

14 October 2011

MEMORANDUM

To: CV-SALTS Executive Committee

From: Michael T. Steiger, P.E.
Eler & Kalinowski, Inc.
CV-SALTS Technical Project Manager

Subject: Planning-Level Scopes to Establish Appropriate Beneficial Uses
For Selected Archetype Water Bodies
(EKI B10058.00)

As requested by the CV-SALTS Executive Committee, Eler & Kalinowski, Inc. (“EKI”) has prepared planning-level scopes for establishing appropriate beneficial uses for selected archetype water bodies through Basin Plan amendments. The planning-level scopes are presented in the attached tables:

- Table 1: Systems designed or modified to convey or hold municipal wastewater or agricultural drainage water¹
- Table 2: Groundwater beneath a portion of the Tulare Lake Bed

The tables outline generalized tasks, potential cost ranges, and potential timeframes for achieving Basin Plan amendments for archetype water bodies.

PURPOSE OF PLANNING-LEVEL SCOPES

These planning-level scopes are intended to support decision making by the Executive Committee. We anticipate the Executive Committee will use these planning-level scopes to determine a course of action with regards to completing Basin Plan amendments that

¹ Examples identified by CV-SALTS Executive Committee include Butte Slough, and conveyances receiving publicly owned treatment works (“POTW”) effluent from the cities of Biggs, Live Oak, Willows, and Colusa.



meet stakeholder needs. The Executive Committee may wish to consider modifications or alternatives to the attached planning-level scopes.²

ASSUMPTIONS AND LIMITATIONS OF PLANNING-LEVEL SCOPES

To develop these planning-level scopes, EKI relied upon the following information:

- Guidance documents and reports prepared by such agencies as the Central Valley Regional Water Quality Control Board (“CVRWQCB”), California Department of Health Services, and U.S. Environmental Protection Agency and U.S. Army Corps of Engineers.
- Discussions and meetings with CVRWQCB staff, and stakeholders and their consultants and advisors, i.e., Central Valley Clean Water Agency, Tulare Lake Drainage District, and San Joaquin River Group Authority.

EKI did not conduct a detailed review of data and other potentially relevant information related to archetype water bodies identified by CV-SALTS. Some of the tasks identified in the planning-level scopes may be partially or entirely completed for certain archetypes.³ Thus, detailed review of available data and other relevant information is necessary before proposals with scope, budget, and schedule can be obtained and evaluated for accomplishing the technical studies required for the Basin Plan amendments.

Please call with any questions.

cc: Daniel Cozad (CV-SALTS Program Manager)
Jeanne Chilcott (CVRWQCB)
Andy Safford, Karen Gruebel (EKI)

² Alternatives may include developing appropriate beneficial uses at the “watershed” scale with points of compliance, developing site-specific water quality objectives, or grouping archetypes for environmental and economic analyses, peer review, and approval by CVRWQCB and other agencies.

³ For example, we understand CVRWQCB staff has performed sampling and summarized the resulting data and information pertaining to treated effluent discharged by the City of Colusa to an unnamed tributary and Powell Slough.

TABLE 1
SUMMARY OF GENERALIZED TASKS TO AMEND BASIN PLAN TO ESTABLISH APPROPRIATE BENEFICIAL USES FOR A
SYSTEM DESIGNED OR MODIFIED TO CONVEY OR HOLD MUNICIPAL WASTEWATER OR AGRICULTURAL DRAINAGE WATERS (a)

