

CV-SALTS Executive Committee Meeting
Wednesday, September 14, 2016 – 1:00 to 4:00 PM Sunset Maple Room
Sacramento Regional Sanitation District Offices
10060 Goethe Rd, Sacramento 95827

Teleconference (641) 715-3580 Code: 279295#

Go-To-Meeting Link: <https://global.gotomeeting.com/join/765369133>

Posted 09-05-16 – Revised 09-12-16

1) Welcome and Introductions - Chair

a) Committee Roll Call and [Membership Roster](#) -10 mins

2) CV-SALTS Policy Documents and Comments – Tess Dunham, Richard Meyerhoff (2 hrs. 45 mins)

- [Revised Salinity Management Strategy](#)
 - [Revised Phase I Task as Milestones](#)
- [Salinity Variance Policy](#)

3) Review Meeting Schedule/Location

- September 15th Executive Committee Policy Session @ Sac Regional
- Admin Meeting – September 16th – 1:00-2:30

CV-SALTS meetings are held in compliance with the Bagley-Keene Open Meeting Act set forth in Government Code sections 11120-11132 (§ 11121(d)). The public is entitled to have access to the records of the body which are posted at <http://www.cvsalinity.org>

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

CV-SALTS Committee Rosters

Executive Committee Membership			CV-SALTS Executive Committee Meetings - 2016															
Voters	Category/Stakeholder Group	Name	11-Mar	29-Mar	30-Mar	6-May	11-May	12-May	10-Jun	15-Jun	16-Jun	8-Jul	1-Aug	5-Aug	10-Aug	11-Aug	14-Sep	15-Sep
1	Central Valley Water Board	Pamela Creedon			✓		✓	✓		✓	✓		✓		✓	✓		
Alt	Central Valley Water Board	Jeanne Chilcott		✓	✓		✓	✓	✓	✓	✓		✓		✓	✓		
2	State Water Resources Control Bd.	Darrin Polhemus					✓	✓		✓	✓		✓					
3	Department of Water Resources	Jose Faria																
Alt	Department of Water Resources																	
4	US Bureau of Reclamation	Kirk Nelson	✓	✓	✓		✓	✓		✓	✓	✓			✓	✓		
5	Environmental Justice	Laurel Firestone		✓	✓		✓	✓		✓	✓					✓		
6	Environmental Water Quality	TBD																
CV Salinity Coalition																		
1	So. San Joaquin WQC	Casey Creamer	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓		
2	City of Stockton	Robert Granberg													✓	✓		
3	California Cotton Growers	Chris McGlothlin						✓					✓		✓	✓		
4	City of Fresno	Rosa Lau-Staggs													✓	✓		
5	CA League of Food Processors	Trudi Hughes																
Alt	CA League of Food Processors	Rob Neenan		✓	✓		✓	✓		✓	✓		✓		✓	✓		
6	NCWA/SWWQC	Bruce Houdesheldt		✓				✓	✓	✓	✓					✓		
7	City of Tracy	Erich Delmas		✓						✓	✓							
Alt	City of Tracy	Dale Klever																
8	Sacramento Regional CSD	Lysa Voight			✓		✓	✓		✓	✓	✓	✓	✓	✓	✓		
Alt	Sacramento Regional CSD	Sam Safi																
9	San Joaquin Tributaries Authority	Dennis Westcot					✓								✓			
10	Valley Water Management	Christine Zimmerman		✓	✓		✓	✓	✓			✓	✓	✓				
Alt	Valley Water Management	Melissa Thorne			✓				✓	✓	✓				✓	✓		
11	California Rice Commission	Tim Johnson		✓				✓		✓	✓		✓		✓	✓		
12	City of Davis	Josie Tellers		✓	✓		✓	✓		✓	✓		✓	✓	✓	✓		
13	Tulare Lake Drainage/Storage District	Mike Nordstrom	✓	✓	✓		✓	✓		✓	✓		✓	✓	✓	✓		
14	Western Plant Health Assoc.	Renee Pinel			✓								✓	✓		✓		
15	City of Vacaville	Steve Sawyer												✓				
Alt	City of Vacaville	Tony Pirondini		✓			✓	✓	✓	✓					✓	✓		
16	Dairy Cares	J.P. Cativiela	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓		
Alt	Dairy Cares	Paul Sousa					✓	✓			✓		✓					
17	Westlands Water District	Jose Guterrez																✓
Alt	Westlands Water District	Charlotte Gallock		✓		✓	✓	✓		✓	✓				✓	✓		
Comm. Chairs/Co-chairs																		
1	Chair Executive Committee	Parry Klassen, ESJWQC		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		
2	Vice Chair Executive Committee	Debbie Webster CVCWA	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		
3	Technical Advisory Committee	Roger Reynolds, S Engr.	✓			✓			✓			✓		✓				
	Technical Advisory Committee	Nigel Quinn, LBL											✓	✓				
4	Public Education and Outreach	Joe DiGiorgio									✓	✓	✓	✓	✓	✓		
5	Economic and Social Cost Committee	David Cory, SJVDA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
6	Lower San Joaquin River Committee	Karna Harrigfeld, SEWD	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		

CV-SALTS Committee Rosters

Participant Names			CV-SALTS Executive Committee Meetings -2016															
Last	First	Organization	11-Mar	29-Mar	30-Mar	6-May	11-May	12-May	10-Jun	15-Jun	16-Jun	8-Jul	1-Aug	5-Aug	10-Aug	11-Aug	14-Sep	15-Sep
Archibald	Elaine	CUWA	✓		✓				✓	✓	✓	✓	✓	✓	✓	✓		
Ashby	Karen	LWA	✓		✓	✓		✓		✓	✓	✓		✓	✓	✓		
Barclay	Diane	SWRCB		✓	✓		✓	✓		✓	✓		✓		✓	✓		
Bell	Nicole	KRWCA		✓	✓		✓	✓		✓	✓		✓		✓	✓		
Brown	Michelle	RBI										✓						
Bryant	Mike	RBI										✓						
Buford	Pam	CVRWQCB	✓		✓	✓	✓	✓	✓			✓		✓	✓			
Carlo	Penny	Carollo Engineers			✓			✓								✓		
Cady	Mark	CDFA		✓	✓			✓		✓	✓		✓					
Cehrs	David	KRCD																
Clary	Jennifer	CWA		✓	✓					✓								
D'Adamo	Dee Dee	SWRCB			✓			✓										
Deeringer	Andrew	SWRCB								✓								
Delehant	Gail																	
Dickey	John	Plantierra		✓	✓		✓	✓		✓	✓		✓			✓		
Doduc	Tam	SWRCB		✓				✓			✓							
Dunham	Tess	Somach Simmons		✓	✓		✓	✓		✓	✓	✓	✓		✓	✓		
Escobar	Juan	DWR		✓	✓		✓	✓		✓	✓		✓					
Shahla	Farahnah	SWRCB						✓										
Fuentes	Robert	Leadership Counsel		✓	✓		✓	✓										
Gallock	Charlotte	WWD		✓		✓	✓	✓		✓	✓							
Garcia	Rick	CRC																
Gonzalez	Armando	Occidental Oil & Gas																
Gosling	Doug				✓													
Grovhoug	Tom	LWA			✓			✓		✓	✓			✓	✓	✓		
Jensen	Ryan	CWC																
Johnson	Alex	Freshwater Trust																
Johnson	Michael	LSJRC				✓			✓			✓						
Kihara	Annalisa	SWRCB																
Kimmelshue	Joel	LANDIQ																
Kretsinger Grabert	Vicki	LSCE			✓	✓	✓	✓	✓			✓		✓				
Kubiak	Rachel	Western Plant Health Assoc.					✓	✓										
Kuzelka	Timothy	CWC																

ADDITIONAL PARTICIPANTS:

