CV-SALTS 2011 Accomplishments
July-December
Program Accomplishments July through December 2011

<table>
<thead>
<tr>
<th>Table of Contents</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary and Introduction</td>
<td>3</td>
</tr>
<tr>
<td>1. Roster of CV-SALTS Participation</td>
<td>6</td>
</tr>
<tr>
<td>2. Significant Progress List 2011</td>
<td>7</td>
</tr>
<tr>
<td>3. CV-SALTS Executive Committee Policy Discussions &amp; Decisions</td>
<td>10</td>
</tr>
<tr>
<td>4. BMP Guideline Draft</td>
<td>11</td>
</tr>
<tr>
<td>5. Water Quality Criteria Scope/Procurement and Proposals</td>
<td>26</td>
</tr>
<tr>
<td>6. Technical PM Scope and Procurement</td>
<td>33</td>
</tr>
<tr>
<td>7. CV-SALTS 2011 Meetings Calendar</td>
<td>91</td>
</tr>
<tr>
<td>8. Website Updates and New Site Design</td>
<td>92</td>
</tr>
<tr>
<td>9. Executive Committee 2011 Agendas</td>
<td>94</td>
</tr>
<tr>
<td>10. BMP Committee 2011 Agendas &amp; Work Products</td>
<td>105</td>
</tr>
<tr>
<td>11. Knowledge Gained Committee 2011 Agendas and Work Products</td>
<td>109</td>
</tr>
<tr>
<td>12. Technical Committee 2011 Agendas &amp; Work Products</td>
<td>135</td>
</tr>
<tr>
<td>13. Agricultural Water Quality Zone Mapping</td>
<td>139</td>
</tr>
<tr>
<td>14. Subgroup Evaluating MUN Archetypes</td>
<td>142</td>
</tr>
<tr>
<td>15. IRWM Draft Letter</td>
<td>146</td>
</tr>
<tr>
<td>16. CV-SALTS Implementation Planning Discussion Outline</td>
<td>148</td>
</tr>
<tr>
<td>17. City of Davis Salinity Study Workplan</td>
<td>150</td>
</tr>
<tr>
<td>18. State Board Presentation – December 6, 2011</td>
<td>155</td>
</tr>
<tr>
<td>19. Conceptual Model Draft</td>
<td>178</td>
</tr>
</tbody>
</table>

All materials posted on [www.cvsalinity.org](http://www.cvsalinity.org) as of December 31, 2011
Introduction

One of the success criteria provided by the Central Valley Regional Water Quality Control Board (CVRWQCB) is the reporting of accomplishments for the program twice per year, in June and December. This report is prepared for the purposes of documenting some of the most important efforts and accomplishments of the CV-SALTS Initiative in the second half of 2011, and to provide information on its future efforts. 2011 saw continued numerous changes in the management and approach to CV-SALTS. A stakeholder initiated progress review added focus and made changes toward strategic goals.

The program management and facilitation team has more effectively focused on the critical basin planning issues the stakeholder and regulatory interests needed to move forward. Assistance from Tim Moore has helped focus discussions and will lead critical issues to be tackled in the basin plan and Salt and Nutrient Management Plan. By January the team will provide a revised workplan for the rest of the program including these issues.

The following Summary provides an overview of the work completed and accomplishments of the Central Valley Salinity Coalition and the CV-SALTS program, its members, partners, participants, and stakeholders. The sections that follow show example materials and documents produced.

Accomplishments

Many process activities are described in the rest of the document; specific accomplishments related to documents are shown in the list below:

- Prepared and maintained a Roster of CV-SALTS Participation
- Revised and updated the Significant Progress List 2011
- Prepared CV-SALTS Executive Committee Policy Decisions Document
- Assisted the Management Practice Committee and prepared the BMP Guideline Draft
- Reviewed and supported the Water Quality Criteria Scope/Procurement and Proposals
- Developed, refined and supported the Technical PM Scope and Procurement work
- Developed, coordinated and revised the CV-SALTS 2011 Meetings Calendar
- Managed and provided website updates and new web-site design
- Prepared Executive Committee Agendas
- Prepared MP Committee Agendas & Work Products
- Knowledge Gained Committee 2011 Agendas and Work Products prepared
- Technical Committee 2011 Agendas & Work Products prepared
- Prepared and revised Agricultural Water Quality Zone Mapping Concept Document
- Prepared and mailed IRWM Draft Letter
- CV-SALTS Implementation Planning Discussion Outline
- Supported and revised the City of Davis Salinity Study Workplan Comment Letters
- Assisted with materials and presented a State Board Presentation on December 6, 2011
- Developed, coordinated and drafted a Conceptual Model Description
Salinity and Nutrient Management in the Central Valley Highlights

CVSC and CV-SALTS Progress and Funding
1. CVSC Membership expanded from 26 to 27 and the Board Directors numbers to 19
2. Executive Committee filled all 30 positions
3. Funding
   a. Contributed by CVSC Members $1,011,249
   b. CVSC Members budgeted to contribute over $250K in 2012
   c. Stakeholder In-kind Funding totaling $4,308,364 through the end of 2012
      See the Financial section of the State Board Presentation – 12/6/2011
4. Support Committees and monthly meetings
   a. Executive Committee Policy and Admin meeting/call
   b. Technical Committee
   c. Lower San Joaquin River Committees
   d. 4 Active Subcommittees
      i. Best Management Practice Committee
      ii. Knowledge Gained Committee
      iii. Technical Project Manager RFQ Committee
      iv. Funding and Fundraising Subcommittee
5. Competitive Procurement and Project Management for projects
6. Policy Issues Development with Consensus Decisions
7. Coordination with California Water Plan and Delta Plan

By The Numbers
- Executive Committee Policy or Admin Meetings – 9 for details see the meeting log in the TOC
- Subcommittee or Other Meetings – 20 for details see the meeting log in the TOC
- Website/Email Users - 1206
- Documents and Files Posted – 560

Financial Summary
- Ongoing member funding continued - $250,000
- New Member funding - $35,000
- Cooperative efforts and in-kind funding - $29,000
- CAA Grant funding Progress – 2 awards – $3.2 M

Membership Update

Founding and Members Joining through 2010
- California League of Food Processors*
- The Wine Institute*
- City of Fresno*
- San Joaquin Valley Drainage Authority*
• California Assoc. of Sanitation Agencies*
• Central Valley Clean Water Agencies* E. San Joaquin Water Quality Coalition*
• City of Manteca*
• California Rice Commission*
• Pacific Water Quality Association
• City of Modesto*
• Sacramento Reg. Co. Sanitation District*
• San Joaquin River Group Authority*
• Discovery Bay CSD
• Iron House Sanitary District
• City of Tracy*
• City of Stockton*
• Mountain House CSD
• Agricultural Council of CA
• Western Plant Health Association*
• Tulare Lake Drainage and Water Storage Districts*
• Stockton East Water District*

New Members in 2011
• County of San Joaquin*
• Dairy CARES*

* Denotes a member of the Board of Directors

CV-SALTS 2012 Plans
1. Policy Strategy and Framework including Basin Plan changes
2. 5 year work plan with costs and critical path schedule
3. Technical Project Management efforts
   a. SSALTS, Ag Water Quality Zoning, BUOS Phase 2 etc.
   b. Conceptual Model
   c. Water Quality Criteria - Animal Watering
4. Best Management Practice and implementation planning
5. Lower San Joaquin River Committee
6. Cooperative Research and Data Grants
7. Fundraising and Lobbying Planning for funding sources and documentation

Attachments

The following attachments contain a variety of materials on which the committees are working. Many documents are draft, or in progress.
### CV-SALTS Committee Rosters

