

**STATE WATER RESOURCES CONTROL BOARD
BOARD MEETING SESSION – CENTRAL VALLEY REGIONAL WATER BOARD
FEBRUARY 16, 2016**

ITEM 5

SUBJECT

CENTRAL VALLEY SALINITY ALTERNATIVES FOR LONG-TERM SUSTAINABILITY (CV-SALTS): ANNUAL PROGRESS REPORT AND DEMONSTRATION OF ADEQUATE PROGRESS

DISCUSSION

CV-SALTS is a stakeholder lead initiative developing a Central Valley-wide salt and nitrate management plan. The goals of CV-SALTS are to provide for an environmentally and economically sustainable future within the Central Valley and to address legacy groundwater nitrate concentrations that are impacting drinking water supplies. Cleanup and Abatement (CAA) funds were authorized in two separate resolutions to provide seed money for the initiative. [Resolution No. 2009-0023](#) authorized \$1.2-million and [Resolution No. 2010-0042](#) authorized \$3.8-million. The \$3.8-million was allocated in two phases with \$2.0-million available upon adoption of the resolution and the final \$1.8-million authorized in December 2012. To track progress, Resolution No. 2010-0042 included a requirement that the Central Valley Regional Water Quality Control Board report annual progress on the initiative at a publicly noticed State Water Board meeting. The progress report is to include a detailed accounting of expenditures, services received, a line item report of in-kind and contract services contributions from Central Valley Salinity Coalition (CVSC) members and/or additional public and private entities, a summary of work accomplishments to date and timeline for completion of work.

During this information item stakeholders will present the overall status and direction of the effort. The following required information is included in the attached staff report:

- Expenditures for services and contributions from Stakeholders
- Work accomplishments to date, both contract supported and stakeholder driven
- Work in progress
- Timelines for completion

POLICY ISSUE

None

FISCAL IMPACT

None

ENVIRONMENTAL IMPACT

None

REGIONAL BOARD IMPACT

None

STAFF RECOMMENDATION

None

This information item assists the Water Boards in reaching Goal 5 of the Strategic Plan Update: 2008-2012 to improve transparency and accountability.

STAFF REPORT
CV-SALTS ANNUAL PROGRESS REPORT— FEBRUARY 2016

The Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) initiative is a stakeholder-led process to develop a Salt and Nitrate Management Plan (SNMP) for the Central Valley and basin plan amendment recommendations to support implementation of the SNMP. The goals of CV-SALTS are to provide for an environmentally and economically sustainable future within the Central Valley and to address legacy groundwater nitrate concentrations that are impacting drinking water supplies. The initiative was formally recognized under a signed Memorandum of Agreement (MOA) between the State Water Resources Control Board, Central Valley Water Board and Central Valley Salinity Coalition (non-profit stakeholder group) in March 2010 and an extension of the MOA was signed in December 2014. Several committees and subcommittees have been formed to work on both policy and technical issues with meetings held on a monthly basis. The Executive Committee is the primary decision making body and is comprised of members of the stakeholder coalition as well as state and federal agencies and members of disadvantaged communities and the public.

On September 7, 2010, the State Water Resources Control Board approved [Resolution No. 2010-0042](#) authorizing \$3.8-million from the Cleanup and Abatement Account (CAA) to augment funding for the development of the Central Valley Salinity and Nitrate Management Plan (SNMP or Project). The funding augments \$1.2-million provided through [Resolution No. 2009-0023](#).

Resolution No. 2010-0042, allocated the \$3.8-million in two phases with \$2.0-million available upon adoption of the resolution and \$1.8-million approved by the State Water Board in December 2012. To track progress, the resolution included a requirement that the Central Valley Water Board report annual progress on the initiative at a publicly noticed State Water Resources Control Board (State Water Board) meeting. The progress report is to include a detailed accounting of expenditures, services received, a line item report of in-kind and contract services contributions from Central Valley Salinity Coalition (CVSC) members and/or additional public and private entities, a summary of work accomplishments to date, and timeline for completion of work. The following document provides the required information. Expanded discussion of the project is provided at annual Central Valley Water Board workshops.

