CV-SALTS Technical Advisory Committee Meeting

When: Tuesday, August 26, 2014 from 10:00 AM to 12:00 PM

Location: Teleconference

Conference #: (712) 432-0360 Participant Code: 927571#

Agenda

1. **Welcome and Introductions**
   a. Approve action notes from July 25, 2014

2. **Real Time Management Concept Overview –** Nigel Quinn – 30 minutes
   - Implementation Matrix

3. **Salt & Nitrate Management Plan Table of Contents** – Richard Meyerhoff - 10 minutes

4. **CV-SALTS Technical Projects – Overall Schedule/Coordination** – Richard Meyerhoff - 15 minutes

5. **CSUID – Transient Hoffman Model** – Nigel Quinn – 10 minutes

6. **Other CV-SALTS Project/Contract Updates** – As needed Status Updates - 15 minutes
   a. Phase II Conceptual Model – Richard Meyerhoff
   b. Tulare Lake MUN Archetype – Richard Meyerhoff
   c. SSALTS – Roger Reynolds
   d. MUN POTW – Jeanne Chilcott
   e. Lower San Joaquin River Committee – Mike Johnson

7. **Next Meeting/Call -** Preliminary Date: September, TBD

One or more Central Valley Regional Water Quality Control Board members may attend.

CV-SALTS Technical Advisory Committee Meeting ACTION NOTES

Convened: July 25, 2014 from 10:00 AM to 12:00 PM
Participants: Roger Reynolds (Chair), Nigel Quinn, David Cehrs, Daniel Cozad, Richard Meyerhoff, Joe LeClaire, Glen Meeks, Jeanne Chilcott, Carolyn Geisler-Balasz, Danielle Moss, Vicki Kretsinger, Penny Carlo, Mike Johnson, Tom Grovhoug, Thomas Harter, John Dickey

Agenda

Item 1: Welcome & Introductions

- Nigel Quinn moved to approve, and Jeanne Chilcott seconded, and the Meeting Action Notes from May 30th were approved.

Item 2: SSALTS Phase 2 DRAFT Report – Identification and Characterization of Selected Salt Treatment Options

- Joe LeClaire, CDM Smith, walked the committee through an outline of the DRAFT Report. The full DRAFT Report had been circulated to the Committee for review on July 16th.
    - Joe LeClaire will revise the draft report based on comments received from committee members.
        - Further written comments should be provided to Joe LeClaire no later than Friday, August 8th.
        - The Final Report, with a Response to Comments table, is planned for delivery to the Executive Committee by September 1.
        - The Final Report is planned to be submitted to the Executive Committee for approval at the September 12th Administrative Meeting.

Item 3: International Salinity Forum – Discussion with Salinity Experts

- Daniel Cozad summarized the June 16th discussion held with salinity experts. Daniel provided a five page summary of the discussion held in response to the following five questions posed to the expert panel by CV-SALTS:
    1. *During droughts and other times the target salinity values may be exceeded on an infrequent basis. How often can permanent crops endure salinity of the applied water exceeding the Mass and Hoffman threshold value by 10-50% during short periods for 1 or 2 years when a wet winter could follow the drought?*
    2. *Most crop tolerance modeling has used annual averages for determining the plan responses to soil salinity or salinity in the irrigation water. Are there periods/stages in the crop growth cycle that are more critical and should therefore be a focus, in developing water quality protection criteria? How can the temporal variability be captured and use for regulatory limits?*
    3. *The steady-state model used by Ayers and Westcot assumed standard surface applied irrigations with a 2-3 week interval between irrigations which was standard irrigation practice 40 years ago. Is the present crop tolerance data (Mass and Hoffman) applicable under present irrigation practices? How important is irrigation timing in modeling crop tolerance under field conditions? Would levels of sensitivity to salinity in applied water differ significantly for drip and microspray, relative to surface irrigated fields?*
    4. *Most modeling of plant responses has used steady-state models for analysis. How good are the transient models? Is the amount of data needed for their analysis better suited to a smaller plot of land where the variables can be measured and recorded or can they be applied to widespread areas with variable field conditions? When data is available should CV-SALTS prefer transient models?*
    5. *Based on your practical experience, which factors are most critical for developing models for determining crop tolerance criteria under field condition present today in areas similar to the Central Valley of California and how would you suggest these be used to make regulatory decisions?*

Item 7: Other CV-SALTS Project/Contract Updates

Richard Meyerhoff provided the following written update for items a) and b):

a) Phase II Conceptual Model/Richard Meyerhoff

b) Tulare Lake MUN Archetype/Richard Meyerhoff

Richard Meyerhoff provided the following written update for items a & b:

- **Phase II Conceptual Model**
  - Task 3 is complete.
    - Attached to the meeting agenda are (a) Final Technical Memorandum - *Groundwater Data Refinements & Updates to Support Salt, Nitrate, and Water Balance Estimates for Archetype Area, SNMP, and Future Work*; and (b) Comment/Response table based on Project Committee review.
    - These documents were accepted by the Executive Committee at the July 11 meeting
  - Task 4 – Management Zone Archetype (Alta Irrigation District area)
    - Stakeholder kickoff meeting held on June 5 in Dinuba. LWA team continues to coordinate with Kings River Conservation District.
    - LWA team is currently primarily working on the subtask that involves characterization of the Management Zone area (surface/groundwater data, land use, etc.)
  - Task 5 – Preliminary SNMP development; a draft Table of Contents was drafted and revised based on Project Committee input. A final draft was approved by the Executive Committee with a request for a few targeted edits. Once these are complete, the document will be posted to the website
- **Tulare Lake Bed MUN Archetype**
  - Revised draft technical report reviewed by Fresno Regional Board staff; revised report includes recommendations for delisting boundaries for both MUN and AGR uses.
  - Meeting between Tulare Lake Drainage District (TLDD) team and Fresno Regional Board staff was held on July 7 to discuss Board staff comments and determine next steps.
  - MUN delisting - General agreement reached on proposed MUN delisting boundary pending final review of well log data being provided by TLDD to Board staff.
  - AGR delisting – Currently, the proposed AGR delisting boundary is the same as the proposed MUN delisting boundary. The proposed AGR boundary is being reconsidered based on outcome of July 7 meeting; final proposed AGR delisting boundary will likely be different (i.e., somewhat smaller) than proposed MUN delisting boundary.
  - CEQA scoping –
    - TLDD team would like to have one CEQA process for MUN and AGR delisting; therefore, CEQA process is on hold pending revisions to address Board staff comments on AGR delisting proposal.
    - CV-SALTS has funded the CEQA process for MUN de-listing; however, funding to support costs associated with CEQA process for AGR de-listing need to be identified/discussed

c) SSALTS/Roger Reynolds – The current status of this project was summarized under Item 2. The tentative goal for initiation of Phase 3 work is sometimes in October.

d) MUN POTW/Jeanne Chilcott – A stakeholder meeting is being coordinated for September. Initial Draft Staff Report will be out in August. Still trying to stay on target to have a Board hearing in December.

e) Lower San Joaquin River Committee/Mike Johnson – Danielle Moss has provided a set of documents for the LSJR Committee to review for a discussion of draft objectives during the 7/30 meeting. Additionally Jim Brownell is completing some Hoffman Model runs with scenarios provided by John Dickey.

Item 6: Next Meeting/Call

- The next Technical Advisory Committee Meeting is tentatively set for Tuesday, August 26th, from 10-12.
- Joe DiGiorgio thanked the Committee again for their contribution to the work done on the Dixon Site Specific Boron Study.

San Joaquin River Real Time Management Program

Description

The Real Time Management Program (RTMP) is an umbrella program to optimize/maximize the export of salt from groundwater, perched zones, and agricultural drain water from the Lower San Joaquin River (LSJR) Basin while ensuring that salinity and boron water quality objectives are met at Vernalis. The CVRWQCB has approved RTMP in the Basin Plan as an alternative salt management strategy in lieu of monthly salt load allocations enforced by the CVRWQCB.

The Vernalis objectives for EC are 30-day moving averages: 700 µS/cm during the irrigation season (April to August) and 1000 µS/cm during the non-irrigation season (September to March). According to the RTMP Draft Framework (Reclamation *et al.*, 2014), *"The goal under a real-time management program is to continue to meet the irrigation and nonirrigation season salinity water quality objectives by managing salt loads so they are discharged when there is assimilative capacity in the river, rather than be constrained by mandated monthly load allocations in WDR's. Managing the use of assimilative capacity is also anticipated to reduce reliance on fresh water releases from New Melones Reservoir to meet the salinity objectives at Vernalis and to provide a mechanism to maximize salt exports from the SJR Basin."* The RTMP components include:

- Stakeholder participation
- Real time monitoring network
- Data Management
- Predictive modeling/forecasting of flows and salinity in the river in order to predict assimilative capacity
- Physical infrastructure (gates, inlets, rubber dams, *etc.*)
- Program and project management practices
- Funding

Examples of pilot studies of RTMP include:

- Grassland Resource Conservation District Wetland Areas
- Grassland Bypass Project and Panoche Drainage District