Participant Names			CV-SALTS Executive Committee Meetings -2016															
Last	First	Organization	11-Mar	29-Mar	30-Mar	6-May	11-May	12-May	10-Jun	15-Jun	16-Jun	8-Jul	1-Aug	5-Aug	10-Aug	11-Aug	14-Sep	15-Sep
Laputz	Adam	CVRWQCB																
Larson	Bobbi	CASA																
LeClaire	Joe	CDM Smith			✓	✓				✓	✓	✓	✓	✓		✓		
Lilien	Jonathan	Chevron														✓		
Link	Adam	CASA										✓						
Longley	Karl	CVRWQCB	✓		✓		✓	✓		✓	✓		✓			✓		
McGahan	Joe	SJVDA										✓						
McLellan	Laura	SWRCB						✓										
Meeks	Glenn	CVRWQCB			✓		✓	✓	✓	✓	✓			✓				
Meyerhoff	Richard	CDM Smith	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Moore	Tim	Risk-Sciences		✓	✓		✓	✓	✓	✓	✓		✓		✓	✓		
Nasaei	Elnaz	SWRCB						✓										
Okita	David	CWC			✓		✓	✓										
Ores	Debi	CWC						✓		✓	✓							
Peschel	Paul	KRCD															✓	
Pritchett	Gregory	Chevron																
Pulupa	Patrick	CVRWQCB			✓		✓	✓		✓	✓		✓		✓	✓		
Pitcher	Jennifer	West. States Petroleum																
Rempel	Jenny	CWC																
Rodgers	Clay	CVRWQCB		✓			✓	✓		✓	✓							
Schmid	Andrea	Plantierra																
Schultz	Paul	CDM Smith	✓	✓	✓	✓					✓	✓	✓					
Seaton	Phoebe	CRLA								✓	✓							
Segal	Daniel	Chevron																
Stamps	Alicia	Kennedy/Jenks																
Thomas	Bill	KRCD		✓	✓				✓		✓				✓	✓		
Tillman	Stephanie	LANDIQ		✓	✓		✓	✓		✓	✓		✓		✓	✓		
Tristao	Dennis	J.G. Boswell																
Trouchon	Mike	LWA										✓						
Wackman	Mike						✓								✓	✓		

ADDITIONAL PARTICIPANTS:

Attachment A-3

Salinity Management Strategy

1.0 Problem Statement

The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (SRSJR Basin Plan) and the Water Quality Control Plan for the Tulare Lake Basin (TLB Basin Plan) (“Basin Plans”) establish regulations for the management of salinity to protect beneficial uses in surface and ground waters. In general, the Basin Plans have identified the following beneficial uses as being applicable to groundwater: Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Service Supply (IND), and Industrial Process Supply (PRO). The TLB Basin Plan includes additional beneficial uses for Water Contact Recreation (REC-1), Recreation (REC-2) and Wildlife Habitat (WILD), and further varies from the SRSJR Basin Plan in that it specifies which beneficial uses are applicable to specified Basins. These and other beneficial uses apply to surface waters, depending on the surface water in question. (See Section 2.1 below for further discussion regarding beneficial uses).

Depending on the applicable beneficial use and specific waterbody, the Basin Plans also contain numeric and/or narrative water quality objectives for salinity that apply to waters of the state, which includes both surface and ground waters. With respect to salinity, the two beneficial uses that are most often impacted by salinity levels are AGR and MUN. For AGR uses, differing levels of salinity can negatively impact crop growth and yield. For MUN uses, salinity at some levels may impact consumer acceptance of drinking water, and at much higher levels, may impact public health. Water quality objectives that are set at certain levels to protect the AGR and/or MUN beneficial uses are implemented in waste discharge requirements or Conditional Waivers (WDRs/Conditional Waivers). The current permitting approach with respect to salinity in discharges does not account for, or address, the long-term complexity associated with salinity. With respect to surface waters, the issues of salinity are further complicated due to the interaction with water rights, mandated environmental flow releases, Delta salinity standards, and other compounding factors such as statewide policies for water conservation and mandatory water use restrictions.

In summary, the slow and steady accumulation of salts in Central Valley groundwater basins threatens not only the long-term viability of agriculture and industry, but also the water supplies of more than 25 million people. There are many examples of the challenges posed by salt accumulation; many city and regional wastewater facilities cannot meet current Basin Plan water quality objectives, industries struggle to comply with salinity limitations, which often places limitations on their growth, agricultural activities are limited and face increased costs due to the management of saline waters, and drinking water sources throughout the region are impacted by high levels of salts. These conditions have been evident and worsening since the 1970s. To date, 1.5 million acres of irrigated land has been identified as salinity impaired, and a quarter million acres have been taken out of production. Unless steps are taken to address these issues, salts will affect an even greater portion of California’s communities, economy, and environment.

The Salt and Nitrate Management Plan (SNMP) and its associated technical documents propose long-term solutions for addressing salinity. For example, the Strategic Salt Accumulation Land and Transportation Study (SSALTS) identified and evaluated potential salt management strategies. Current salinity management activities may only address about 15% of the annual salt load. Long-term solutions, including development of regional de-salters and a regulated brine line are needed to address the other 85%.¹ These long-term management strategies will require significant state and federal funding to implement. In the meantime, the Central Valley Water Board must implement the Basin Plans through the adoption of WDRs/Conditional Waivers that consider the beneficial uses to be protected and the water quality objectives associated with those beneficial uses.

Because the solutions for addressing salinity are long-term in nature, the Central Valley Water Board needs be able to consider innovative salt management strategies for both the short term and the long term that move the region toward salt balance and restoration of impacted areas where feasible. This includes needing additional regulatory flexibility with respect to the issuance of WDRs/Conditional Waivers with salinity related requirements. Some policies being proposed with the SNMP that relate to salinity include: Revisions of the Exceptions Policy for Waste Discharges to Groundwater (SNMP Attachment A-4), Salinity Management to Provide Reasonable Protection of AGR Beneficial Uses in Groundwater (AGR Policy) (SNMP Attachment A-5), Revisions to the Salinity Variance Program Policy (SNMP Attachment A-6), Offsets Policy (SNMP Attachment A-7), Drought and Water Conservation Policy (SNMP Attachment A-8), and Guidance to Implement Secondary Maximum Contaminant Levels (SNMP Attachment A-9). The applicability of the various policies will vary depending on implementation of this Salinity Management Strategy. Overall, the Salinity Management Strategy provided here is intended to provide the Central Valley Water Board with a process for moving forward with long-term salinity management while identifying an interim permitting approach for salinity discharges.

2.0 Existing Regulatory Requirements

2.1 Basin Plans

As indicated previously, the Basin Plans designate the beneficial uses for waters of the state (i.e., surface and groundwaters) in the Central Valley, and establish water quality objectives to protect those uses. Water quality objectives are defined to mean, “the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.”² Such objectives may be either narrative or numeric. When objectives are expressed as a narrative, the Central Valley Water Board must then interpret the narrative objective with a numeric value or criteria. The Basin Plans include a Policy for Application of Water Quality Objectives, which is typically followed by Central Valley Water Board staff to interpret narrative objectives when setting permit limits and/or restrictions.

A summary of Basin Plan provisions for each Basin Plan are provided here.

¹ CV-SALTS, *Strategic Salinity Alternatives Land and Transportation Study, Final Phase 2 Report: Development of Potential Salt Management Strategies*, prepared by CDM Smith, October 1, 2014

² Wat. Code, Section 13050

2.1.1 SRSJR Basin Plan

2.1.1.1 Beneficial Uses

For groundwater the SRSJR Basin Plan states that “unless otherwise designated by the Regional Water Board, all ground waters in the Region are considered as suitable or potentially suitable, at a minimum, for municipal and domestic water supply (MUN), agricultural supply (AGR), industrial service supply (IND), and industrial process supply (PRO).”³ With respect to MUN designations, the SRSJR states that in making exceptions to the designation of MUN, the Central Valley Water Board will apply the exception criteria from State Water Board Resolution No. 88-63.

The exception criteria for MUN relevant to salinity are as follows:

- The total dissolved solids (TDS) exceed 3,000 mg/L (5,000 µmhos/cm, electrical conductivity) and it is not reasonably expected by the Regional Water Board [for the ground water] to supply a public water system, or
- There is contamination, either by natural processes or by human activity (unrelated to a specific pollution incident), that cannot be reasonably treated for domestic use using either Best Management Practices or best economically achievable treatment practices, or

With respect to the AGR, IND and PRO beneficial uses, the SRSJR Basin Plan includes the following salinity relevant exception criterion:

- There is pollution, either by natural processes or by human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for agricultural use [or industrial use] using either Best Management Practices or best economically achievable treatment practices.⁴

For surface waters, Figure II-1 and Table II-1 identify the existing, potential, and existing limited beneficial uses applicable in the area covered by the SRSJR Basin Plan.⁵ While designations vary from one water body to another, MUN and AGR are commonly designated as existing uses in surface waters. The beneficial uses of any specifically identified water body in Table II-1 generally apply to its tributary streams, unless specifically excepted in the Basin Plan. The Basin Plan notes that in some cases a beneficial use may not be applicable to the entire body of water, and that in these cases the Central Valley Water Board's judgment will be applied. Furthermore, the Basin Plan notes it is impractical to list every surface water body in the Region; for water bodies not listed in Table II-1, the beneficial uses will be evaluated on a case-by-case basis.⁶

2.1.1.2 Water Quality Objectives

The SRSJR Basin Plan does not establish an explicit water quality objective for salinity in groundwater. However, the SRSJR Basin Plan relies on the following narrative water quality objective to protect water quality:⁷ *“Ground waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses.”* The SRSJR Basin Plan also incorporates by reference for application to

³ SRSJR Basin Plan, Pg. II-3.00.

