13 April 2016

Mr. Dave Hampton
Cawelo Water District Coalition
17207 Industrial Farm Road
Bakersfield, California 93308

QUALITY ASSURANCE PROGRAM PLAN – CAWELO WATER DISTRICT COALITION

Thank you for the 23 October 2014 submittal of the Quality Assurance Program Plan (QAPP) by the Cawelo Water District Coalition (Coalition) as required by the Monitoring and Reporting Program (MRP) for Waste Discharge Requirements General Order R5-2013-0120.
The elements required for an approved QAPP are described in Attachment B to Order R5-2013-0120, Monitoring and Reporting Program (MRP) Section VIII. The most current version of the QAPP guidelines can be found in Attachment C of the Monitoring and Reporting Plan, Order R5-2008-0005. We have completed a review of the QAPP and have found several items which need revision. The enclosed table contains a summary of the MRP requirements, as well as comments describing necessary changes.

It is anticipated that several items identified in the attached table will be revised as part of the Surface Water Management Plan (SWMP) approval process. Comments provided in the table reflect current monitoring requirements of QAPPs and SWMPs approved for other Coalitions. These items include requirements to;

- sample all surface waters, or representative waters, within Coalition boundaries,
- sample surface water whenever water is present, regardless of flow conditions,
- evaluate the ephemeral nature of waterbodies within the Coalition boundary.

A revised QAPP should be submitted to the Coalition liaison, Eric Warren, as soon as practically possible. Please contact me at (559) 445-5584 or at sarah.rutherford@waterboards.ca.gov if I can offer any further clarification or assistance.

Original Signed by:

SARAH RUTHERFORD
Environmental Scientist

DAVID SHOLES
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Attachments: QAPP review summary

cc: Sue McConnell, Supervising Water Resource Control Engineer, Rancho Cordova
David Sholes, Senior Engineering Geologist, Fresno

QAPP Review Summary

Abbreviations
A – Acceptable
I – Incomplete
U - Unacceptable
NI – Not Included
NA – Not Applicable

SWAMP Element Number	USEPA Element	Element Name and Review Aspect	Acceptable	Incomplete/Unacceptable Not Included	Not Applicable	Page # (Section #)	Comments (and notes)
A		**PROJECT MANAGEMENT**					
A1	1	**Title and Approval Sheet (s)**					
A1.1	1	Contains project title	A			1	
A1.2	1	Indicates revision number, if applicable	A			1	
A1.3	1	Indicates organization's name	A			1	
A1.4	1	Dated signature of organization's project manager present		I		1	Date of signature missing.
A1.5	1	Signature block for Organization's Project Manager		I		1	
A1.6	1	Signature block for Organization's QA Officer		I		1	Signature missing for Mr. Hampton.
A1.7	1	Signature block for Contract Manager			NA		

A1.8	1	Signature block for Board QA Officer		NI		1	Signature block for Renee Spears, Quality Assurance Officer, State Water Resources Control Board should be included.
A2.	2	**Table of Contents**					
A2.1	2	Lists QA Project Plan information sections	A			2	
A2.2	2	Document control information indicated		NI			
A2.3	2	Provides lists of tables and figures,	A			2	
A2.4	2	Provides contents of each Appendix	A			2	
A2.5	2	Lists all attached SOPs (with names, not just numbers)	A			3	
A3.	3	**Distribution List**					
A3.1	3	Includes all individuals who are to receive a copy of the QA Project Plan and identifies their organization.	A			5,6	
A4.	4	**Project/Task Organization**					
A4.1	4	Identifies key individuals involved in all major aspects of the project, including contractors	A			7	
A4.2	4	Discuss their responsibilities	A			7	
A4.3	4	Project QA Manager position indicates independence from unit generating data	A			7	
A4.4	4	Identifies individual responsible for maintaining the official, approved QA Project Plan	A			23	
A4.5	4	Organizational chart shows lines of authority and reporting responsibilities	A			9	

A4.6	4	Clearly identifies who is part of the Project Team and who is related to the Project in an advisory role (but is not responsible for delivery of any product)	A			8	
A5.	5	**Problem Definition/Background**					
A5.1	5	States decision(s) to be made, actions to be taken, or outcomes expected from the information to be obtained		I		13	Determination of Core, Assessment or Ephemeral sites will be completed as part of the Surface Water Monitoring Plan approval process.
A5.2	5	Clearly explains the reason (site background or historical context) for initiating this project	A			12, 13	
A5.3	5	Identifies regulatory information, applicable criteria, action limits, etc. necessary to the project	A			11, 12	
A6.	6	**Project/Task Description**					
A6.1	6	Summarizes work to be performed, for example, measurements to be made, data files to be obtained, etc., that support the project's goals	A			14-16	
A6.2	6	Provides work schedule indicating critical project points, e.g., start and completion dates for activities such as sampling, analysis, data or file reviews, and assessments		I		14	Data assessments are not clearly described. Work schedule or sampling schedule for all sites should be included. Should also identify monitoring objectives for each site.

