rd are not included (see Appendix X).
NA- Not applicable