⁴ SRSJR Basin Plan, Pg. II-3.00; TLB Basin Plan, Pg. II-3

⁵ SRSJR Basin Plan, Pg. II-4.00 – 8.00

⁶ SRSJR Basin Plan, Pg. 2.00

⁷ SRSJR Basin Plan, Pg. III-10.00

ground waters with the MUN designation the secondary MCLs that are applicable to specific salinity ions.

The SRSJR Basin Plan relies on the following general narrative water quality objective to protect water quality in inland surface waters:⁸ *“Waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses.”* Secondary MCLs applicable to specific salinity ions are incorporated by reference. The SRSJR Basin Plan also includes language that acknowledges that specific treatment requirements are imposed by state and federal drinking water regulations on the consumption of surface waters under specific circumstances. In addition to the narrative water quality objective described above, the SRSJR Basin Plan includes water body-specific water quality objectives for salinity-related constituents. Specifically,

- *Electrical Conductivity and Total Dissolved Solids - Special Cases in the Sacramento and San Joaquin River Basins Other Than the Delta*⁹ - Table III-3 establishes objectives for electrical conductivity that are applicable to specific surface waters: Sacramento River, portions of the Feather River watershed, and the segment of the San Joaquin River from the Friant Dam to the Mendota Pool.¹⁰ Table III-3 also establishes water quality objectives for TDS that apply to portions of the American River watershed, Folsom Lake and Goose Lake.¹¹ With regards to the implementation of the Table III-3 water quality objectives, the Basin Plan states that if there is any conflict with the general Chemical Constituents water quality objectives, the more stringent of the objectives shall apply.
- *Electrical Conductivity, Total Dissolved Solids, and Chloride - Delta Waters*¹² – The SRSJR Basin Plan incorporates the salinity objectives applicable to the Delta by reference to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, 2006.

Incorporated into the SRSJR Basin Plan is the Control Program for Salt and Boron Discharges into the Lower San Joaquin River (LSJR).¹³ The Control Program establishes salt load limits to achieve compliance at the Airport Way Bridge near Vernalis with salt and boron water quality objectives for the LSJR. The Control Program establishes timelines for: (1) developing and adopting salt and boron water quality objectives for the San Joaquin River upstream of the Airport Way Bridges near Vernalis; (2) a Control Program to achieve these objectives; and (3) developing and adopting a groundwater Control Program. As part of the implementation of this Control Program, the Central Valley Water Board is currently in the process of developing a Basin Plan amendment in collaboration with watershed stakeholders to set salt and boron water quality objectives and add/modify an implementation program for the Lower San Joaquin River.¹⁴

⁸ SRSJR Basin Plan, Pg. III-3.00

⁹ SRSJR Basin Plan, Pg. III-6.02

¹⁰ SRSJR Basin Plan, Pg. III-7.00

¹¹ SRSJR Basin Plan, Pg. III-7.00

¹² SRSJR Basin Plan, Pg. III-6.02

¹³ SRSJR Basin Plan, Pg. IV-32.00

¹⁴ http://www.waterboards.ca.gov/centralvalley/water_issues/salinity/upstream_salt_boron/index.shtml

2.1.2 TLB Basin Plan

2.1.2.1 Beneficial Uses

The TLB Basin Plan includes the same general beneficial uses, and exceptions criteria. However, the TLB Basin Plan also includes a table of the various hydrologic units that identifies the applicable designated beneficial uses. Generally, all hydrologic units are designated with MUN unless otherwise footnoted. Further, the TLB Basin Plan includes language that states, “Existing beneficial uses generally apply within the listed Detailed Analysis Unit (DAU). Due to the size of the DAUs, however, the listed uses may not exist throughout the DAU.”¹⁵

For surface water, Figure II-1 and Table II-1 in the TLB Basin Plan identify existing and probable future beneficial uses adopted for specific surface waters in the area covered by the TLB Basin Plan.¹⁶ The applicability of MUN or AGR as beneficial uses on surface waters listed in Table II-1 varies to some degree. The TLB Basin Plan states that the beneficial uses of any specifically identified water body generally apply to its tributary streams. The Basin Plan also notes that (a) in some cases a beneficial use may not be applicable to the entire body of water, and that in these cases the Central Valley Water Board's judgment will be applied; and (b) it is impractical to list every surface water body in the region; for unidentified water bodies the beneficial uses will be evaluated on a case-by-case basis.¹⁷ The TLB Basin Plan supplements the designations in Table II-1 by stating, “Upstream from the foothill reservoirs, the quality of surface waters remains good to excellent. The quality of the major streams is suitable for all beneficial uses.”¹⁸

2.1.2.2 Water Quality Objectives

The TLB Basin Plan includes the same narrative water quality objective and incorporation of the secondary MCLs as the SRSJR Basin Plan, as described in Section 2.2.1.¹⁹ In addition, the TLB Basin Plan establishes a policy that allows for controlling the rate of increase of salinity (“managed degradation”) by regulating both the maximum increase in salinity concentrations attributable to consumptive use (“*maximum EC shall not exceed the quality of the source water plus 500 μ mhos/cm*”)²⁰ and the maximum average annual increase in groundwater salinity on a basin-specific basis:²¹

“All ground waters shall be maintained as close to natural concentrations of dissolved matter as is reasonable considering careful use and management of water resources.

No proven means exist at present that will allow ongoing human activity in the Basin and maintain ground water salinity at current levels throughout the Basin.

Accordingly, the water quality objectives for ground water salinity control the rate of increase.

¹⁵ TLB Basin Plan, Pg. II-2

¹⁶ TLB Basin Plan, Pg. II-4

¹⁷ TLB Basin Plan, Pg. II-2

¹⁸ TLB Basin Plan, Pg. II-2

¹⁹ TLB Basin Plan, Pg. III-7.

²⁰ TLB Basin Plan, Pg. IV-11

²¹ TLB Basin Plan, Pg. III-8 (see TLB Basin Plan for referenced table and figure)

The maximum average annual increase in salinity measured as electrical conductivity shall not exceed the values specified in Table III-4 for each hydrographic unit shown on Figure III-1.

The average annual increase in electrical conductivity will be determined from monitoring data by calculation of a cumulative average annual increase over a 5-year period.”

The maximum average increase in electrical conductivity allowed varies by hydrographic unit, ranging from 1 $\mu\text{S}/\text{cm}$ to 6 $\mu\text{S}/\text{cm}$ in the Westside (North and South) and Tule River and Poso hydrographic units, respectively.²²

As noted above, the TLB Basin Plan allowed for managed degradation by regulating the maximum average annual increase in groundwater salinity on a basin-specific basis. The Basin Plan assumed that average annual increase would be determined from monitoring data using the prescribed method. However, a data monitoring network was never developed as planned and the allowable rate of increase of salt incorporated into the regulation has not been implemented as intended.

The TLB Basin Plan relies on the same general narrative water quality objective applied to groundwater to protect water quality in inland surface waters: *“Waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses.”*²³ To support this water quality objective, secondary MCLs are incorporated by reference. The TLB Basin Plan also includes language that acknowledges that specific treatment requirements are imposed by state and federal drinking water regulations on the consumption of surface waters under specific circumstances.

The TLB Basin Plan includes the following salinity narrative water quality objective applicable to surface waters: *“Waters shall be maintained as close to natural concentrations of dissolved matter as is reasonable considering careful use of the water resources.”*²⁴ The TLB Basin Plan also includes water quality objectives for electrical conductivity. Specifically, Table III-2 establishes objectives for specific reaches of the Kings, Kaweah, Tule and Kern Rivers,²⁵ and Table III-3 specifies objectives at selected streamflow stations on the Kings, Kaweah, Tule and Kern Rivers.²⁶

2.2 Application of Water Quality Objectives

In the recent past, the Central Valley Water Board staff have generally interpreted narrative objectives in a conservative manner, applying the most stringent available criterion that applies to the most sensitive beneficial use. For example, to protect the AGR beneficial use, the most stringent criterion identified is the agricultural goal of 450 mg/L for TDS (700 $\mu\text{mhos}/\text{cm}$ for electrical conductivity).