Task	Purpose	Example of Work That May Need to be Performed	Potential Cost Range (b)	Potential Timeframe (b)
1 Compile existing data on system receiving POTW effluent.	Review available water quality data, and information on system construction, purpose, and management to determine which exception criteria of Resolution No. 88-63 are met (CVRWQCB, 2011a, p. 8; CVRWQCB, 2007, pp. 8-9; CVRWQCB, 2005, pp. 11-12; and DHS, 1997, pp. 1-2). See notes (c), (d), and (e).	Compile available water quality data and describe existing conditions, including construction, purpose, and management of system and background levels of constituents of concern in water.	\$20,000 to \$30,000	2 mos to 4 mos
2 Delineate areas that utilize water and identify crops grown in these areas.	Confirm no water is used directly for municipal or domestic supply (MUN), and water applied to land does not pose a risk to groundwater beneficial uses (CVRWQCB, 2007, p. 8; CVRWQCB, 2005, p. 6; and CVRWQCB, 2011b, pp. A-29 to A-32). See note (f).	Inspect system to confirm no municipal or domestic intakes exist. Review land use records to characterize the types of food and forage crops that are irrigated by water in system. Examine records to verify no potential conduits (e.g., active, inactive, or abandoned wells) to groundwater are present on lands irrigated by water in system.	\$10,000 to \$30,000	1 mos to 2 mos
4 Assess U.S. EPA use attainability factors to establish MUN is not an appropriate designated use of system.	Federal requirement must be met if system is established to be a water of the United States (U.S. EPA and USACE, 2011, p. 7 and CVRWQCB, 2011a, p. 8). See note (g).	Determine if system is a water of the United States. If so, conduct use attainability analysis that demonstrates MUN is not an appropriate designated use of system.	\$20,000 to \$40,000	1 mos to 2 mos

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Task	Purpose	Example of Work That May Need to be Performed	Potential Cost Range (b)	Potential Timeframe (b)
5 Establish MUN was not an "existing use" on or after 28 November 1975.	Federal requirement must be met if system is established to be a water of the United States.	Review historical documents to establish past uses of system and chemical concentration trends in water over time.	\$0 to \$20,000	0 mos to 2 mos
6 Measure flow rate of water in system over a hydrologic cycle (i.e., rainy and dry months).	Flow rate data may be needed to assess if ephemeral, intermittent, or low flow conditions naturally exist in system (CVRWQCB, 2011a, p. 12 and CVRWQCB, 2005, p. 10). See note (h).	Measure surface water flow rate in system, if existing data are not adequate.	\$0 (i) to \$80,000 (j)	12 mos to 18 mos
7 Obtain water quality data for POTW effluent and all receiving waters over a hydrologic cycle.	Water quality data are needed to establish the naturally occurring and anthropogenic background concentrations of the constituents of concern. Water quality data will be used to support the finding that MUN is not an appropriate beneficial use of the system under consideration (CVRWQCB, 2011a, p. 12).	Collect surface water samples and conduct laboratory testing, if existing water quality data are not sufficient to support Basin Plan amendments. See note (k).	\$0 (i) to \$80,000	See note (l).
8 Prepare information document and conduct CEQA scoping meeting.	Public participation begins with CEQA scoping to allow the public to provide input on the Basin Plan amendments and suggest alternatives and mitigation measures, if warranted (CVRWQCB, 2011a, Appendix C, p. 4).	Conduct public outreach as required by Section 3777 of Title 23 of the California Code of Regulations ("CCR"). Pursuant to 23 CCR §3777, the Basin Plan amendments must be accompanied by Substitute Environmental Documentation ("SED") and supported by substantial evidence in the administrative record.	\$10,000 to \$20,000	3 mos