San Joaquin River Real Time Management Program	
Constituent Salts or Nutrients Managed	The RTMP effectively manages all salts, nutrients and other constituents, in that it is not a treatment process but a sophisticated management tool for managing and exporting salt loads to the river at times when there is assimilative capacity. Other WQOs (boron, selenium, *etc.*) must also be met.
Applicability	Federal Clean Water Act (CWA) §305(b) requires that each state assesses the water quality status of each waterbody under CWA jurisdiction and report these findings to EPA. For this assessment, the state reviews available water quality data, compares these data to water quality objectives, and evaluates whether the beneficial uses of each waterbody are supported. Through this process and pursuant to CWA §303(d) the state is required identify waterbodies not meeting water quality standards even after all required effluent limitations have been implemented (*e.g.*, through a WDR). These waters are often referred to as "303(d) listed" or "impaired" waters. Waterbodies placed on the 303(d) list may require development of a Total Maximum Daily Load (TMDL). A TMDL is a calculation of the maximum amount or load of a pollutant that a waterbody can receive and still meet water quality objectives; this load is allocated among the various sources of the pollutant. The CVRWQCB adopted a TMDL for salt and boron in the LSJR as a Basin Plan amendment on September 10, 2004. EPA approval occurred in 2006. The approved TMDL establishes a water quality control program for salt and boron to achieve existing salinity and boron WQOs in the San Joaquin River at the Airport Way Bridge near Vernalis ("Vernalis"). The adopted control program requires a second phase TMDL to address salinity and boron concerns in the LSJR upstream of Vernalis. Through CV-SALTS, a LSJR Committee was established to develop recommendations for updated WQOs that support the beneficial uses on the LSJR and an implementation plan to support those objectives. The outcome of this effort will have direct bearing on how salt is managed in the watershed draining to the San Joaquin River.
Practice Benefits and Impacts	The CVRWQCB provided for participation in the LSJR RTMP in lieu of load allocations: *"The Regional Water Board will adopt a waiver of waste discharge requirements for salinity management, or incorporate into an existing agricultural waiver, the conditions required to participate in a Regional Water Board approved RTMP. Load allocations for nonpoint source dischargers participating in a Regional Water Board approved RTMP are described in Table IV-4.4. Additional waiver conditions will include use of Regional Water Board approved methods to measure and report flow and electrical conductivity. Participation in a Regional Water Board approved RTMP and attainment of salinity and boron water quality objectives will constitute compliance with this control program."* The umbrella RTMP is an effective tool for exporting salt out of the LSJR basin, while being protective of WQO compliance at Vernalis.
Effectiveness Documentation	The effectiveness of the GBP in reducing salt and salinity loading to the San Joaquin River via the San Luis Drain and Mud Slough: SFEI. 2013. Grassland Bypass Project Annual Report 2010-2011. Prepared for the Grassland Bypass Project Oversight Committee. November 2013.

San Joaquin River Real Time Management Program	
	http://www.sfei.org/gbp/reports
Supporting Documentation	U. S. Bureau of Reclamation, Central Valley Regional Water Quality Control Board, San Joaquin Valley Drainage Authority, Grassland Resource Conservation District, San Luis & Delta-Mendota Water Authority/Grassland Bypass Project. 2014. Draft Salinity Real-Time Management Program Framework. May 9, 2014.
Implementation: Planning Level Costs	The Grassland Resource Conservation District Wetland Areas RTMP has been in operation for over a decade and has over 45 monitoring stations that characterize discharge and water quality entering and leaving the Grassland Wetland Complex. Reclamation I (2013) states, *"GRCD can offer guidance to those who are implementing similar programs. Costs associated with this program, including equipment acquisition, installation, quality assurance, and data management are currently in excess of $5 million. Approximate annual programmatic costs are currently in the range of $500,000."* About $140M has been invested to date on the GBP and SJRIP.
Implementation: Status and Potential	The RTMP consists of four Phases: ▪ Phase 1 – Initiation Phase – to be completed prior to first compliance date of July 28, 2014 ▪ Phase 2 - Development Phase – begin at first compliance date and complete in 12 months ▪ Phase 3 – Early implementation Phase – complete 36 months from first compliance date. ▪ Phase 4 - Implementation Phase – completed 60 months from first compliance date
Implementation: Monitoring Documentation	http://www.sfei.org/projects/grassland-bypass-project http://www.sfei.org/gbp/sjrip
Implementation: Other Regulatory Approvals or Requirements	NEPA/CEQA analysis may be required for the future phases of RTMP.
Website:	http://www.water.ca.gov/waterquality/sjr_realtime/ http://www.sfei.org/projects/grassland-bypass-project https://www.usbr.gov/mp/watershare/wcplans/2010/Refuges/Grasslands%20RCD.pdf http://www.sfei.org/gbp/sjrip