A6.3	6	Details geographical locations to be studied, including maps where possible		U		15, 26, 27	Sampling sites must be representative and adequately address all surface waters within the Coalition boundaries, constructed agricultural conveyance features. Additional sites should be considered to comply with the requirements of the MRP.
A6.4	6	Discuss resource and time constraints, if applicable	A			16	
A7.	7	**Quality Objectives and Criteria**					
A7.1	7	Provides parameter lists with data quality objectives for all field measurements and lab analyses, including laboratory target detection limits, which are as good as the SWAMP DQOs or better.	A			11,17,21	
A7.2	7	Identifies project action limits for all parameters of interest	A			11	
A7.3	7	Identifies acceptance criteria for all previously collected information			NA		
A7.4	7	Discuss precision	A			19	
A7.5	7	Addresses bias		I		25	
A7.6	7	Discuss representativeness and how it will be assessed and controlled	A			18	
A7.7	7	Identifies the need for completeness	A			19-20	
A8.	8	**Special Training/Certifications**					
A8.1	8	Identifies any project personnel specialized training or certifications		I		21	
A8.2	8	States that the Contractor's QA Officer is responsible for overseeing training		NI			Should include a brief discussion of lab technician training on sampling procedures and QAPP requirements.
A8.3	8	Discusses how this training will be provided		NI			

A8.4	8	Indicates personnel responsible for assuring these are satisfied		NI			
A8.5	8	Identifies where this information is documented		NI			
A9.	9	**Documentation and Records**					
A9.1	9	Identifies report format and summarizes all data report package information	A			23	Copies of data will not be kept in the Rancho Cordova Regional Board office. The Fresno Regional Board will load the data into the CEDEN SWAMP database. Data CANNOT be directly input into the SWAMP database.
A9.2	9	Lists all other project documents, record, and electronic files that will be produced	A			22	
A9.3	9	Identifies where project information should be kept and for how long	A			22	
A9.4	9	Discusses back up plans for records stored electronically	A			22	
A9.5	9	States how individuals identified in A3 will receive the most current copy of the approved QA Project Plan, identifying the individuals responsible for this	A			23	
B	10	**DATA GENERATION AND ACQUISITION**					
B01.	10	**Sampling Process Design (Sampling Design and Logistics)**					

B01.1	10	Provides the design information, or a reference to a specific document that contains it, at the required level of detail to enable the reader to tell whether the data will achieve the objective.	A			24	
B01.2	10	Describes and justifies design strategy, indicating size of the area, or time period to be represented by a sample		I		24	The sampling design should explain how management practices or stormwater runoff will be correlated to collected data and the area or management practice represented by the collected data.
B01.3	10	Details the type and total number of sample types/matrix or test runs/trials expected and needed	A			24	
B01.4	10	Indicates where samples should be taken, how sites will be identified located		U		24, 26, 27 & 28	The SWMP must address and the QAPP must support the MRP requirement to monitor all surface waters within the Coalition boundary. Revisions should be made to reflect the requirements of the MRP. Page 28, identifies processes in the event of a change of sampling location. Regional Board staff should also be notified in the event a sampling location is modified.
B01.5	10	Discusses what to do if sampling sites become inaccessible [logistics]	A			24	
B01.6	10	Identifies project activity schedules such as each sampling event, times samples should be sent to the laboratory, etc. [logistics]		I			
B01.7	10	Specifies what information is critical and what is for informational purposes only	A			25	

B01.8	10	Identifies sources of natural variability and how this variability should be reconciled with project information	A			25	
B01.9	10	Identifies potential sources of bias or misrepresentation and how their contribution can be minimized	A			25	
B02.	11	**Sampling (sample collection) Methods**					
B02.1	11	Identifies all sampling SOPs by number, date, and regulatory citation, indicating sampling options or modifications to be taken. SOPs for sample collection should be attached, unless they are the original SWAMP SOPs.	A			33-34	
B02.2	11	Indicates how each kind of matrix and each sample type should be collected		U		28, 31-32	A water quality sample must be collected whenever water is present, "flowing" or "moving" water is not a requirement of the MRP. The MRP requires monitoring of all surface water bodies potentially influenced by irrigated agriculture. Sample site collection should consider following procedures recommended by the SWAMP QAPP, which include wearing disposable, nitrile, powder free gloves, as well as deploying field instruments after sample collection has occurred to prevent the potential of disturbing sediment and interference with sample results.