When MUN is the most sensitive beneficial use, Central Valley Water Board staffs have typically applied the secondary MCL for TDS or electrical conductivity, chloride and sulfate, which actually

²² TLB Basin Plan, Pg. III-8, Table III-4

²³ TLB Basin Plan, Pg. III-3

²⁴ TLB Basin Plan, Pg. III-4

²⁵ TLB Basin Plan, Pg. III-5

²⁶ TLB Basin Plan, Pg. III-6

consists of three different values: recommended, upper and short-term.²⁷ Often, the lowest recommended value is used, which is 500 mg/L for TDS and 900 µmhos/cm for electrical conductivity.

Depending on what is the most sensitive beneficial use, the Central Valley Water Board staff has in the past established permit limitations and/or receiving water limitations based on these values. For some dischargers, the values are expressed as effluent limitations that apply to the discharge at the end of pipe. For other dischargers, permit limits may include consideration of assimilative capacity in either surface or groundwater. In either case, compliance with such salinity limitations can be difficult, and such difficulty will increase over time as we continue to concentrate salts in wastewater discharges and agricultural return flows. Costs to meet such limitations in many instances is exorbitant, and provides little overall environmental benefit.

Notably, both Basin Plans indicate that the objectives (narrative and numeric) do not require improvement over naturally occurring background concentrations.

2.3 Other Basin Plan Provisions

Beyond the designation of beneficial uses and water quality objectives, the Basin Plans include other provisions in their respective implementation chapters relevant to salinity. For example, the TLB Basin Plan specifically calls out the long-term problem of increasing salinity in groundwater and recognizes that degradation of ground waters by salts is unavoidable without a plan for removing salts from the Basin.²⁸ With respect to the sources of salt, the TLB Basin Plan indicates that such sources “should be managed to the extent practicable to reduce the rate of ground water degradation.”²⁹ For the SRSJR Basin Plan, there is recognition that salt management is becoming increasingly important, and that strategies for development of a valley-wide drain for elevated salt discharges needed to be pursued.³⁰

The TLB Basin Plan includes specified effluent limits and/or provisions relevant to salinity discharges from municipal, industrial and oil field wastewater discharges to land.³¹ The specific limitations are conservative, and difficult for many dischargers to achieve. Because they are part of the TLB Basin Plan, Central Valley Water Board staff have no discretion with respect to their application even in instances where compliance with such limitations results in no measurable environmental benefit.

2.4 State Policies

There are many State Policies that may impact salinity levels in both surface and ground waters in the Central Valley. Such policies include water quality-based policies as well as water rights based decisions. For the purposes of this Salinity Management Strategy, we have identified only key water quality related policies. Further evaluation of the impact of broader state policies that impact salinity levels in the Central Valley will be part of Phase I of the Salinity Management Strategy, which is discussed further below.

²⁷ 22 CCR Table 64449-B

²⁸ TLB Basin Plan, Pg. IV-5.

²⁹ TLB Basin Plan, Pg. IV-6.

³⁰ SRSJR Basin Plan, Pg. IV-2.00.

³¹ TLB Basin Plan, Pgs. IV-11 - IV-15.

Recycled Water Policy

State Water Board Resolution 2009-0011 (as amended by Resolution 2013-0003) established a Recycled Water Policy for the State of California. The purpose of the Recycled Water Policy is to increase the use of recycled water from municipal wastewater sources in a manner that implements state and federal water quality laws. Policy implementation is intended to encourage the use of recycled water, stormwater recharge, water conservation, conjunctive use of surface and groundwater, and improve the use of local water supplies. Within the Recycled Water Policy is a requirement for the development of salt and nutrient management plans for each groundwater basin in California. The requirements for the development of these plans is found in the State Water Board Resolution.

Sources of Drinking Water Policy

The Sources of Drinking Water Policy establishes a policy that all waters are considered suitable or potentially suitable to support the MUN beneficial use, with certain exceptions. The Basin Plans implement this policy by generally assigning the MUN beneficial use to all surface waters and groundwaters in the Central Valley unless those waters have already been identified as not supporting the MUN use in the Basin Plans. Under existing Basin Plan interpretations, exemptions to the MUN beneficial use can only be made in the Basin Plans themselves.

Resolution 68-16 – Statement of Policy with Respect to Maintaining High Quality Waters of California

Resolution 68-16, otherwise referred to as the state’s antidegradation policy, applies when surface and/or groundwater is better than the applicable water quality objective as specified in the Basin Plan. It requires the Central Valley Water Board to regulate in manner that is designed to maintain the highest quality of water that is reasonable. The state’s antidegradation policy sets forth the specific conditions that must be met and demonstrations that must be made before the Central Valley Water Board can allow a discharge (or discharges) to lower existing high quality waters:

- “1) *Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.*
- 2) *Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.”³²*

³² State Water Board. Statement of Policy with Respect to Maintaining High Quality of Waters in California. Res. No. 68-16 (Oct. 28, 1968).

For surface waters, the federal antidegradation policy³³ also applies.

3.0 Salinity Management Strategy

CV-SALTS recommends a long-term Salinity Management Strategy through the SNMP that:

- Controls the rate of degradation (“managed degradation”)
- Achieves long-term sustainability (salt balance) where feasible, practicable and reasonable
- Restores groundwater basins where feasible, practicable and reasonable.

Because of the long-term nature of salinity management, this Salinity Management Strategy is phased over time. The first phase consists of developing a Prioritization and Optimization Study for salinity management. The overall goal of the Prioritization and Optimization Study is to further define the conceptual design of SSALTS into a feasibility study that identifies appropriate regional and sub-regional projects, including location, routing and implementation/operation of specific projects. In general, the Prioritization and Optimization Study is expected to include the following activities:

- Evaluate the impact of all state policies that impact management of salinity in the Central Valley region (e.g., Bay Delta Plan) to both surface and ground waters;
- Identify physical projects and proposed locations for long-term management of salinity (e.g., regulated brine line, salt-sinks, regional/sub-regional de-salters, recharge areas, deep well injection, etc.);
- Identify non-physical projects that help with managing salinity;
- Develop governance structures for implementation of the physical projects;
- Identify funding sources that will be necessary for implementation of large-scale capital physical projects (state and federal capital expenditures);
- Identify the various environmental permits (and time-line for obtaining the permits) that will be needed to implement the preferred physical projects;
- Identify any necessary Basin Plan changes that may be necessary to implement the next Phase or Phases of the Salinity Management Strategy;
- Develop the conceptual design for applicable projects; and,
- Other related activities.

Figure A3-1 provides an illustration of anticipated key milestones to be completed during the Phase I Prioritization and Optimization Study. While it is anticipated that completion of these milestones will take approximately 10-years, it is recommended that the Executive Officer of the Central Valley Water Board be given the direct authority to extend this time frame if compelling reasons or adequate justification is provided for an extension. Once the Prioritization and Optimization Study is completed,

³³ Title 40 Code of Federal Regulations, Section 131.12, Antidegradation Policy and Implementation Methods.

Phase II of the Salinity Management Plan will be implemented. Implementation of Phase II, in whole or part, will occur as indicated in the Prioritization and Optimization Study, and after approval of any necessary Basin Plan amendments.

Phase II will generally consist of environmental permitting, obtaining funding, and engineering and design. It is anticipated that the duration of Phase II will be approximately 10 years. Like with Phase I, it is recommended that the Executive Officer of the Central Valley Water Board be given the authority to extend the anticipated time frame for compelling reasons, which may include availability of funding to move forward with implementation of Phase II. Actual construction of the physical projects, and in particular a regulated brine line, identified in the Prioritization and Optimization Study, would then follow after completion of Phase II (i.e., Phase III). Implementation of Phase III construction of a regulated brine line is highly dependent on obtaining the necessary public funding.

3.1 Funding and Overseeing the Prioritization and Optimization Study

Conducting the Prioritization and Optimization Study is anticipated to cost up to \$10 million, and as indicated, is expected to take 10 years to complete. In light of the cost and time associated with this comprehensive, valley-wide effort, CV-SALTS recommends that all (or almost all) dischargers of salinity help fund its implementation. CV-SALTS further recommends that entities beyond dischargers that also benefit from salinity management in the Central Valley participate in funding the Priority and Optimization Study as well as implementation of Phases II and III as applicable. Further, others that benefit from the Central Valley's control of salinity should also be part of this effort and assist in funding this Study. For dischargers, their level of participation will be determined by the lead entity based, in part, on ambient conditions, proportional contribution and other factors as determined appropriate.

The likely entity that would take the lead in moving forward with the Prioritization and Optimization Study is the Central Valley Salinity Coalition (CVSC). However, it is anticipated that the CVSC may need to adjust its membership and policy structures slightly with respect to conducting the Prioritization and Optimization Study. It is also anticipated that CVSC activities related to implementation of the Prioritization and Optimization Study will also be discussed in an open stakeholder process through an entity like the CV-SALTS Executive Committee. Like with the CVSC, the CV-SALTS Executive Committee may need to adjust its membership and policy structure for implementation of the Prioritization and Optimization Study.