San Joaquin River Real Time Management Program	
	http://gwdwater.org/grcd/who-we-are.php

Table 1. Implementation Matrix

METHODS	IMPLEMENTATION ACTIONS	EXAMPLES	DESCRIPTION OF IMPLEMENTATION ACTIONS
REDUCE SALT AND BORON LOADING TO THE LSJR (LOAD REDUCTION)	1. Reduce Point Sources of Salts	a. Self Regenerating Water Softener Ban or Restrictions	Would reduce salt loads from POTWs that have self regenerating water softeners in their service areas
		b. New or Improved (less saline) Surface Water Supply	Would reduce salt loads from POTWs that can substitute new surface water supplies for existing groundwater supplies
		c. Ind/Food Processing Source Control	Would reduce salt loads from POTWs by requiring industrial control of salts in discharges to sewer system. For specific industries discharging to land, source reductions may potentially benefit the LSJR through reduced salt loadings via groundwater accretion.
		d. Desalination of POTW Effluent	Would reduce salt loads to the river from POTWs through installation of reverse osmosis treatment. Requires brine handling/disposal.
	2. Reduce Nonpoint Sources of Salts	a. Reduce application of salts contained in fertilizers and soil amendments	Would reduce salt loads through high efficiency irrigation, improved fertilizer management, or other measures aimed at reduced application of chemicals containing salt.
	3. Evaporation Ponds (lined)	a. Evaporation Ponds	Would reduce loads by capturing all or portion of drainage flows and diverting to evaporation ponds. Requires brine or salt handling/disposal.
		b. Solar Evaporators	Alternative means to further evaporate drainage water (from evaporation or recirculation practices) for harvesting or disposal of salt.
		c. Salt Energy Ponds	Alternative means to further evaporate drainage water (from evaporation or recirculation practices) and generate energy during the course of the natural evaporation of water.
	4. Water Treatment (drainage or supply)	a. Satellite or regional treatment facilities	Would reduce salt loads through installation of reverse osmosis treatment. Requires brine handling/disposal.
	5. Land Retirement	a. Retired lands as Reuse Facilities	Would reduce salt loads associated with drainage and also functions to retain salt by accepting recycled water, along with its salt load. Regional reuse could include active alternative land management or use of lands for drainage, treatment and disposal, etc.
		b. Retire lands to non-irrigated uses	Would reduce salt loads by reduction in applied water and associated drainage. Lands could be converted to commercial, industrial purposes, flood control, habitat purposes, etc.
	6. Water Supply Improvement	a. Delta Corridors Plan	Would reduce salt loads into the LSJR by eliminating the recirculation of SJR water back into the Delta Mendota Canal. Irrigation with lower saline DMC water would result in lower concentrations of salinity in the drainage water discharged from the west side of the basin.
		b. Bay Delta Conservation Plan	Would reduce salt loads by importing less saline water into the Delta Mendota Canal for irrigation of land on the west side of the basin, ultimately resulting in lower concentrations of salinity in the drainage water.
	7. Water Conservation	a. Replace Infrastructure (pipelines to replace canals)	Would conserve water by reducing seepage to reduce diversion of tributary flows. Reduction in salt loading would be depend on whether water conserved would be applied to other land in the basin. If not re-applied, conservation would result in reduction in salt loading. If re-applied, net reduction in loading would be minimal. Incidental benefits of seepage (groundwater recharge and canal-dependent vegetation) will be lost.
		b. Optimize existing irrigation efficiency	Similar to 7(a). Note that irrigation systems are being updated at a rapid pace, primarily because the production benefits of drip and microspray systems on certain crops have proven to be very significant, and the cost of the systems has come down. While the total salt load is the same, salts are precipitated and retained near the root zone, so the total salt load to the aquifer is episodic, occurring during periods of infrequent seasonal flushing.
	8. High-efficiency irrigation systems, per se	a. Increase retention of soluble salts	Would reduce loading through reduction in drainage volume. Conventional notions of leaching excess salt through the soil to maintain production change somewhat with drip and microspray irrigation, in which salts may accumulate harmlessly beyond the soil zone accessed by plants to uptake water.
	9. Sequential Reuse & volume Reduction (Salt sensitive crops & solar evap)	a. Integrated Farm Drainage Management (IFDM)	Would reduce the volume discharged; results in an increase in concentration. Relies on eventual salt export to an alternative sink. Reuse occurs on dedicated facilities with attendant costs. Feasibility would be enhanced by a reliable market for the recovered salt products.
	10. Active Alternative Land Mgmt (sequential reuse/crop selection etc.)		Would reduce the volume discharged. A blend of 9 and 11b, mainly distinguished by the intentional nature of land management through crop selection and irrigation practices, without creating a dedicated facility.
	11. Drainage Water Recirculation	a. Tailwater Recovery	Would reduce loadings through reuse and volume reduction. Where reuse replaces irrigation with imported water, would reduce salt load associated with that supply. This practice relies on ultimate salt disposal for long term sustainability.
		b. Tilewater Recovery - Re-route drainage water	Similar to 11a., but entails recirculation of greater salt concentration from the outset.
	12. Reduce Impact of Groundwater as a Source of Salinity to LSJR		General category which may include: (a) reduction in shallow groundwater levels to reduce subsurface drainage (and salt) loading into subsurface drain systems (areas where this is hydrogeologically feasible may be fairly limited) and (b) reduction in groundwater as water supply or reduction in salt loadings in groundwater though well-head treatment.
MANAGE SALT LOADS VIA SEQUESTRATION/TRANSPORT/ DISPOSAL	13. Salt Disposal/Out of Basin Transport	a. Brine Line to Ocean	Alternative means of salt transport and out-of-basin disposal
		b. Truck to WWTP with ocean outfall	Similar to 13a.
		c. Landfill disposal	Alternative means of in-basin disposal of crystallized salt
		d. Out of Basin Salt Sink	Similar to 13a.
		e. Commercial market for reclaimed salt	Alternative means of out-of-basin disposal of salt.
		f. Direct Well Injection	Alternative means of In-basin disposal of concentrated salts or brines
MANAGE SALT DISCHARGES TO LSJR TO MATCH ASSIMILATIVE CAPACITY	14. Controlled Timing of Salinity Discharges (Real Time Management Program)		Would take advantage of assimilative capacity in the river to export salt to the Delta and ocean. Requires a coordinated program to manage discharges, diversions, and river and tributary releases to enable timed releases of drainage. Also requires real-time monitoring of flow and EC at selected sites, real-time data QA and a means of information sharing and dissemination.
ADAPTIVE WATER SUPPLY MANAGEMENT	15. SJR water diversions during periods of excess SJR flows		Would take advantage of excess flows in SJR during wet years or wet seasons to provide irrigators with low salinity water to better manage salts (i.e., following periods of high salinity due to drought or other factors, to better control the leaching process, to alternate with irrigation using higher salinity water , etc.)