B02.3	11	Indicates how samples are to be homogenized, composited, split, or filtered, if needed		I		31	Indicates that metals samples will be collected in an acidified bottle. The MRP requires dissolved fraction to be analyzed in addition to total for some metals. Will dissolved fraction samples be filtered in the field or collected in an unacidified bottle to be filtered in the lab?
B02.4	11	Indicates what sample containers and sample volumes should be used	A			31-32	
B02.5	11	Identifies whether samples should be preserved and indicates methods that should be followed	A			31-32	
B02.6	11	Indicates whether sampling equipment and samplers should be cleaned and/or decontaminated, identifying how this should be done and by-products disposed of		I		29	There is no discussion of sampler decontamination, or wearing disposable gloves.
B02.7	11	Identifies any equipment and support facilities needed			NA		
B02.8	11	Addresses actions to be taken when problems occur, identifying individual(s) responsible for corrective action and how this should be documented	A			14, 45,46, 47, 54, 55	

B03.	12	**Sample Handling and Custody**					
B03.1	12	States maximum holding times allowed from sample collection to extraction and/or analysis for each sample type	A			31-32	
B03.2	12	Identifies how samples or information should be physically handled, transported, and then received and held in the laboratory or office (including temperature upon receipt)	A			31-32	Temperature of toxicity samples held overnight should be monitored to ensure that the samples are maintained at 0-6^{0}C as described in the EPA method.
B03.3	12	Indicates how sample or information handling and custody information should be documented, such as in field notebooks and forms, identifying individual responsible	A			31-32 App. A.2	Exceeding a hold time does not preclude the sample from data submittal. Analysis which exceeds hold time limitations should be documented and flagged in the submittal package.
B03.4	12	Identifies chain-of-custody procedures and includes form to track custody	A			App. A.1	
B04.	13	**Analytical Methods and Field Measurements**					
B04.01	13	Identifies all SOPs (field and/or office) that should be followed by number, date, and regulatory citation, indicating options or modifications; SOPs should be attached unless they are the original SWAMP SOPs.	A			33, App B	

B04.02	13	Lists all the Instruments and Kits that will be used in the field and describes the measurement principle (e.g., nephelometric or transparency) and the major attributes (e.g., automatic temperature compensation, range and resolution, etc.)	A			51	
B04.03	13	If *in situ* monitoring, indicates how instruments should be deployed and operated to avoid fouling and ensure maintenance of proper data			NA		
B04.04	13	If continuous monitoring, indicates how instruments should store and maintain raw data			NA		
B04.05	13	Identifies all laboratory SOPs that should be followed by number, date, and regulatory citation, indicating options or modifications to be taken, such as sub-sampling and extraction procedures	A			33-34	Page 37 foot note 2 describes possible use of EPA 8270C. Has this method been adopted for use by the lab since submittal of the QAPP?
B04.06	13	Identifies equipment or instrumentation needed for laboratory analyses	A			51	
B04.07	13	Specifies any specific method performance criteria	A			38-44	
B04.08	13	Identifies procedures to follow when failures occur, identifying individual responsible for corrective action and appropriate documentation	A			32,33	
B04.09	13	Identifies sample disposal procedures	A			45	
B04.10	13	Specifies laboratory turnaround times needed	A			45	

B04.11	13	Provides method validation and information and SOPs for nonstandard methods and PBMS			NA		
B04.12	13	Indicates where PBMS method development records are stored and how they can be accessed			NA		
B05.	14	**Quality Control**					
B05.1	14	For each type of sampling, analysis, or measurement technique, identifies QC activities which should be used, for example, blanks, spikes, duplicates, etc.	A			47	
B05.2	14	Details what should be done when control limits are exceeded, and how effectiveness of control actions will be determined and documented		U		45-46	Corrective action for failure of laboratory or field duplicates should include review of QA procedures with field/lab staff.
B05.3	14	Identifies procedures and formulas for calculating Data Quality Indicators or applicable QC statistics, for example, for precision, bias, outliers and missing data	A			47-50	
B06.	15	**Instrument/Equipment Testing, Inspection, and Maintenance**					
B06.1	15	Identifies field and laboratory equipment needing periodic maintenance, and the schedule for this	A			50, 51	

B06.2	15	Identifies testing criteria [This information is instrument-specific and may be already included in the SOP for each Instrument]	A			App. B1, B2, C1, C2	
B06.3	15	Notes availability and location of spare parts	A			50	
B06.4	15	Indicates procedures in place for inspecting equipment before usage [This information is instrument-specific and may be already included in the SOP for each Instrument]	A			50-51	
B06.5	15	Identifies individual(s) responsible for testing, inspection and maintenance	A			50	
B06.6	15	Indicates how deficiencies found should be resolved, re-inspections performed, and effectiveness of corrective action determined and documented	A			50, 51	
B07.	16	**Instrument/Equipment Calibration and Frequency**					
B07.1	16	Identifies equipment, tools, and instruments (used in the field or in the lab) that should be calibrated, and the frequency for this calibration	A			51	
B07.2	16	Describes how calibrations should be performed and documented, indicating test criteria and standards or certified equipment [This information is instrument-specific and may be already included in the SOP for each Instrument]	A			52	