3.2 Interim Salinity Permitting Approach

While the Prioritization and Optimization Study is being implemented, CV-SALTS recommends that the Basin Plans be amended to include an interim salinity permitting approach for discharges of salinity. This approach allows the Central Valley Water Board to manage degradation while the long-term salinity efforts are being implemented. Because this approach is intended to be interim in nature, this approach would likely include a sunset provision in the Basin Plan, which could be renewed depending on the efforts associated with implementing the various applicable phases of the Salinity Management Strategy. At the outset, CV-SALTS recommends that the interim permitting approach be set in place for 15 years to allow for implementation of Phase I of the Salinity Management Strategy. At the end of Phase I, it may be necessary to extend the Interim Salinity Permitting approach to allow for implementation of Phase II, or to adjust the approach as deemed appropriate to implement Phase II.

Any such change may require a Basin Plan amendment. The Interim Salinity Permitting approach is discussed in more detail in Section 4.0 below.

3.3 Recommendations to Other Agencies

The programs of implementation in the Basin Plans include Central Valley Water Board recommendations to other agencies that are deemed necessary to implement water quality objectives and to obtain and/or maintain beneficial uses. Implementing long-term salinity management and achieving salt sustainability in the Central Valley is a statewide issue. Accordingly, efforts to achieve salt sustainability in the Central Valley will take extraordinary effort on the part of the Central Valley Water Board, dischargers and many others. For example, many actions related to water rights and water deliveries taken by the State Water Resources Control Board, Department of Water Resources and the U.S. Bureau of Reclamation impact salinity build up in the Central Valley. Actions to improve the Delta by the Delta Stewardship Council, state and federal environmental protection agencies (e.g., U.S. Fish and Wildlife Service), and others also impact salinity levels in the Central Valley. Further, efforts being taken to comply with the Sustainability Groundwater Management Act will likely impact groundwater salinity issues in the Central Valley. In light of these many related actions and efforts, it is appropriate that the Basin Plan be amended to recognize the impact of other state and federal agency actions, and make recommendations for how these agencies should interact and be part of implementing the Central Valley's Salinity Management Strategy.

4.0 Proposed Interim Permitting Approach for Discharges of Salinity

CV-SALTS recommends implementation of an Interim Salinity Permitting approach that is consistent with the Salinity Management Strategy described above and addresses the existing regulatory challenges, also described above. The approach, which is described in Section 4.2, is based on the findings and governing principles described below.

4.1 Findings and Governing Principles

The proposed interim permitting approach for salinity is based on the following findings and governing principles:

- This approach applies to permitting salinity discharges to surface and groundwater in the defined interim period.
- The proposed approach for permitting salinity discharges to surface and groundwater must be implemented in a manner consistent with state and federal Antidegradation Policies (i.e., Resolution No. 68-16 and 40 CFR 131.12), as applicable.³⁴
- No proven means exist at present that will allow ongoing human activity in the Central Valley Region and maintain salinity levels throughout every groundwater basin.³⁵ Water conservation and increased recycled water use also increase salinity levels in groundwater. Therefore, the

³⁴ State Water Board Resolution 68-16. *Statement of Policy with Respect to Maintaining High Quality of Waters in California* (Antidegradation Policy) and Title 40 Code of Federal Regulations, Section 131.12, Antidegradation Policy and Implementation Methods.

³⁵ TLB Basin Plan, Pg. III-8.

Interim Salinity Permitting approach focuses on managing degradation while the long-term components of the Salinity Management Strategy are being implemented.

- It is reasonable to employ a long-term interim permitting approach. For example, the salt load currently existing in the vadose zone is typically unknown, but this load can impact the quality of the underlying groundwater over many years. In addition, the time required for recharge water to transit the vadose zone and return to use as groundwater at a nearby agriculture water supply well can be significant.
- Because of the long-term nature for implementation of the Salinity Management Strategy, it is reasonable to expect that dischargers will not be able to implement such strategies individually, but will need to participate in a larger collective effort that is region-wide. The larger collective effort would begin with implementation of the Prioritization and Optimization Study (Phase I), followed by Phases II and III. Due to the anticipated costs of these efforts, it is appropriate that most discharges not be subject to extensive and/or expensive salinity permit requirements during this interim period. In particular, individual discharge efforts would have little impact on Central Valley salinity management as a whole, and as such they are not reasonable, feasible or practicable.
- It is reasonable to expect that permit requirements (e.g., WDRs/Conditional Waivers, National Pollutant Discharge Elimination System [NPDES] Permits) with respect to implementing the Salinity Management Strategy will be phased in appropriately to allow for the need to address drinking water issues for nitrates first. The SNMP identifies nitrate drinking water issues as its first near-term priority. Salinity is also a priority, but due to the complexities associated with salinity, it will need to be addressed over the long-term.

4.2 Proposed Framework for Interim Salinity Permitting Approach – Phase I

Given the findings and governing principles described above, CV-SALTS recommends an interim permitting approach for salinity-related discharges to surface and groundwater. To implement this approach in WDRs/Conditional Waivers, it will be necessary for the Central Valley Water Board to renew/revise existing WDRs/Conditional Waivers and NPDES Permits. Further, during this interim period, there will be new dischargers, or existing dischargers seeking facility modifications, that will have salinity discharges. The SNMP recommends a prioritization approach for addressing nitrate drinking water issues based on the severity of water quality contamination and immediate impact to users. It is not the intent of the Salinity Management Strategy to use limited available resources to revise individual WDRs/Conditional Waivers and NPDES Permits for salinity, especially where there are significant nitrate water quality issues. However, there is a need to ensure that efforts are moving forward with respect to the Prioritization and Optimization Study.

To balance these two needs, CV-SALTS recommends that the Central Valley Water Board, in cooperation with stakeholders, develop a series of resolutions/orders that amend applicable WDRs/Conditional Waivers. In general, the resolutions/orders would require dischargers to continue current reasonable, feasible and practicable efforts to implement salinity management practices and/or source control efforts, including implementation of any pollution prevention plans, watershed plans, and/or salt reduction plans. Monitoring for salinity in surface and groundwater would also continue as part of applicable monitoring programs, or through regional monitoring programs as

appropriate.³⁶ Monitoring should also be coordinated with the CV-SALTS Surveillance and Monitoring Program (SAMP). Discharge levels of salinity would need to remain fairly consistent with current levels, accounting for conservation and some appropriate increment of growth. Most importantly, discharges being permitted under this interim approach would be required to participate in efforts related to the Prioritization and Optimization Study, and subsequent Phases II and III as applicable. The level of participation would vary based on salinity in the discharge as well as local conditions, and the needed level of participation would be established by the lead entity that is overseeing the Prioritization and Optimization Study. The resolutions/orders would establish the time-frame for application of the interim permitting approach, which could not exceed 15 years in length. For NPDES dischargers, which are subject to federal regulatory requirements, CV-SALTS recommends that as NPDES permits are renewed on their normal five-year cycle, that the Central Valley Water Board consider approval of a salinity variance per the Salinity Variance Policy, which would include a requirement to participate in the Prioritization and Optimization Study in order to receive the variance for meeting applicable surface water quality objectives for salinity. Or, in the alternative, the Central Valley Water Board could consider a NPDES watershed-based permit for salinity as it deems appropriate.

The resolutions/orders would need to include provisions that allow dischargers the discretion to opt out of participation in efforts to prepare the Prioritization and Optimization Study. However, CV-SALTS recommends that dischargers wishing to opt out be permitted under current traditional and conservative permitting approaches. For groundwater dischargers wishing to opt out, this would mean that they would need to show that they do not cause or contribute to exceedances of groundwater limitations for salinity constituents in first encountered groundwater, and that selection of applicable salinity water quality objectives would be conservative (e.g., most restrictive criteria for protection of AGR and MUN beneficial uses). Further, no new allocation (or expansion of an allocation) of assimilative capacity could be granted to a groundwater discharger that wishes to opt out of the Prioritization and Optimization Study. However, if a discharger has previously received allocation of assimilative capacity, and such allocation was granted with the support of an antidegradation study/analysis, then a discharger may opt out using previously approved allocations. Further, CV-SALTS recommends that the Central Valley Water Board use its discretion to issue time schedules for meeting salinity limitations for those opting out sparingly and in a limited manner. In other words, a discharger opting out should not be allowed a long-term time schedule for meeting a restrictive salinity limitation. However, the Central Valley Water Board maintains the discretion to determine if a short time schedule is appropriate in certain circumstances.