[1] While the table focuses on 'salt', the implementation actions described will be similar for boron, and other ions.

2 The implementation actions represent a range of potential actions for consideration during the development of three alternative management scenarios. Each alternative management scenario will likely be a combination of several implementation actions, and it should be noted that some of the actions listed (i.e. Salinity Real Time Management Program, Active Alternative Land Management, etc.) by definition already involve a combination of actions (many of which are listed above).

FINAL Annotated Outline for the Preliminary Draft Central Valley SNMP[1]

	Section[2]	Estimated Number of Pages	Purpose	Recycled Water Policy Requirements[3]	Primary Sources of Information	Potential Data Gaps[4]
	Executive Summary	5				
Introduction and Background	**1. Introduction and Background** a. Purpose b. Plan Objectives and Organization c. Regulatory Framework i. Recycled Water Policy ii. Regional Water Quality Control Plan iii. Resolution 68-16 d. SNMP Development and Implementation i. Process for the SNMP Development and Approach for Implementation (**Appendix A**) ii. Process for Regional/Local SNMP Development (**Appendix B**) and Approach for Implementation e. SNMP Review and Revision	5	This section will identify the purpose and need for the SNMP, the objectives and the organization of the document, and the relationship between the Central Valley-wide SNMP and the Regional/Local SNMPs that may be developed. Clarify that the CV-SNMP addresses the Recycled Water Policy, but that it addresses other central valley-related issues including legacy salt and nitrate accumulation.	This section will include a general discussion of the Recycled Water Policy and the specific SNMP requirements contained in section 6 of the Policy.	The primary sources of information for this section may include: • Methodologies developed in the ICM Report and refined in Phase II Task 4 • The regulatory documents listed in section 1.c. • CEQA Scoping meeting documents for the SNMP • Other SNMPs that have been developed in California, including, but not limited to the Santa Ana Region Salt Management Plan	None identified at this time.
Central Valley and Basin Characterization	**2. Characterization of the Central Valley[1] (Appendix C)** a. Overview b. Beneficial Uses and Water Quality Objectives c. Physical Description i. Climate ii. Land Cover and Land Uses iii. Water Sources and Demands Surface Water, Delivered Water, Imported Water, Recycled Water d. Watershed Boundaries e. Basin and Sub-basin Boundaries f. Geology g. Hydrogeology/Hydrology	5	This section will provide an overview of the physical setting of Region 5, including hydrogeologic and hydrologic characteristics of the hydrologic regions and summary information, as available. Clarify that this addresses the valley floor as well as all of Region 5 jurisdiction – address this throughout all sections as needed. The information in this section is not intended to duplicate other published documents or to provide detailed site-specific information.	This section will support the Recycled Water Policy requirements by providing foundational information on a basin-wide basis relating to the management of salt and nitrate at regional and subregional scales for long-term sustainable use of water in California.	This will not be an exhaustive effort, and will refer to previously published works. The primary sources of information would largely cite to: • Recycled Water General Permit • ICM Report • CV-SALTS GIS reports and database • DWR's Bulletin 118 (if available) • DWR's Water Plan Update (2013) • USGS CVHM Report	Basins without existing characterization (Bulletin 118) will need to be investigated during the development of a local SNMP.