<table>
<thead>
<tr>
<th>Executive Committee Membership</th>
<th>CV-SALTS Executive Committee Meetings During 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Leadership Partners</strong></td>
<td></td>
</tr>
<tr>
<td>1 Central Valley Water Board</td>
<td>Pamela Creedon</td>
</tr>
<tr>
<td>Alt Central Valley Water Board</td>
<td>Jeanne Chilcott</td>
</tr>
<tr>
<td>2 State Water Resources Control Bd.</td>
<td>Darrin Polhemus</td>
</tr>
<tr>
<td>Alt Department of Water Resources</td>
<td>Joel Farta</td>
</tr>
<tr>
<td>3 Department of Water Resources</td>
<td>Erin Taylor</td>
</tr>
<tr>
<td>4 US Bureau of Reclamation</td>
<td>Jobaid Kabir</td>
</tr>
<tr>
<td>5 Environmental Justice</td>
<td>TBD</td>
</tr>
<tr>
<td>6 Environmental Water Quality</td>
<td>TBD</td>
</tr>
</tbody>
</table>

| CV Salinity Coalition         |                                                   |
| 1 CASA                        | Bobbi Larson                                      |
| 2 County of San Joaquin       | Mel Lytle                                         |
| Alt County of San Joaquin     | Brandon Nakagawa                                  |
| 3 CVVWA                       | Debbie Webster                                    |
| 4 City of Fresno              | Steve Hing                                        |
| 5 CA League of Food Processors| Trish Hughes                                      |
| Alt CA League of Food Processors| Rob Neenan                                     |
| 6 Wine Institute              | Tim Schmelter                                     |
| Alt Wine Institute            | Chris Savage                                      |
| City of Tracy                | Steve Bailey                                      |
| 8 Sacramento Regional CSD     | Linda Dorn                                        |
| 9 San Joaquin River Group     | Dennis Westcot                                    |
| 10 City of Modesto            | Gary DeJesus                                      |
| 11 California Rice Commission| Tim Johnson                                       |
| 12 City of Manteca            | Phil Govea                                        |
| 13 Tulare Lake Drainage/Storage District | Mike Nordstrom                              |
| Alt Tulare Lake Drainage/Storage District | Doug Davis                                |
| 14 Stockton East Water District | Karen Harrigfeld                               |
| 15 Western Plast Health Association | Renee Pinel                                   |
| 16 City of Vacaville          | Royce Cunningham                                  |

| Comm. Chairs/Co-chairs       |                                                   |
| 1 Chair Executive Committee | Parry Klassen                                     |
| 2 Vice Chair Executive Committee | Jeff Willett                                |
| 3 Technical Advisory Committee | Rosetta Tassey                                 |
| 4 Technical Advisory Committee | Nigel Quinn, LBL                               |
| 5 Economic and Social Cost Committee | David Cory                                     |

* = Already votes as Leadership or Coalition member

Participants also identified for 12/12:
- Pam Buford, CVRWQCB
- Lilla Khath, Kennedy Jenkins
- Andy Safford, EKI
- Jean-Pierre, J.P., Cativiela, Dairy
- Mark Fallon, Culligan Water and PWQA

Past Participants:
- Tom Griffith, Envirotech
- John Herrick
- Katy Walsh
- Michael Steiger, EKI
- Mark Fallon, Culligan Water and PWQA
- Tessa Durham, Somach
- Bruce Houdekshiek, NCAW/Sac Valley WQC
- Mark Fallon, Culligan Water and PWQA

<table>
<thead>
<tr>
<th>Past Participants:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tom Griffith, Envirotech</td>
</tr>
<tr>
<td>John Herrick</td>
</tr>
<tr>
<td>Katy Walsh</td>
</tr>
<tr>
<td>Michael Steiger, EKI</td>
</tr>
<tr>
<td>Mark Fallon, Culligan Water and PWQA</td>
</tr>
<tr>
<td>Tessa Durham, Somach</td>
</tr>
<tr>
<td>Bruce Houdekshiek, NCAW/Sac Valley WQC</td>
</tr>
</tbody>
</table>