For non-NPDES surface water dischargers wishing to opt out, the same principles would apply in that they would need to show that the discharge(s) do not cause or contribute to exceedances of salinity limitations, and that the selection of applicable salinity water quality objectives would be conservative and be based on the most restrictive criteria for the AGR and MUN beneficial uses, as applicable. Like with groundwater dischargers, no new allocation (or expansion) of assimilative capacity (i.e., dilution credit) could be granted but that previously approved allocations that were supported by an

³⁶ The Central Valley Water Board would retain its authority to identify high priority saline discharges where more stringent control programs must be implemented.

antidegradation study/analysis could be maintained. Use of time schedules should also be limited as discussed above.

For NPDES surface water dischargers, the same principles would apply as those for non-NPDES surface water dischargers. In addition, salinity variances and long-term compliance schedules would not be an available option for those seeking to opt out of the Prioritization and Optimization Study.

To prepare the appropriate resolutions/orders that amend the salinity provisions in existing permits, and that establish such provisions for future permits, CV-SALTS recommends that the Central Valley Water Board and relevant stakeholders begin the process for developing such resolutions/orders as soon as possible. It is recommended that such resolutions be prepared and ready for Central Valley Water Board consideration within one (1) year of the Basin Plan amendments becoming effective. In the meantime, while such resolutions are being developed, CV-SALTS recommends that the Central Valley Water Board permit salinity discharges in a reasonable manner that looks to implementing the Salinity Management Strategy as set forth in the SNMP.

4.3 Potential Future Permitting Approach

At the close of Phase I, or potentially at the end of Phase II, the Central Valley Water Board may determine that it is necessary to revise the interim permitting approach for salinity. This may include the need to provide further guidance with respect to interpretation and application of salinity standards for protection of the AGR and MUN beneficial uses. Through the CV-SALTS process, policy documents have been prepared that address application of salinity standards for protection of AGR, as well as application of the secondary MCLs for salinity. The documents are part of the SNMP, and may result in Basin Plan Amendments in 2017 as determined appropriate. However, for the AGR Policy in particular (see SNMP Attachment A-5), it may be more appropriate to not amend the Basin Plan in 2017 to incorporate those policy recommendations but rather wait until after completion of Phase I of the Salinity Management Strategy.

5.0 Proposed Modifications to the Basin Plans to Support Policy Implementation

The following subsections summarize the key changes anticipated for each Basin Plan to support adoption of this policy.

Existing and Potential Beneficial Uses

No changes are proposed to either Basin Plan

Water Quality Objectives

Remove the managed degradation objectives from the TLB Basin.

Implementation

Remove salinity related limitations in the TLB Basin Plan, Implementation Chapter for municipal, industrial and oil field wastewater: Adopt the interim salinity permitting approach into both the SRSJR and TLB Basin Plans.

Figure A3-1. Milestones for Implementation of Phase I of the Salinity Management Strategy

Phase I Category	Year of Implementation									
	1	2	3	4	5	6	7	8	9	10
Stakeholder Coordination	Stakeholder Coordination Meetings (as needed frequency)									
	SGMA GSA Coordination Meetings (as needed frequency)									
Strategic Planning	Regulatory and Policy Evaluations								Phase II Planning	
Governance	Governance Plan – Formation and Structure					Implementation and Refinement of Governance Plan				
Funding	Funding Plan and Financing Strategy					Implementation of the Funding Plan and Financing Strategy				
Salt Management Studies			Prioritization and Salinity Management Analyses							
						Central Valley Brine Line Project Planning				
Special Studies				Groundwater Quality - Trace Constituent Characterization Study						
			Emerging Tech Update No. 1			Emerging Tech Update No. 2			Emerging Tech Update No. 3	
						Recycled Water Imports Study				
								Stormwater Recharge Master Plan Study		

Table 1. Phase I - Salinity Management Strategy: Proposed Tasks

Task	Description	Range of Costs	Level of Effort (days)
Stakeholder Coordination			
1	Stakeholder Meetings. Input from CV-SALTS stakeholders through facilitated meetings. (Consultant costs; stakeholder participation would be considered in-kind contributions). Costs range from monthly to quarterly meetings for 10 years.	\$616K – \$1.8M	360 – 1080
2	Sustainable Groundwater Management Act (SGMA) Groundwater Sustainability Agencies (GSA) Meetings. Coordination with GSAs: assume one meeting per quarter for all of the GSAs in each hydrologic region. For example, representatives from GSAs in the San Joaquin River Hydrologic Region will convene with CV-SALTS stakeholders once per quarter. The same assumption is made for the Tulare Lake Hydrologic Region. Fewer meetings are anticipated for the Sacramento River Hydrologic Region. It is critical that the Groundwater Sustainability Plans (GSPs) developed for each groundwater basin and the Salinity and Nitrate Management strategies be coordinated, both technically and institutionally.	\$424K – \$954K	240 – 540
Strategic Planning			
3	Regulatory and Policy Evaluations. This task serves a number of purposes: (a) Phase I strategic planning/management activities to ensure all work completed under Phase I is consistent with the needs and purpose of the Prioritization & Optimization Study (P&O Study); (b) evaluation of existing water management and state policies and requirements that could make implementation of a long-term salinity management strategy more difficult or challenging.	\$317K – \$634K	180 – 360
4	Phase II Planning. Based on the findings of other Phase I activities, (a) review the Central Valley Basin Plans to identify amendments required to continue implementation of the Salinity Management Strategy in Phase II; (b) determine the need to update the interim permitting strategy; (c) complete preliminary assessment of environmental permitting requirements that will need to be completed.	\$211K – \$422K	120 – 240
Governance			
5	Governance Plan - Formation and Structure. Develop the Governance Plan which will define the structure and roles and responsibilities of the key stakeholders. The Governance Plan will include the project objectives and a detailed plan describing how the salinity management strategy will be implemented over time. The structure of governance will be defined, including development of appropriate agreements, <i>e.g.</i> , memorandum of understanding, charter, joint powers authority, etc. The governance plan will also account for coordination with the GSAs formed under SGMA.	\$211K – \$528K	120 – 300
6	Implementation and Refinement of the Governance Plan. The agreed upon Governance Plan will be legally adopted and then implemented. As needed, additional stakeholders will join the governance structure during implementation. The administration of regional components of long-term salinity management projects conceptually developed during Phase I (<i>e.g.</i> , the Central Valley regulated brine line) will be refined during implementation of the Governance Plan. Memoranda of understanding with agencies that are not part of the original Governance Plan (<i>e.g.</i> , EBMUD for long-term agreements on brine disposal) would be written, negotiated, and executed. Refinement of the Governance Plan will continue as needed during Phases II and III of the Salinity Management Strategy.	\$211 – \$528K	120 - 300

Table 1. Phase I - Salinity Management Strategy: Proposed Tasks

Task	Description	Range of Costs	Level of Effort (days)
Funding			
7	Funding Plan and Financing Strategy. Development of a Funding Plan will include a preparation of a financial strategy to determine potential sources of funding: including federal, state, local agencies, water purveyors, agricultural communities, grants, bonds, and low-interest loans and other strategies to support the development and implementation of salinity management facilities. The Funding Plan will include strategies for the equitable management and funding of long-term salinity management projects (e.g., the Central Valley regulated brine line). Resources will be allocated where salt management needs are the greatest; different strategies may be developed for different Hydrologic Regions of the Central Valley.	\$317K – \$528K	180 – 300
8	Implementation of the Funding and Financing Strategy. This task includes the execution of the Funding Plan and the acquisition and administration of the funding dollars. In this task, it is anticipated that an independent, third-party audit firm will conduct a program-specific audit to ensure that the funds are administered in accordance with state and federal laws, regulations, using generally accepted auditing principles and government auditing standards, and other audit guides relative to the source of funding.	\$317K – \$528K	180 – 300
Salt Management Studies			
Prioritization and Salinity Management Analyses			
9	Prioritization of Groundwater Basins and Subbasins. This task involves reviewing and potentially revising groundwater basin and subbasins priorities that were developed for the SNMP, based on new information and on the stakeholder meetings.	\$70K – \$141K	40 - 80
10	Prioritization within Groundwater Basins and Subbasins and Groundwater Modeling. The Prioritization and Optimization Study will evaluate criteria to develop a master plan for prioritization and phasing of locations for extraction wells and treatment facilities. This task will include reviewing hydrogeologic information and water quality data for each basin and subbasin. Current and projected land use and cropping patterns will be accounted for. The CV-SALTS groundwater model will be refined to estimate optimal areas to located extraction wells and to build a regional/subregional treatment facility (salinity and/or nitrate). Groundwater modeling must include current groundwater pumping for irrigation and potable supply, as well as planned pumping based on GSPs being developed under SGMA. Cost sharing with GSAs should be considered. Costs borne principally by stakeholders within each groundwater basin, subbasin or management zone.	\$1.5M – \$2.3M	880 – 1320
11	Salt Management/Storage Areas. Delineate areas where salt can be stored and managed in a sustainable manner. These localized salinity control measures will bridge to the point in time when the Central Valley Brine Line (CVBL) is operational. Involves hydrogeological investigation, land use and future land use studies, and the de-designation of the groundwater basin/subbasin from MUN and AGR beneficial uses. Salt management/storage areas will be strategically located in each Hydrologic Region. Segments of the CVBL can be constructed to transport brine to the interim or permanent salt management/storage areas.	\$211K – \$422K	120 – 240
12	Interim Truck or Rail Transport of Brine to a Regulated Wastewater Treatment Plant (WWTP), e.g., East Bay Municipal Utilities District (EBMUD). This task will involve a series of meetings with EBMUD, a detailed estimate of trucking and rail costs and a study to re-operationalize the existing rail spur to EBMUD.	\$141K – \$352K	80 - 200