	Section[2]	Estimated Number of Pages	Purpose	Recycled Water Policy Requirements[3]	Primary Sources of Information	Potential Data Gaps[4]
	h. Aquifers (Water Level Trends, Flow Directions, Changes in Storage, Groundwater Production) i. Recharge Areas					
	3. Characterization of the Watersheds/ Groundwater Basin(s) a. Groundwater Quality b. Surface Water Quality c. Delivered Water Quality d. Imported Water Quality e. Recycled Water Quality	**10**	This section will provide a general characterization of the groundwater basins and surface water systems within the Region 5 boundary. The groundwater portion of this characterization will utilize the delineation of the upper portion of the aquifer in the Central Valley Floor that represents a 20-year travel time as well as the lower aquifer where most groundwater production may occur (ICM results). For groundwater and surface water characterization - information from the 303(d) list will be included or referenced.	This section will include a discussion for the following requirement: • 6.b.(3)(d) – Salt and nutrient source identification, basin/sub-basin assimilative capacity and loading estimates, together with fate and transport of salts and nutrients.	The primary sources of information for this section may include: • ICM Report • Methodologies developed in the ICM report and refined in Phase II Task 4 This will not include any additional outreach except as related to Task 4.	The groundwater quality database is limited in information related to well construction information, which constrains the ability to associate most of the groundwater quality values with a particular portion of the aquifer. The exception to this is in the Alta Irrigation District area of Kings Subbasin, where some linkage between well construction and water quality measurements will be performed in Phase II Task 4. To date, there is no integrated, refined, higher resolution characterization of salt and nitrate conditions in groundwater in Region 5. The results from the Phase I IAZ analysis will be provided, but are likely too coarse for management purposes.

	Section[2]		Estimated Number of Pages	Purpose	Recycled Water Policy Requirements[3]	Primary Sources of Information	Potential Data Gaps[4]
Basin Evaluation	**4.**	**Basin Evaluation – Water Balance** a. Conceptual Model b. Basin Inflow/Outflow c. Water Movement within the Basin d. Infiltration, Evaporation, Evapotranspiration e. Recharge Mechanisms f. Baseline Condition	**10**	This section will broadly describe water budget components at the Central Valley and regional hydrologic unit scales, along with summaries of water budget components at the IAZ scale. The basis for computing assimilative capacity at regional/subregional scales will be described.	This section will include a discussion for the following requirement: • 6.b.(3)(d) – Salt and nutrient source identification, basin/sub-basin assimilative capacity and loading estimates, together with fate and transport of salts and nutrients.	The primary sources of information for this section may include: • ICM Report	Outside of the Central Valley Floor, these balance calculations have not been performed, and will need to be performed for the local SNMP.
	5.	**Basin Evaluation – Salt and Nitrate Balance** a. Conceptual Model b. Salt and Nitrate Source Identification and Loading Estimates c. Import/Export d. Assimilative Capacity (Existing and Projected) e. Fate and Transport f. Baseline Condition	**20**	This section will describe the integrated relationship between surface and groundwater resources in Region 5. It will provide a broad description of salt and nitrate sources and loading estimates in the Valley Floor as developed by the Phase I work. This section will describe estimated assimilative capacities on the IAZ scale and also provide guidance for future local SNMPs applications.	This section will include a discussion for the following requirement: • 6.b.(3)(d) – Salt and nutrient source identification, basin/sub-basin assimilative capacity and loading estimates, together with fate and transport of salts and nutrients.	The primary sources of information for this section may include: • ICM Report • Methodologies developed in the ICM Report and refined in Phase II Task 4	No loading estimates exist for outside of the Central Valley Floor.
	6.	**Basin Evaluation - Projected Water Quality** a. Groundwater and Surface Water Quality Trends b. Projected Groundwater and Surface Water Quality	**10**	This section will summarize groundwater and surface water quality trends and projected water quality (qualitatively), especially for the central Valley Floor. In basins and subbasins outside the Valley Floor, water quality trends have not been analyzed.	This section will include a discussion for the following requirement: • 6.b.(3)(d) – Salt and nutrient source identification, basin/sub-basin assimilative capacity and loading estimates, together with fate and transport of salts and nutrients.	The primary sources of information for this section may include: • ICM Report • Methodologies developed in Phase II Task 4	No future projected water quality outside of the Central Valley Floor.