*N.B. The list above is not exhaustive.*
<table>
<thead>
<tr>
<th>Month</th>
<th>Activity</th>
<th>Status/Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>February</td>
<td>Program Manager in place to conduct overall management, facilitation and</td>
<td>Completed</td>
</tr>
<tr>
<td></td>
<td>administrative activities for the effort</td>
<td></td>
</tr>
<tr>
<td>February</td>
<td>Leadership meeting to obtain feedback on overall direction and goals of</td>
<td>Completed</td>
</tr>
<tr>
<td></td>
<td>CV-SALTS</td>
<td></td>
</tr>
<tr>
<td>April</td>
<td>Framework developed for salt/nitrate identification studies (Assess the</td>
<td>Approved in April</td>
</tr>
<tr>
<td></td>
<td>validity of the salt source survey pilot studies. If the approaches need</td>
<td>second document in July</td>
</tr>
<tr>
<td></td>
<td>modification, identify the adjustments that will be made to make the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>approach useful in the rest of the region.) [from Knowledge Gained</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subcommittee]</td>
<td></td>
</tr>
<tr>
<td>May</td>
<td>Technical Project Manager Team in place to insure technical tasks needed</td>
<td>Exec Approval</td>
</tr>
<tr>
<td></td>
<td>to complete effort accomplished on time and on budget – scope in March,</td>
<td>Scope May, procurement June, complete August</td>
</tr>
<tr>
<td></td>
<td>Procurement April, Award in May</td>
<td></td>
</tr>
<tr>
<td>June</td>
<td>Develop interim recommended review process for identifying Best Practical</td>
<td>Subcomm meeting projecting July</td>
</tr>
<tr>
<td></td>
<td>Treatment or Control for salinity and nitrate (screening tool) [from the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Management Practice Subcommittee]</td>
<td></td>
</tr>
<tr>
<td>July</td>
<td>FINAL updated strategy including policy and framework</td>
<td>Policy work Underway</td>
</tr>
<tr>
<td>August</td>
<td>FINAL updated workplan containing the following elements</td>
<td>Tracking Policy projected December</td>
</tr>
<tr>
<td></td>
<td>✓ Five Year Critical Path:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>o Work to be performed, timelines, deliverables and budget by task</td>
<td></td>
</tr>
<tr>
<td></td>
<td>number based on confirmed project funding leading to Salinity-Nitrate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Management Plan and Basin Plan Amendment language</td>
<td></td>
</tr>
<tr>
<td></td>
<td>o Unfunded work (with estimated cost) that would improve the final</td>
<td></td>
</tr>
<tr>
<td></td>
<td>product</td>
<td></td>
</tr>
<tr>
<td></td>
<td>o Milestones to insure timely progress</td>
<td></td>
</tr>
<tr>
<td></td>
<td>o Five-year funding plan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ Identify needs for long term implementation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>o Activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>o Continuous funding mechanism</td>
<td></td>
</tr>
<tr>
<td></td>
<td>o Integrated monitoring system</td>
<td></td>
</tr>
<tr>
<td>September</td>
<td>Develop a process for coordinating with RWMG planning and implementation</td>
<td>Outreach discussions</td>
</tr>
<tr>
<td></td>
<td>projects with a nexus with salt or nutrient management, and other ongoing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>efforts on salinity management</td>
<td></td>
</tr>
<tr>
<td>September</td>
<td>Identify administrative and technical program needs that could be met</td>
<td>June Report in Preparation present at July Meeting</td>
</tr>
<tr>
<td></td>
<td>through in-kind services rather than financial contributions</td>
<td></td>
</tr>
<tr>
<td>June and</td>
<td>Prepare semiannual (June and December) status reports on funding and</td>
<td></td>
</tr>
<tr>
<td>December</td>
<td>progress toward completing work plan tasks</td>
<td></td>
</tr>
<tr>
<td>December</td>
<td>Contracts for completing tasks included in the 5-year workplan have been</td>
<td></td>
</tr>
<tr>
<td></td>
<td>awarded or are developed and pending approval.</td>
<td></td>
</tr>
</tbody>
</table>
CV-SALTS Executive Committee
Policy Discussions and Decisions

On October 20, 2011 the Executive Committee met to review and discuss the concepts and alternatives. Based on these discussions, several decisions were made and the consultants were given additional direction to guide future planning efforts. The purpose of this memorandum is to document these decisions in order to facilitate timely development of the CV-SALTS deliverables. There is broad agreement among members of the Executive Committee on the following:

1) There is a need and an obligation to develop a Salt and Nitrate Management Plan (SNMP) to protect the beneficial use of surface and ground waters throughout the Central Valley region.