Expenditures for Services and Contributions from Stakeholders

[Table 1](#) provides a detailed accounting of the expenditures for services received utilizing CAA funds. [Table 2](#) summarizes the Stakeholder Contributions, both those directly supporting workplan tasks identified in Table 1 as well as additional efforts related to the workplan such as basin planning efforts, monitoring activities and pilot studies that provide foundational support for the development of a final SNMP. Tables 1 and 2 track funding and expenditures from July 2008, which is when the CVSC formed.

[Table 3 and Figure 1](#) summarize the cumulative available funding, encumbered funding (funding allocated to specific tasks), and actual expenditures by year that are related to developing the final SNMP. Based on the summary information, total expenditures for the CV-SALTS initiative since July 2008, were \$19,039,579. Of this total, \$3,593,557 (19%) has been provided from the authorized CAA funds, while \$15,436,023 (81%) has

been expended by CV-SALTS Stakeholders, which include CVSC members, other organizations, and agencies. As of November 2015, \$1,169,335 of the CAA funding provided through Resolution No. 2009-0023 and \$2,424,222 of the funding provided through Resolution No. 2010-0042 had been expended. Workplan elements totaling an additional \$1,375,773 are either in progress or slated for fine tuning implementation alternatives and conducting environmental and economic analyses.

Stakeholder cash contributions from CVSC membership fees and a consultant's contribution toward workplan elements total \$2,092,543 to date. Additional stakeholder contributions directly supporting workplan elements including additional match for some CAA funded projects, total \$3,326,938. Additional contributions related to the workplan include compilation of water quality information (\$6,204,328) and pilot studies evaluating treatment alternatives (\$8,465,542). Specific activities are listed in Table 2 with additional detail in [Table 4](#).

In addition to these contributions, CVSC members and other organizations have initiated implementation activities for salinity and nitrate reduction, both voluntarily and through current regulation. A sampling of these efforts identified projects totaling over \$63 million (Table 4). Table 4 includes detail on several projects and reflects a broad array of activities including: investigating various treatment alternatives for agricultural, urban and industrial drainage and wastewater; supporting basin planning activities; gathering water quality information to feed the decision processes; and implementing on the ground practices to control salt and nitrate. The permit required costs noted in the table (over \$7.25-million) include just a sampling of the types of costs faced by dischargers to quantify salt sources, develop salt minimization plans, and monitor/evaluate management practices. Some key efforts identified include the San Joaquin River Real-time Water Quality Monitoring by the CA Department of Water Resources, Wine Institute Practice Manuals, the Representative Monitoring Program by Dairy Cares and Western United Dairymen, and programs for control and management of subsurface agricultural drainage being implemented by Tulare Lake Bed interest and the Grassland Area Farmers. The projects are being evaluated as the implementation program is developed.

Tables 2 and 3 and Figure 1 do not account for the time spent by stakeholders to participate on policy and technical committees that identify tasks, scope work, conduct and oversee work, and review and approve final products (approximately monthly policy and administrative meetings and two meetings per month for various technical committees and subcommittees). A rough estimate of stakeholder participation can be determined by assuming a standard rate of \$100/hour per person. Based on the number of meetings and attendance, between July 2009 and November, CV-SALTS Committee Members contributed more than 16,918 hours participating in Committee and subcommittee meetings supporting CV-SALTS. This participation represents an approximate additional expenditure by the stakeholders of \$1,691,800 for the period.

Services provided to date have ranged from coordinating administrative, technical and facilitation support to developing screening tools and technical review and recommendations to completing technical studies. Results of the stakeholder oversight and efforts are listed under stakeholder driven accomplishments below.