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Task	Purpose	Example of Work That May Need to be Performed	Potential Cost Range (b)	Potential Timeframe (b)
9 Complete CVRWQCB staff report describing proposed Basin Plan amendments.	The report provides the rationale for the Basin Plan amendments, which includes the SED and antidegradation policy analysis (CVRWQCB, 2011a, Appendix C, p. 5; CVRWQCB, 2007, p. ii; and CVRWQCB, 2005, p. i).	Prepare text, figures, and tables justifying Basin Plan amendments for system under consideration.	\$80,000 to \$100,000	6 mos
10 Perform an economic analysis of proposed Basin Plan amendments.	The economic analysis will quantify and apportion the costs and benefits of the proposed Basin Plan amendments (CVRWQCB, 2011a, Appendix C, p. 5; CVRWQCB, 2007, p. 14; and CVRWQCB, 2005, p. 16).	Prepare report that summarizes economic analysis of Basin Plan amendments.	\$20,000 to \$30,000	See note (m).
11 Conduct peer review of proposed Basin Plan amendments.	Peer review is required of the CVRWQCB staff report and proposed Basin Plan amendments if a scientific justification for the changes exist. CVRWQCB staff report is amended based upon peer review comments (CVRWQCB, 2011a, Appendix C, p. 5).	Retain expert to review CVRWQCB staff report and proposed Basin Plan amendments.	\$30,000 to \$50,000	6 mos
12 Circulate CVRWQCB staff report and proposed Basin Plan amendments.	Upon responding to public comments, and possibly holding public workshops to explain responses, CVRWQCB may adopt Basin Plan amendments at a public hearing (CVRWQCB, 2011a, Appendix C, p. 5).	Provide opportunity for public review and comment of CVRWQCB staff report and proposed Basin Plan amendments.	\$10,000 to \$20,000	3 mos

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Task	Purpose	Example of Work That May Need to be Performed	Potential Cost Range (b)	Potential Timeframe (b)
13 Obtain necessary approvals of Basin Plan amendments adopted by CVRWQCB.	Basin Plan amendments must be approved by State Water Resources Control Board, Office of Administrative Law, and U.S. EPA before amendments become effective (CVRWQCB, 2011a, Appendix C, p. 5).	Arrange for required legal review.	See note (n).	6 mos
TOTALS:			\$200,000 to \$500,000	39 mos to 52 mos

Notes:

- (a) Archetypical examples identified by CV-SALTS Executive Committee include Butte Slough, and conveyances receiving publicly owned treatment works ("POTW") effluent from the cities of Biggs, Live Oak, Willows, and Colusa.
- (b) Cost and schedule estimates pertain to work associated with amending the Basin Plan for a single system. Estimates are for planning purposes only. Actual expense and timeframe for completing each task may vary substantially from those presented.
- (c) MUN was determined not to be an appropriate use for Sulphur Creek because of elevated naturally-occurring concentrations of total dissolved solids ("TDS") and mercury that cannot reasonably be treated for municipal or domestic supply.
- (d) MUN was determined not to be an appropriate beneficial use for Old Alamo Creek because the conveyance functions essentially as a system that has been constructed or modified to contain municipal wastewater and agricultural drainage waters.
- (e) The Department of Health Services ("DHS") states "extremely impaired sources," which include effluent dominated surface water and agricultural drainage water, "should not be considered for direct human consumption where alternatives are available."
- (f) To protect groundwater, the Long-term Irrigated Lands Program requires implementation of regional Groundwater Quality Management Plans ("GQMPs") and Individual Farm Water Quality Management Plans ("IFWQMPs"). GQMPs require monitoring to track changes in groundwater quality. Monitoring for the constituents of concern must be performed to determine whether the management plan is improving groundwater quality. At a minimum, FWQMPs must describe those practices needed or currently in use to achieve groundwater quality protection.
- (g) Task is required if the system is determined to be a water of the United States. According to U.S. EPA and USACE draft 2011 guidance, these agencies will assert jurisdiction over waters with a "significant nexus" to navigable waters. U.S. EPA and USACE (2011) indicate a system does not have a significant nexus if it has no more than a "speculative or insubstantial effect on the chemical, physical, or biological integrity of downstream traditional navigable waters or interstate waters."
- (h) Low flow, pursuant to 40 CFR 131.10(g)(2), in Old Alamo Creek was determined to play a role in preventing MUN from being attainable in this system.