		Section[2]	Estimated Number of Pages	Purpose	Recycled Water Policy Requirements[3]	Primary Sources of Information	Potential Data Gaps[4]
Salt and Nitrate Management and Implementation	**7.**	**Salt and Nitrate Management Goals** a. Water Recycling b. Stormwater Recharge and Use c. Other goals	5	This section will present the goals and objectives for using recycled water and stormwater within the Region 5 jurisdiction. Information from the Statewide General Permit for Recycled Water that was just adopted will be referenced. This section will also define additional goals, as needed, on a regional/local basis.	This section will include a discussion for the following requirement: • 6.b.(3)(c) – Water recycling and stormwater recharge/use goals and objectives.	The primary sources of information for this section may include: • CEQA Scoping meeting documents for the SNMP • Stormwater Permits	None identified at this time.
	8.	**Salt and Nitrate Management Strategies and Implementation Measures** a. Ongoing Management Programs b. Implementation Measures and BMPs c. Integration with Other Programs d. Implementation Schedule	10	This section will present potential salt and nitrate management strategies aligned with the goals and objectives for long-term sustainable use of water in California. This section will address the approach that may be used for areas that have assimilative capacity versus those that do not. This section will also recognize the need to define the specific implementation measures and best management practices (BMPs) on a regional/local basis and the need to consider integrated approaches.	This section will include a discussion for the following requirement: • 6.b.(3)(e) – Implementation measures to manage salt and nutrient loading in the basin on a sustainable basis.	The primary sources of information for this section may include: • Methodologies developed in Phase II Task 4 • SSALTS Documents • Information from the work being completed for the Lower San Joaquin River Committee • Information from the work completed by the Management Practices Subcommiitee	None identified at this time.
	9.	**Basin Monitoring Program** a. Goals and Objectives b. Monitoring Program Approach (**Appendix E**) c. Reporting	Not Applicable	This section will be developed as a part of the Phase III CV-SALTS Workplan.	This section will include a discussion for the following requirement: • 6.b.(3)(a) – A basin/sub-basin wide monitoring plan that includes an appropriate network of monitoring locations….. • 6.b.(3)(b) – A provision for annual monitoring of Constituents of Emerging Concern…..	N/A	N/A

	Section[2]		Estimated Number of Pages	Purpose	Recycled Water Policy Requirements[3]	Primary Sources of Information	Potential Data Gaps[4]
	10.	**References**	**3**				
Other Supporting Documentation		**Antidegradation Analysis** (This will be developed as a part of Phase III for the BPA) a. Regulatory Requirements b. Methodology c. Results d. Conclusions	Not Applicable	Meet requirements of State and federal antidegradation policies as required for Basin Plan Amendment and Recycled Water Policy BPTC – Identify how you make this determination for ag	This section will include a discussion for the following requirement: • 6.b.(3)(f) – An antidegradation analysis demonstrating that the projects included within the plan will, collectively, satisfy the requirements of Resolution No. 68-16.		None identified at this time.
		CEQA	Not Applicable				
Appendices	**A.**	**Stakeholder Process for Development of the Central Valley Preliminary Draft SNMP**	**3**	Describe CV-SALTS stakeholder process and active participants	N/A	The primary sources of information for this section may include: • ICM report • CEQA Scoping Documents • CV-SALTS Outreach Materials • Information developed in Phase II Task 2 Deliverables	None identified at this time.
	B.	**Guidance for the Development of a Regional/Local SNMP**	**10**	Provide direction and guidance for local entities seeking to develop a local SNMP	N/A	The primary sources of information for this section may include: • Phase II Task 4 Deliverable	None identified at this time.
	C.	**Methodology for Determining Existing Water Quality, Best Water Quality Attained Since 1968, and Assimilative Capacity**	**20**	Provide the methodology for determining existing water quality, best attainable water	N/A	The primary sources of information for this section may include:	Examples will be limited to existing information and results for the ICM