Work Accomplishments to Date

CV-SALTS developed a revised strategy and workplan in February 2012 to help prioritize and focus activities of participating stakeholders. CV-SALTS has completed several of the workplan items, is in-progress on many more and has identified a timeline to ensure thorough economic and environmental review of proposed alternatives for the Central Valley SNMP. Accomplishments can be summarized by those completed by the stakeholders as committee projects, and those completed as contracted elements as follows:

Stakeholder Driven:

- ✓ Pilot salt source identification/interaction studies covering 14% of the Central Valley;
 - Evaluation of completeness of the three studies conducted in the Sacramento, San Joaquin, and Tulare Basins;
- ✓ Knowledge Gained Subcommittee Guidance for Salt Source Identification Studies;
- ✓ Interim and Subsequent Salinity Project Funding Plan
 - New CVSC Members and continued recruitment
 - Contributions in Direct and Indirect studies as well as support for CV-SALTS and implementation of projects to control salinity and nitrates (Tables 2 and 4)
- ✓ Management Practices Subcommittee Guidance for Development of a Salt and Nitrate BMP Toolbox;
- ✓ Technical recommendations regarding use of modeling tools to develop site specific salinity objectives to protect irrigated agriculture;
- ✓ Technical review of salinity and nitrate water quality criteria and recommendations to protect stock watering;
- ✓ Technical review of salinity and nitrate issues relating to studies by the City of Dixon, City of Davis, City of Live Oak and others;
- ✓ Technical support for development of a site-specific boron objective for City of Dixon;
- ✓ June 2012, December 2013, June 2014, and April 2015 Central Valley Water Board Workshop;
- ✓ Co-sponsor of and participant in the Groundwater Resources Association Salinity and Nitrate June 2012 Conference in Fresno;
- ✓ International Salinity Expert Panel convened in Riverside (June 2014)
- ✓ Draft revised Chapter 19 (Salt and Salinity Management) for the California Water Plan 2013 update; and,
- ✓ Coordination, oversight, and cost share of case studies identified below.

Contract Supported:

- ✓ Updated Strategic Framework and Workplan (February 2012);
- ✓ Salinity water quality criteria review for aquatic life (January 2014);
- ✓ White paper on salinity and nitrate impacts on municipal and domestic supply (MUN) (August 2012);
- ✓ White paper on salinity impacts on irrigated agriculture (August 2012);
- ✓ GIS database and beneficial use maps for the Central Valley and Delta (coordinated with State Water Board effort) (October 2013);
- ✓ Initial salinity/nitrate conceptual model (ICM) compiled data; source/fate; initial background and trend analysis for 22 analysis zones (December 2013);

- ✓ Phase 1 of the Strategic Salt Accumulation Land and Transport Study (SSALTS) implementation alternatives study completed (December 2013);
- ✓ SSALTS Phase 2: Development of a range of salt disposal/treatment alternatives for in-valley, out-of-valley, and combination salt management strategies completed (September 2014);
- ✓ Central Valley Salinity brochure available at: http://cvsalinity.org/index.php/document-listing/doc_download/984-salt-story-brochure;
- ✓ Improved functionality of the CV-SALTS website;
- ✓ Four California Environmental Quality Act (CEQA) Scoping meetings were held during October 2013;
- ✓ Phase 1 of the Management zone based evaluation of appropriate salinity water quality objectives to protect irrigated agriculture (April 2014); Lower San Joaquin River salinity and boron water quality objectives and implementation program; and,
- ✓ Appropriate application and protection of municipal and domestic supply in agriculturally dominated surface water bodies (Publicly Owned Treatment Works receiving waters in the Sacramento River Basin);

In Progress:

- ✓ Phase II Conceptual Model: Updated CV-SALTS project database, develop calculation methods for background water quality and determination of available assimilative capacity in groundwater; development of preliminary draft SNMP that incorporates outcomes of completed technical studies;
- ✓ SSALTS Phase 3: Developing salt management implementation measures and a phased implementation strategy for inclusion in the SNMP that will be finalized in coordination with Nitrate Implementation Measures Study (NIMS);
- ✓ NIMS: Developing technical basis for nitrate implementation measures and a phased implementation strategy for inclusion in the SNMP that will be finalized in coordination with SSALTS;
 - Coordination to identify and refine projects to provide safe drinking water for disadvantaged communities.
- ✓ Drafting of SNMP implementation section that includes implementation measures framework for salt and nitrate management, policies to support implementation, and implementation milestones;
- ✓ Surveillance and Monitoring Plan (SAMP): Development of the surveillance and monitoring approach that will be used to evaluate effectiveness of the program of implementation in the SNMP;
- ✓ SNMP Document development that includes outcome of technical and policy work.
- ✓ Case studies to ground-truth policy and implementation recommendations:
 - Appropriate application and protection of municipal and domestic supply and agricultural beneficial uses in a portion of the unconfined aquifer within the Tulare Lake Bed;
 - Alta Irrigation District Management Zone Archetype study and Implementation assessment; and

A Summary of Technical Projects Supporting a Central Valley-wide Salt and Nitrate Management Plan is included as [Attachment A](#) to provide additional information on the various projects.

Additional discussion of CV-SALTS activities is provided below.

During 2015, the Executive Committee continued working on the technical and policy elements of the workplan. The strategy envisions an overarching framework to provide consistency throughout the Central Valley with case studies conducted to ground-truth policy and technical recommendations. Therefore, in order to support preparation of the Salt/Nitrate Management Plan (SNMP), significant work was completed on refining and expanding the Conceptual Model that identified source and fate as well as current and trending concentration of salt and nitrate. Phase 2 of this project builds off the findings of the Initial Conceptual Model which was a high level review of overall source and fate of salinity and nitrate in the Central Valley. Scope of work elements for Phase 2 include targeted refinements to the project database, development of salt and nitrate data analysis methods to support regulatory decisions, implementation of an archetype or pilot analysis to evaluate salt and/or nitrate management options at a management zone scale, and preparation of the first drafts of the technical elements of the SNMP.

Phases 1 and 2 of the Strategic Salt Accumulation Land and Transportation Study (SSALTS) that evaluates alternative salt containment and disposal options were completed. Project reports on Phase 1, which focused on an evaluation of current salt disposal/treatment practices at selected study areas and Phase 2, which concentrates on the development of potential future salt disposal and treatment alternatives for the Central Valley, were completed in 2014. SSALTS developed salt management implementation measures and a phased implementation strategy (based on the findings of earlier phases of the study) for feedback and approval by CV-SALTS for inclusion in the SNMP. To allow for consideration of potential relationships between salt and nitrate implementation strategies, this project was extended to allow the project results for SSALTS to be coordinated with the findings from the Nitrate Implementation Measures Study. A coordinated salt/nitrate implementation approach has been presented to the Executive Committee and is nearing completion.

In addition, specific case studies are ongoing with contributions from the stakeholders that evaluate: (a) appropriate application and reasonable protection of Municipal and Domestic Supply beneficial uses in surface water (Sacramento Valley POTW receiving waters, which was approved by the State Water Board); (b) appropriate application and reasonable protection of the Municipal and Domestic Supply and Agricultural beneficial uses in Tulare Lake Bed groundwater (CEQA/economic analyses and Basin Plan Staff Report are in preparation); and (c) appropriate salt and boron water quality objectives to protect beneficial uses and implementation alternatives (the Lower San Joaquin River) which will be developing a Basin Plan Amendment based on the policy and technical agreement developed.

As the technical efforts and case studies proceeded, the Executive Committee continued focused policy discussions in several areas. Listed below are policy issues that have had significant progress and on-going discussions. Recommendations generated from these policy discussions are being incorporated into the implementation section of the draft SNMP.