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Notes:

- (i) Assume existing data are adequate to support Basin Plan amendments and no additional flow or water quality data are needed.
- (j) Potential cost for task includes the expense of preparing a work plan for CV-SALTS review and approval that describes the flow rate data to be obtained under Task 6 and the water quality data to be obtained under Task 7.
- (k) According to CVRWQCB, water samples should be collected of the effluent, and upstream and downstream of the effluent discharge location on a monthly basis for a year. Collected water samples should be analyzed for TDS, electrical conductivity, and other constituents of concern, including nitrate, arsenic, manganese, iron, aluminum, methylene blue active substances (i.e., MBAS), and trihalomethanes. Subsequent receiving waters should be similarly tested upstream and downstream of the confluence with the system conveying or holding municipal wastewater or agricultural drainage waters.
- (l) Task would be performed concurrently with Task 6.
- (m) Task would be performed concurrently with Task 9.
- (n) Assume costs of obtaining approvals are not significant to CV-SALTS.
- (o) Tasks that are primarily process related are shaded.

References:

- Central Valley Regional Water Quality Control Board ("CVRWQCB"). May 2011a. *Municipal and Domestic Water Supply (MUN) Beneficial Uses in Agricultural Drains* . Staff Report.
- CVRWQCB. March 2011b. Recommended Irrigated Lands Regulatory Program Framework. Staff Report
- CVRWQCB. January 2007. *Amendment to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins to Determine Certain Beneficial Uses Are Not Applicable in and Establish Water Quality Objectives for Sulphur Creek. Public Review* Draft Staff Report.
- CVRWQCB. April 2005. Amendment to the Water Quality Control Plan for the Sacramento River and San Joaquin River to Dedicinate Four Beneficial Uses for Old Alamo Creek. Final Staff Report.
- Department of Health Services. 5 November 1997. *Policy Memo 97-005 Policy Guidance for Direct Domestic Use of Extremely Impaired Sources* .
- United States Environmental Protection Agency ("U.S. EPA") and U.S. Army Corps of Engineers ("USACE"). 25 April 2011. *Draft Guidance on Identifying Waters Protected by the Clean Water Act* .

TABLE 2
SUMMARY OF GENERALIZED TASKS TO AMEND BASIN PLAN TO ESTABLISH APPROPRIATE BENEFICIAL USES FOR TULARE LAKE BED (a)

Task	Purpose	Example of Work That May Need to be Performed	Potential Cost Range (b)	Potential Timeframe (b)
1 Compile existing data on current and former groundwater supply wells in the Tulare Lake Bed.	Evaluate current and historical water quality data and assess water quality of water-bearing units.	Review available well records to assess potential connection of water-bearing units across the Corcoran Clay. Examine report prepared in 1972 for Basin Plan, aerial photographs, and other documents pertaining to natural geologic and hydrologic features that have led to salt accumulation.	\$20,000 to \$30,000	2 mos to 3 mos
2 Compile existing data on geologic and hydrologic conditions of Corcoran Clay.	Assess lateral and vertical continuity of Corcoran Clay (i.e., E-Clay) and other significant clay layers (i.e., A-Clay through D-Clay, and F-Clay).	Create geologic and hydrologic maps that depict stratigraphy and groundwater quality above, within, and below various clay layers.	\$10,000 to \$20,000	1 mos to 2 mos
3 Delineate areas that utilize groundwater and identify water-bearing units and groundwater quality in such units.	Delineate areas where groundwater (first encountered and deeper) is used for municipal or domestic supply (MUN), agricultural supply (AGR), and industrial supply (IND).	Create maps depicting groundwater use outside of the Tulare Lake Bed.	\$10,000 to \$20,000	1 mos to 2 mos
4 Prepare preliminary findings and review with CVRWQCB staff.	Delineate lateral and vertical limits of poor existing groundwater quality within Tulare Lake Bed.	Review available data with CVRWQCB staff and discuss groundwater modeling that may be performed to show increased salt and water loads will not cause lateral and vertical spreading of salts within the portion of the Tulare Lake Bed subject to basin Plan amendments.	\$10,000 to \$20,000	1 mos to 2 mos