Table 1. Phase I - Salinity Management Strategy: Proposed Tasks

Task	Description	Range of Costs	Level of Effort (days)
<i>Central Valley Brine Line Project Development</i>			
13	CVBL Pipeline Alignment – Fatal Flaw Analysis. A fatal flaw analysis will be conducted on the concept pipeline alignment that was described in SSALTS Phase 2 report (CDM Smith, 2014).	\$211K – \$422K	120 – 240
14	Alternative CVBL Pipeline Alignments Alternate CVBL alignments will be considered. For example, there is a natural gas easement from Naval Air Station (NAS) Lemoore to Estero Bay or other identified in the development of the project. Additional environmental permitting would be required. Permitting costs are not included in this estimate.	\$211K – \$422K	120 – 240
15	Concept Design for the Central Valley Regulated Brine Line. Development of the Concept Design for a regulated brine line would include elements of a concept study, a feasibility study, design requirements, and a preliminary design	\$282K – \$422K	160 – 240
<i>Special Studies</i>			
16	Groundwater Quality Characterization of Groundwater Basins and Subbasins for Trace Constituents. CV-SALTS will conduct a study to characterize trace elements, contaminants of emerging concern (CECs), and low-concentration agricultural chemicals. This information will be used in coordination with the WWTPs and for permitting. This work will be coordinated (perhaps incorporated into the Surveillance and Monitoring Program [SAMP]) to minimize duplication of effort.	\$522K - \$945K	240 - 480
17	Emerging Technologies. A review of maturing and emerging technologies for salinity management and nitrate treatment will be completed in the tenth year of the 10-year P&O Study. The review of technologies will, however, be conducted over the course of the P&O Study.	\$106K – \$211K	60 – 120
18	Recycled Water Imports. This task will evaluate the efficacy and economics of importation of recycled water into the Valley through a pipeline in the same easement as the CVBL and the recycled water will be used directly or recharged through a series of Indirect Potable Reuse (IPR) projects.	\$141K – \$211K	80 – 120
19	Stormwater Recharge Master Plan. Develop a comprehensive assessment of stormwater recharge – current, planned and additionally needed – in order to enhance recharge of high quality stormwater and snowmelt to the extent possible. Plan will evaluate existing and planned efforts and account for water rights and environmental impacts.	\$282K – \$563K	160 – 320
Totals		\$6.3M – \$12.4M	3,560 – 7,020

Attachment A-6

Revision of the Salinity Variance Program

1.0 Regulatory Basis for Revision of the Variance Program for Salinity

1.1 Existing Salinity Variance Program

On June 6, 2014, the Central Valley Water Board adopted amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (SRSJR Basin Plan) and Water Quality Control Plan for the Tulare Lake Basin (TLB Basin Plan) (collectively hereafter referred to as “Basin Plans”) that included a Variance Program for Salinity (Salinity Variance Program)¹. On March 17, 2015, the State Water Resources Control Board adopted Resolution No. 2015-0010 approving Basin Plan amendments to include the Salinity Variance Program. Because the Salinity Variance Program applies to surface waters, and is considered a water quality standards action under the Clean Water Act (CWA), the Salinity Variance Program was subject to approval by the United States Environmental Protection Agency (US EPA). The Salinity Variance was approved by U.S. EPA on July 8, 2016. With its approval, U.S. EPA specifically limited application of the Salinity Variance Program to effluent limitations being adopted to protect the agricultural beneficial use (AGR). Further, the Salinity Variance Program applies only to municipal publically owned treatment works (POTWs) that have a situation similar to or comparable to the case study cities included in the Central Valley Water Board’s supporting documents.

When it adopted the Salinity Variance Program, the Central Valley Water Board recognized that management of salinity in surface and ground waters is a major challenge for dischargers. The Central Valley Water Board further determined that during the development and initial implementation of Salt and Nitrate Management Plans prepared as part of the Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS), it was appropriate to allow municipal and domestic wastewater dischargers that qualified to apply for a variance from salinity water quality standards if they have, or will have, water quality based effluent limitations for salinity that they are unable to meet.² The Salinity Variance Program applies to salinity water quality standards that are defined to include water quality standards for only the following constituents: electrical conductivity, total dissolved solids, chloride, sulfate and sodium. The current Salinity Variance Program prohibits the Central Valley Water Board from approving any salinity variance after June 30, 2019. The sunset date was included because the Central Valley Water Board intended that any extension, or permanent, long-term Salinity Variance Program should be developed through the CV-SALTS process and that stakeholders needed to make appropriate recommendations for such a policy in the Salt and Nitrate Management Plan (SNMP).

¹ Central Valley Water Board Resolution No. R5-2014-0074.

² Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins and the Water Quality Control Plan for the Tulare Lake Basin To add Policies for Variances from Surface Water Quality Standards for Point Source Dischargers, Variance Program for Salinity, and Exception from Implementation of Water Quality Objectives for Salinity, Final Staff Report, June 2014 (Final Staff Report), at p. 45.

In accordance with the Central Valley Water Board's direction in developing the current Salinity Variance Program, this SNMP recommends that the Salinity Variance Program be extended for an additional 15 years.

1.2 Justification for Extending the Current Salinity Variance Program

The Central Valley Water Board's original rationale for adopting the Salinity Variance Program was to provide temporary permitting flexibility while CV-SALTS was developing the SNMP, and to encourage dischargers throughout the region to actively participate in that process. If CV-SALTS stakeholders determined that an extension, or permanent Salinity Variance Program is necessary to assure successful implementation of the SNMP, the Central Valley Water Board instructed the stakeholders to describe and justify their recommendations in the SNMP itself. This policy is intended to implement that recommendation.

The SNMP recommends a long-term Salinity Management Strategy that is phased over time. The first phase (Phase I) consists of developing a Prioritization and Optimization Study for salinity management, which is intended to further define the conceptual design of SSALTS³ into a feasibility study that identifies appropriate regional and sub-regional projects, including location, routing and implementation/operation of salt management projects (see Salinity Management Strategy, Attachment A-3). Phase II will generally consist of environmental permitting, obtaining funding, and engineering and design. Phase III would then consist of construction of physical projects, as identified in previous phases, to manage salt on a long-term, comprehensive basis, e.g., a Central Valley regulated brine line. Implementation of Phase III construction projects is highly dependent on obtaining necessary public funding. Because salinity management is phased in over time, the Salinity Management Strategy recommends that an Interim Salinity Permitting Approach be implemented during Phase I, and then be re-evaluated prior to implementation of Phase II. The SNMP recommends that the Interim Salinity Permitting Approach be set in place for 15 years.

The Interim Salinity Permitting Approach for Phase I would essentially require dischargers to participate in the Prioritization and Optimization Study in lieu of meeting stringent end-of-pipe salinity limitations. Dischargers that do not want to participate in the study would be given the option to opt out, but in opting out, dischargers would be subject to salinity permitting approaches that would be conservative, meaning that the selection of applicable water quality objectives would be conservative and would be based on the most restrictive criteria appropriate for the AGR and MUN beneficial uses. Further, no new dilution credits (i.e., granting of assimilative capacity) would be granted.