B07.3	16	Identifies how deficiencies should be resolved and documented	A			52	
B08.	17	**Inspection/Acceptance for supplies and Consumables**					
B08.1	17	Identifies critical supplies and consumables for field and laboratory, noting supply source, acceptance criteria, and procedures for tracking, storing and retrieving these materials	A			52	
B08.2	17	Identifies the individual(s) responsible for this	A			52	
B09	18	**Non-direct Measurements**					
B09.1	18	Identifies data sources, for example, computer databases or literature files, or models that should be accessed and used	A			53	
B09.2	18	Describes the intended use of this information and the rationale for their selection, i.e., its relevance to project			NA		
B09.3	18	Indicates the acceptance criteria for these data sources and/or models [re-iterated or referred to Element A7)		NI			
B09.4	18	Identifies key resources/support facilities needed	A			53	
B09.5	18	Describes how limits to validity and operating conditions should be determined, for example, internal checks of the program and Beta testing		I		53	

B10.	19	**Data Management**					
B10.01	19	Describes data management scheme from field to final use and storage, for field measurements, continuous monitoring files, and lab analyses	A			53, 54	
B10.02	19	Verifies that all continuous monitoring raw data will be kept in the original Sonde file (and stored on a PC); endpoints (e.g. Averages) can be calculated in the office after downloading and trimming records logged out of the water.			NA		
B10.03	19	Discusses standard record-keeping and tracking practices, and the document control system or cites other written documentation such as SOPs	A			53	
B10.04	19	Identifies data handling equipment/procedures that should be used to process, compile, analyze, and transmit data reliably and accurately	A			53	
B10.05		Describes how field measurement, continuous monitoring, and laboratory analyses data will be formatted and entered - or prepared for upload - into the SWAMP database		I		53, 54	Data must be submitted to the Fresno Regional Board and cannot be entered directly into the SWAMP database.
B10.06	19	Identifies individual(s) responsible for each step and task	A				

B10.09	19	Describes procedures to demonstrate acceptability of hardware and software configurations (??)			NA		
B10.10	19	Attaches checklists and forms that should be used [or refers the reader to other QAPP elements where the forms are shown, or refers to SOPs]		I		54	Help and checklist for data submittals is no longer found at the “mpsl” website. Checklists are now available at the ILRP website "electronic data submittals" http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/water_quality/electronic_data_submission/index.shtml
C	20	**ASSESSMENT AND OVERSIGHT**					
C1.	20	**Assessments and Response Actions**					
C1.1	20	Lists the number, frequency, and type of assessment activities that should be conducted, with the approximate dates	A			54	
C1.2	20	Identifies individual(s) responsible for conducting assessments, indicating their authority to issue stop work orders, and any other possible participants in the assessment process	A			54	
C1.3	20	Describes how and to whom assessment information should be reported	A			54	
C1.4	20	Identifies how corrective actions should be addressed and by whom, and how they should be verified and documented	A			54	

C2.	21	**Reports to Management**					
C2.1	21	Identifies what project QA status reports are needed and how frequently	A			55	
C2.2	21	Identifies who should write these reports and who should receive this information	A			55	
D	22	**DATA VALIDATION AND USABILITY**					
D1.	22	**Data Review, Verification, and Validation**					
D1.1	22	Describes SWAMP criteria that should be used for accepting, rejecting, or qualifying project data; re-iterates or refers to element 7	A			56	
D2	23	**Verification and Validation Methods**					
D2.1	23	Describes process for data verification and validation, providing SOPs and indicating what data validation software should be used, if any	A			56	
D2.2	23	Identifies who is responsible for verifying and validating different components of the project data/information, for example, chain-of-custody forms, receipt logs, calibration information, etc.	A			56	
D2.3	23	Identifies issue resolution process, and method and individual responsible for conveying these results to data users	A			56	
D2.4	23	Attaches checklists, forms, and calculations including electronic formulae if using spreadsheets	A			58-63	

D3.	24	**Reconciliation with User Requirements**					
D3.1	24	Describes procedures to evaluate the uncertainty of the validated data [or refer them to previous elements]	A			56, 57	
D3.2	24	Describes how limitations on data use should be reported to the data users	A			56, 57	
D3.3	24	Identifies how the data will be used in the context of the SWAMP umbrella and the SWAMP database			NA		