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Task	Purpose	Example of Work That May Need to be Performed	Potential Cost Range (b)	Potential Timeframe (b)
5 Perform investigations.	Additional geologic, hydrologic, and groundwater quality data may be needed to support proposed Basin Plan amendments.	Investigations may include groundwater sample collection and testing, and geophysical logging or other indirect assessment in existing wells.	\$0 (c) to \$350,000 (d)	0 mos to 4 mos
6 Perform model simulations.	Demonstrate that increased water and salt loads within the Tulare Lake Bed will not adversely impact beneficial uses of groundwater outside of the portion of the lake bed subject to proposed Basin Plan amendments.	Conduct model simulations, if needed.	\$0 (c) to \$40,000	0 mos to 2 mos
7 Prepare information document and conduct CEQA scoping meeting.	Public participation begins with CEQA scoping to allow the public to provide input on the Basin Plan amendments and suggest alternatives and mitigation measures, if warranted.	Conduct public outreach as required by Section 3777 of Title 23 of the California Code of Regulations ("CCR"). Pursuant to 23 CCR §3777, the Basin Plan amendments must be accompanied by Substitute Environmental Documentation ("SED") and supported by substantial evidence in the administrative record.	\$10,000 to \$20,000	3 mos
8 Complete CVRWQCB staff report describing proposed Basin Plan amendments.	The report provides the rationale for the Basin Plan amendments, which includes the SED and antidegradation policy analysis.	Prepare text, figures, and tables, including results of model simulations that justify Basin Plan amendments.	\$80,000 to \$100,000	6 mos
9 Perform an economic analysis of proposed Basin Plan amendments.	The economic analysis will quantify and apportion the costs and benefits of the proposed Basin Plan amendments.	Prepare report that summarizes economic analysis of Basin Plan amendments.	\$20,000 to \$30,000	See note (e).

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Task	Purpose	Example of Work That May Need to be Performed	Potential Cost Range (b)	Potential Timeframe (b)
10 Conduct peer review of proposed Basin Plan amendments.	Peer review is required of the CVRWQCB staff report and proposed Basin Plan amendments if a scientific justification for the changes exist. CVRWQCB staff report is amended based upon peer review comments.	Retain expert to review CVRWQCB staff report and proposed Basin Plan amendments.	\$30,000 to \$50,000	6 mos
11 Circulate CVRWQCB staff report and proposed Basin Plan amendments.	Upon responding to public comments, and possibly holding public workshops to explain responses, CVRWQCB may adopt Basin Plan amendment at a public hearing.	Provide opportunity for public review and comment of CVRWQCB staff report and proposed Basin Plan amendments.	\$10,000 to \$20,000	3 mos
12 Obtain necessary approvals of Basin Plan amendments adopted by CVRWQCB.	Basin Plan amendments must be approved by State Water Resources Control Board, Office of Administrative Law, and U.S. EPA before amendment becomes effective.	Arrange for required legal review.	See note (f).	6 mos
TOTALS:			\$200,000 to \$700,000	29 mos to 39 mos

Notes:

- (a) Tulare Lake Bed is one of the archetypical examples identified by CV-SALTS Executive Committee.
- (b) Cost and schedule estimates are for planning purposes only. Actual expense and timeframe for completing each task may vary substantially from those presented.
- (c) Assume existing data are adequate to support Basin Plan amendments and no additional geologic, hydrologic, or groundwater data are needed.
- (d) Potential cost for task includes the expense of preparing a work plan for CV-SALTS review and approval that describes investigations and modeling to be performed.
- (e) Task would be performed concurrently with Task 8.
- (f) Assume costs of obtaining approvals are not significant to CV-SALTS.
- (g) Tasks that are primarily process related are shaded.