	Section[2]		Estimated Number of Pages	Purpose	Recycled Water Policy Requirements[3]	Primary Sources of Information	Potential Data Gaps[4]
				quality attained since 1968, and assimilative capacity.		• Information developed in ICM Report and refined in Phase II Task 4 Deliverables	focus areas (Modesto region and Kings Subbasin) and the Management Zone area application for Phase II Task 4.
	D.	**Methodology for Delineating Management Zones**	**5**	Provide discussion of factors to be considered when delineating a Management Zone boundary, which may also serve as the area of interest for purposes of a local SNMP. The delineated Management Zone may also serve as one of many Management Zones under the umbrella of a larger regional SNMP or IRWMP.		The primary sources of information for this section may include; • ICM Task 4 Report • Archetype area analysis with Alta Irrigation District • Management Zone application and related considerations for other Management Zone scales from Phase II Task 4	The Management Zone is Alta Irrigation District. The delineation of Management Zones will be based on hypothetical examples and considerations.
	E.	**Guidance for the Development of a Basin Monitoring Program** (To Be Developed as a part of Phase III)	Not Applicable	N/A	N/A	N/A	None identified at this time.
		Total Number of Pages	**121**				

[1] CV-SALTS is currently targeting a length of approximately 100-125 pages for the Central Valley SNMP. This annotated table of contents illustrates the type of information planned for inclusion within the SNMP; however, this is just a guide. For additional information regarding level of effort budgeted for preparation of the preliminary draft of the SNMP, refer to the *CV-SALTS Phase II Conceptual Model Workplan* that was approved by CV-SALTS in March 2014.

[1] – This characterization will include the entire Central Valley Regional Water Quality Control Board jurisdiction

[3] – The items in **red** are required pursuant to the Recycled Water Policy

[4] – CV-SALTS Executive Committee has requested that the CV-SALTS Technical Project Manager evaluate options to resolve data gaps that exist for areas within the jurisdiction of the Central Valley Regional Water Quality Control Board that are outside of the Valley Floor.

CV-SALTS Meeting Calendar

2014

1	January						
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
1				1	2	3	4
2	5	6	7	8	9	10	11
3	12	13	14	15	16	17	18
4	19	20	***21***	22	**23**	24	25
5	26	27	28	29	30	31	

2	February						
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
5							1
6	2	3	4	5	6	7	8
7	9	10	11	12	13	14	15
8	16	17	18	19	20	21	22
9	23	24	25	26	**27**	28	

3	March						
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
9							1
10	2	3	4	5	6	7	8
11	9	10	11	12	13	14	15
12	16	**17**	18	19	20	21	22
13	23	24	25	26	27	**28**	29
14	30	31					

4	April						
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
14			1	2	3	4	5
15	6	7	8	9	10	11	12
16	13	14	**15**	16	17	18	19
17	20	21	22	23	24	25	26
18	27	28	29	30			

5	May						
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
18					1	2	3
19	4	5	6	7	8	9	10
20	11	12	13	14	15	16	17
21	18	19	20	21	22	23	24
22	25	26	27	28	**29**	**30**	31

6	June						
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
23	1	2	3	4	5	6	7
24	8	9	10	11	12	13	14
25	15	16	17	18	19	20	21
26	22	23	24	25	**26**	27	28
27	29	30					

7	July						
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
27			1	2	3	4	5
28	6	7	8	9	10	11	12
29	13	14	15	16	17	18	19
30	20	21	22	23	24	**25**	26
31	27	28	29	**30**	31		

8	August						
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
31						1	2
32	3	4	5	6	7	8	9
33	10	11	12	13	14	15	16
34	17	18	19	20	21	22	23
35	24	25	**26**	27	**28**	29	30
36	31						

9	September						
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
36		1	2	3	4	5	6
37	7	8	9	10	11	12	13
38	14	15	16	17	18	19	20
39	21	22	23	24	**25**	26	27
40	28	29	30				

10	October						
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
40				1	2	3	4
41	5	6	7	8	9	10	11
42	12	13	14	15	16	17	18
43	19	20	21	22	**23**	24	25
44	26	27	28	29	30	31	

11	November						
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
44							1
45	2	3	4	5	6	7	8
46	9	10	11	12	13	14	15
47	16	17	18	19	**20**	21	22
48	23	24	25	26	27	28	29
49	30						

12	December						
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
49		1	2	3	4	5	6
50	7	8	9	10	11	12	13
51	14	15	16	17	**18**	19	20
52	21	22	23	24	25	26	27
53	28	29	30	31			

Notes

2nd or 3rd Thursdays

Dark Green Exec Comm Policy

RWQCB Update ***Bold Underline***

Light Red conflicts

Lt. Green Hatch Exec Comm Admin

First or Second Friday

Yellow Salty 5

Lower San Jaquin River Committee

TAC Meeting

Dark in July & December for Policy

State Board Presentation 1/21/14

May 15 move to 22nd for CVCWA

Nov 13 vs 20 due to Thanksgiving