Significant Progress

- ✓ Clarify application of Secondary MCLs to protect MUN
- ✓ Establishment of a procedure to translate narrative salinity objectives when developing WDRs for AGR uses

- ✓ Establishment of a proposed permitting strategy for nitrate discharges to groundwater
- ✓ Identification of acceptable methods to characterize trends in assimilative capacity and assess effect of discharge on available assimilative capacity
- ✓ Requirements for establishing a Management Zone
- ✓ Potential alternative compliance strategies (alternate water supplies, offsets, etc.)
- ✓ Factors to be considered when evaluating Best Practicable Treatment or Control (BPTC), Best Management Practices (BMPs), and “best efforts”
- ✓ Factors to consider during “maximum benefit” evaluations

Ongoing

- Developing long-term restoration and compliance schedules for salt and nitrate in groundwaters
- Integrating SNMP with other state policies to facilitate conservation, stormwater harvesting, recycled water reuse, groundwater recharge and drought management

With the Alta Irrigation District Management Zone the group closely coordinates with work being conducted by stakeholders in the Tulare Lake Basin to identify safe drinking water pilot projects. The Alta Irrigation District is participating in the development of a pilot archetype to address Disadvantaged Communities and Nitrate issues.

The first of several Central Valley Water Board workshops on the initiative was conducted in June 2012, with discussion of state resources spent to date, match contribution by participating stakeholders, products produced, updated project timeline and focus on the developing case studies and how they fit into the broader valley-wide framework. The Central Valley Water Board has heard informational items on policy discussions in July 2013, and April 2015. In December 2013, the board approved a resolution to extend the end date of the SNMP by two years to May 2016.

The various committees completed additional key tasks as noted below.

During 2015, the Lower San Joaquin River Committee (LSJRC) and its subcontractors, completed technical work needed to support the development of the staff report for a basin plan amendment for salinity along Reach 83 of the Lower San Joaquin River. Draft objectives for electrical conductivity, measured at the San Joaquin River at Crows Landing Road, have been developed and include adjustments to account for extended dry periods. Potential impacts on water releases and storage at New Melones were also evaluated to insure that the proposed salinity objectives would not result in increased water being released from New Melones to meet the Vernalis electrical conductivity objectives. The primary management option that allows compliance with the proposed objectives is the completion of the Grasslands Bypass Project with monitoring and surveillance incorporated under the Real-Time Salinity Management Program. Regional Water Board personnel are currently working on the Staff Report which is expected to be completed in the first half of 2016.

Based on the Committee timeline, a Basin Plan Amendment proposing salinity water quality objectives and an implementation program for the LSJR is planned for Board consideration in late 2016.

The Technical Committee continues to provide technical review of CV-SALTS work products and technical recommendations where appropriate to support policy discussions or provide guidance on proposed approaches to projects. Three TAC Meetings were held in 2015, and addressed the following topics:

- Review draft SSALTS Phase 3 Report – Evaluate Potential Salt Disposal Alternatives to Identify Acceptable Alternatives for Implementation
- Draft Nitrate Implementation Measures Scope of Work
- Proposal to refine groundwater quality analysis for the Central Valley

Additionally, numerous Technical Project Committees, containing a subset of the Technical Advisory Committee members, were created to provide more detailed oversight of certain technical projects. Numerous meetings were held to support and provide direction on specific projects including SNMP development, Alta Irrigation District Management Zone project, and the NIMS project.

The Funding and Fundraising Committee worked intermittently on its two phase plan for fundraising. Phase 1 continues the addition of members and the increase in annual membership dues to support ongoing planning efforts and the development of matching funding for the planning efforts. During 2015, new members joined but offset members that did not renew, leaving the total membership at 28, covering most of the irrigated agriculture within the Central Valley, in addition to representatives for most of the urban areas, food processors, and dairy industry, with some representation from water supply entities and other industry. In addition to new members, CVSC members also agreed to significantly increase their annual dues to support the critical project being undertaken in CV-SALTS.

Phase 2 of the funding plan targets grant support of salinity management and nitrate projects, which has resulted in USDA funding of a specialty crop grant for nitrogen management. Although current efforts have focused on funding within existing programs and bond programs, the group continues to evaluate opportunities to develop new funding programs for salt and nitrate management at the State and Federal level.