For surface water dischargers that are subject to federal National Pollutant Discharge Elimination System (NPDES) permits, and municipal POTWs in particular, the federal regulatory process provides the Central Valley Water Board with little discretion in allowing dischargers to participate in the Prioritization and Optimization Study in lieu of meeting strict water quality-based effluent limits (WQBELs), consistent with the approach established by the phased Salinity Management Strategy. To allow POTWs that are subject to NPDES permits to participate in the Priority and Optimization Study, such dischargers may need to seek approval of a variance from meeting effluent limitations

³ CV-SALTS, *Strategic Salinity Alternatives Land and Transportation Study, Final Phase 2 Report: Development of Potential Salt Management Strategies*, prepared by CDM Smith, October 1, 2014

based on salinity water quality standards. To do so, the current Salinity Variance Program needs to be extended and expanded. Those opting out of participating in the Prioritization and Optimization Study would not be eligible to obtain a variance under the Salinity Variance Program.

2.0 Proposed Revisions to Salinity Variance Program

2.1 Summary of Salinity Variance Program

The Salinity Variance Program restricts the Central Valley Water Board's authority solely to issuing variances for salinity-related constituents. Presently, the definition of "salinity" includes only: electrical conductivity, total dissolved solids, chloride, sulfate and sodium. For the purposes of implementing the SNMP and the Salinity Management Strategy as currently proposed, no changes to the constituents covered by the existing Salinity Variance Program are proposed for change at this time. However, to the extent that additional information and sufficient documentation is developed for other constituents such as boron, iron and manganese, the Salinity Variance Program can be revised in the future to include additional salinity-related constituents.

Notably, the authority to approve a variance for a specific salinity water quality standard does not automatically grant a variance in any given instance. Variances must be authorized through a separate Central Valley Water Board action that is subject to notice, comment and a public hearing on the salinity variance application.

In general, the current Salinity Variance Program allows POTW dischargers that have a situation that is similar to or comparable with the case study cities⁴ to apply to the Central Valley Water Board for a variance to discharge requirements from the implementation of water quality objectives for salinity. The variance applies to the issuance of WQBELs based on a salinity water quality standard.

Under the Salinity Variance Program, a discharger's application must include in part the following:⁵

- Identification of the salinity constituents for which the variance is sought;
- Identification of the receiving surface water, and any available information with respect to receiving water quality and downstream beneficial uses for the specific constituent;
- Identification of the WQBEL that is being considered for adoption, or has been adopted in the NPDES permit;
- A description of salinity reduction/elimination measures that have been undertaken as of the application date, if any;
- A Salinity Reduction Study Work Plan that includes specified minimum information;

⁴ The three case study cities are City of Tracy, City of Stockton and City of Manteca. In short, each city cannot consistently meet stringent salinity WQBELs imposed in their NPDES permits, and each city has implemented source control programs. While water quality improved, such improvements were not sufficient to consistently comply with effluent limitations. Further, it was determined that factors under title 40 of the Code of Federal Regulations, Sections 131.10(g)(3) and 131.10(g)(6) were met because imposition of WQBELs on the POTWs would not result in attainment of water quality standards, and because the economic impact of implementing reverse osmosis would be substantial (Final Staff Report, pp. 7, 28-29.).

⁵ Final Staff Report, pp. 43-45.

- An explanation of the basis for concluding that there are no readily available or cost-effective methodologies available to consistently attain the WQBELs for salinity;
- A detailed discussion explaining why the permittee’s situation is similar to or comparable to the case studies;
- A detailed discussion of proposed interim discharge limitation(s) that represents the highest level of treatment that the permittee can consistently achieve during the term of the variance;
- Documentation of the applicant’s active participation in CV-SALTS as indicated by a letter of support from CV-SALTS; and,
- A detailed plan of how the applicant will continue to participate in CV-SALTS and how the applicant will contribute to the development and implementation of the SNMPs.

A key requirement for granting a salinity variance, is the requirement that the discharger needs to prepare and implement a Salinity Reduction Study Work Plan. A Salinity Reduction Study Work Plan shall at a minimum include the following:⁶

- 1) Data on current influent and effluent salinity concentrations;
- 2) Identification of known salinity sources;
- 3) Description of current plans to reduce/eliminate known salinity sources;
- 4) Preliminary identification of other potential sources;
- 5) A proposed schedule for evaluating sources; and
- 6) A proposed schedule for identifying and evaluating potential reduction, elimination, and prevention methods.

After considering the dischargers’ application, the Central Valley Water Board may adopt a variance from WQBEL based on salinity water quality standards after public notice and hearing. The Central Valley Water Board may take action to approve a variance and issue a new, or reissue or modify an existing NPDES permit as part of the same Board meeting. The permit must contain all conditions necessary to implement the variance, which includes in part the following: (a) interim effluent limitations that are attainable during the term of the variance; (b) a requirement to implement the Salinity Reduction Study Work Plan; (c) a requirement to participate in CV-SALTS; (d) any additional monitoring that is determined necessary; (e) a provision to reopen and modify the permit based on any revision to the variance; and(f) other conditions determined necessary to implement the terms of the variance. Under the existing Salinity Variance Program, variances can be renewed upon the request of the discharger.

2.2 Recommendations for Revising Current Salinity Variance Program

The SNMP recommends that the current Salinity Variance Program be amended in the following ways to provide the Central Valley Water Board with the necessary authority and flexibility to permit

⁶ Final Staff Report, p. 44.

salinity discharges in a manner that the Central Valley Water Board deems to be appropriate and consistent with the SNMP.

- 1) Extend the provision prohibiting the Central Valley Water Board from authorizing new salinity variances or reauthorizing previously approved salinity variances from June 30, 2019 to 15 years from the effective date of Basin Plan amendments that revise the Salinity Variance Program. As part of the Prioritization and Optimization Study, the Salinity Variance Program should be reconsidered, and it should be determined at that time if the Salinity Variance Program, and the terms related thereto, should be revised to implement Phase II of the Salinity Management Strategy.
- 2) Extend application of the Salinity Variance Program to WQBELs for salinity water quality standards that are related to the MUN beneficial use, and not just the AGR beneficial use.
- 3) Revise the current Salinity Variance Program to require participation in the Prioritization and Optimization Study. The requirement to participate in CV-SALTS may also be appropriate, depending on if CV-SALTS is still intact for this purpose.
- 4) The current Salinity Variance Program should be amended to make clear that salinity variances are intended to facilitate implementation of the phased Salinity Management Strategy, and that salinity variances are not available to individuals/permittees that wish to opt out of participating in implementation of Phase I of the Salinity Management Strategy. As indicated previously, application of salinity variances for Phases II and III of the Salinity Management Strategy should be considered in conjunction with findings from the Prioritization and Optimization Study, and any Basin Plan amendments determined appropriate at the close of Phase I.

2.3 Authorization of Salinity Variances

The SNMP recommends that salinity variances be authorized by the Central Valley Water Board in relatively the same manner as set forth in the current Salinity Variance Program. The conditions for authorizing the salinity variance would remain the same, except as revised based on the recommendations identified in Section 2.2 above.

Under the SNMP's recommendations, authorization for salinity variances may be granted by the Central Valley Water Board for individual dischargers, or for multiple dischargers under a watershed based NPDES permit for salinity discharges. Terms and conditions associated with the granting of a salinity variance will be incorporated into relevant NPDES permits, and failure to comply with such terms and conditions may result in the termination of the variance and/or an enforcement action.

3.0 Proposed Modifications to the Basin Plans to Support Policy Implementation

The following subsections summarize the key changes anticipated for each Basin Plan to support adoption of this policy.

Existing and Potential Beneficial Uses

No modifications anticipated.

Water Quality Objectives

No modifications anticipated.

Implementation

Revise the existing Salinity Variance Program in the Basin Plans as described above.

CV-SALTS Meeting Calendar

2016

1 January

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

2 February

Sun	Mon	Tue	Wed	Thu	Fri	Sat
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28	29					

3 March

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27	28	29	30	31		

4 April

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5 May

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29	30	31				

6 June

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7 July

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8 August

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9 September

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10 October

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30	31					

11 November

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20	21	22	23	24	25	26
27	28	29	30			

12 December

Sun	Mon	Tue	Wed	Thu	Fri	Sat
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25	26	27	28	29	30	31

Notes/Key

- Light Red conflicts
- January is a Thursday/Friday
- Wed/Thurs 4th or 3rd
- Dark Green Exec Comm Policy
- Fridays at 1:00 pm
- Lt. Green Hatch Exec Comm Admin
- or **State Board Presentation**
- Yellow Salty 5
- Lower SJ River Committee
- Regional Board Briefing 8/17**
- TAC Meeting**
- Regional Board Presentation 6/22**
- Wednesday Meetings are DRAFT
- May be held by Webinar or
- in person in Sacramento half day