Support from CVSC Members to apply for grants from existing programs at the State and federal levels continued. Efforts to plan to engage the help of legislators and agencies to develop new funding sources for the implementation plan that will be required for CV-SALTS will begin in 2016. CVSC Funding committee did not identify workable new funding areas in 2015, but expects to develop federal and other strategies as implementation plans are completed in 2016.

The main CV-SALTS web page was updated to clarify content and improve usability in 2013. Through 2015 updates and website maintenance have continued. The site is located at: <http://www.cvsalinity.org/>

To support and provide consistency for the stakeholder driven effort, the Executive Committee hired full-time program coordinators. An Administrative Program Coordinator was hired in January 2011, to facilitate policy meetings, update the existing workplan

and initiate contracts for the needed technical work. A Technical Project Manager was hired in September 2011 and replaced in August 2012, to ensure technical information needed to support the initiative and a final basin plan amendment are completed on time and on budget. Beginning in summer 2014, the CVSC took over and continues to fund the Administrative Program Coordinator and the Technical Project Manager.

Timeline for Completion of Work

In early 2012, the Executive Committee updated the existing scope and timeline of the project so that the updated workplan better reflects resource and time constraints. The development of a draft Central Valley Salt and Nitrate Management Plan for review by the Central Valley Water Board was slated for May 2014, with ultimate project completion in May 2016. The revised timeline provides additional time for detailed environmental and economic review of the alternatives identified and is consistent with requirements of the State Water Board's Recycled Water Policy.

On December 6, 2013, the Regional Water Board approved an extension to the Schedule for CV-SALTS through [Resolution R5 2013-0149](#). The updated timeline includes the following activities:

January 2016 – May 2016

- ✓ Complete Phase 2 Conceptual Model work, including technical sections of the SNMP and Alta Irrigation District Management Zone Project
- ✓ Complete updated groundwater quality analysis for the Central Valley
- ✓ Complete the Surveillance and Monitoring Program
- ✓ Complete the NIMS/SSALTS Projects with an implementation program for incorporation into the implementation section of the SNMP
- ✓ Initiate development of antidegradation analysis to support SNMP preparation
- ✓ Initiate economic review of alternatives for the SNMP
- ✓ Initiate CEQA Equivalent Documentation preparation for the SNMP
- ✓ Drafted CEQA and economic analyses for Phase 2 of the Ag Drain MUN Evaluation Archetype, specifically development of a process whereby the Board could evaluate and de-designate or refine where appropriate the MUN beneficial use in certain agriculturally-dominated waterbodies
- ✓ Complete draft Basin Plan Staff Report for the Tulare Lake Bed Groundwater MUN Evaluation Archetype
- ✓ Complete policy discussions and incorporation of these policies into the implementation section of the SNMP

June 2016 – December 2016

- ✓ Informational Workshop for Central Valley Board
- ✓ Complete economic review of alternatives
- ✓ Complete preparation of CEQA Equivalent Documentation
- ✓ Complete antidegradation analysis to support SNMP
- ✓ Finalize SNMP
- ✓ Tulare Lake Bed Groundwater MUN/AGR Evaluation Archetype Basin Plan Amendment for public comment and Central Valley Water Board consideration
- ✓ Phase 2 of the Ag Drain MUN evaluation archetype for Central Valley Water Board consideration
- ✓ Lower San Joaquin River Salt and Boron Water Quality Objectives

January 2017 – December 2017

- ✓ Develop Basin Plan Amendment to incorporate Central Valley SNMP

Annual updates to the State Water Board and annual workshops for the Central Valley Water Board are included within the workplan to evaluate progress and keep the public apprised of activities. [Figure 2](#) provides a brief summary of the overall project timeline.

In order to meet the activities and timelines identified above and in Figure 2, a contract modification will soon be submitted to update the contract budget.