2) The Central Valley SNMP (CV-SNMP) will integrate wherever possible similar plans developed by local or regional entities including IRWM groups.

3) Development of an effective CV-SNMP presumes that appropriate beneficial uses have been assigned to each water body.

4) In some cases, the MUN use that is presumed to apply to all surface and ground waters in the region may not be appropriate and more fitting uses should be designated.

5) Rather than attempt to identify and remedy each instance where the presumptive MUN use may not apply, it is more cost-effective to develop a semi-standardized procedure based on a few select cases to serve as "proof-of-concept" archetypes for the CV region.

6) The archetypical examples should be selected based on the following criteria: (a) regulatory urgency - pending NPDES permit actions depend on accurate use designation; (b) regulatory simplicity - the example meets one or more of the state's exemption criteria; (c) regulatory utility - the facts in each case are widely applicable to similar situations elsewhere in the region; (d) regulatory cost - existing data and documentation minimizes the expected cost to make the necessary demonstrations.

7) Based on the aforementioned criteria, the Executive Committee suggests that the following cases (and related receiving waters) should be considered for use as "proof-of-concept" archetypes: (a) Live Oak, (b) Willows, (c) Colusa, and (d) Biggs.

8) Regional Board staff are already preparing a proposed work plan for one or more of the water bodies identified above. The Executive Committee appointed a subcommittee to
work with Water Board staff to help develop appropriate technical elements for these work plans and recommend areas for collaboration and leveraging. The subcommittee was asked to streamline the process by applying the previous lessons learned from recent experiences in Old Alamo Creek and in Sulfur Creek. Members of the subcommittee include: Debbie Webster, David Cory, Tess Dunham, Tom Grovhoug, Roberta Tassey and others who may wish to serve.

9) The findings and results of these technical studies and any regional SNMPs completed, will be used to support appropriate basin plan amendments and will be incorporated into the CV-SNMP. In addition, the process and procedures described in the work plans will serve as a template to guide similar studies in the future.

10) The Executive Committee also recommends that the aquifer underlying the historic Tulare Lake bed serve as the archetypical example for evaluating the appropriateness of a MUN designation based solely on naturally-elevated TDS concentrations in a ground water basin. The Tulare Lake Drainage District (TLDD) has completed extensive prior studies of the area. CV-SALTS will work closely with TLDD and the Regional Board staff to determine what additional information may be required to qualify this aquifer for an exception to the state Sources of Drinking Water Policy (88-63).

11) Just as there are water bodies previously presumed to be MUN that may be incapable of serving that beneficial use, there are also water bodies where the MUN use is already occurring but where existing water quality is not protecting that use. This is particularly true in small rural communities where nitrate concentrations exceed safe drinking water standards. Therefore, an effective CV-SNMP must provide both near-term and long-term strategies to address this problem.

12) To demonstrate the credibility and effectiveness of the collaborative process, CV-SALTS is committed to early implementation efforts for the CV-SNMP. CV-SALTS will work with the Regional Board and various NGOs to identify economically-disadvantaged communities where excess nitrate levels severely impair the local drinking water supply. CV-SALTS proposes to provide technical/engineering expertise and grant-writing assistance to accelerate project design and implementation. In addition, CV-SALTS will review the current system of regulatory incentives and impediments to recommend critical change opportunities as part of the CV-SNMP.

13) The Executive Committee has tasked EKI, with assistance from CDM, to develop more detailed Scopes-of-Work (including schedule and budget estimates) to execute the tasks described above. Some of these anticipated efforts, such as those related to developing surface water archetypes for evaluating the MUN designation, would be funded jointly through state grant funds and matching contributions from the Salinity Coalition, its members and other grants and funding sources. Other tasks, principally those focused on providing technical assistance to economically-disadvantaged communities, will be
supported by members of the Salinity Coalition and other entities and would not be funded by SWRCB Cleanup and Abatement Funds designated for CV Salts tasks and activities.

14) Once accepted, the Executive Committee will work with Regional Board staff to solicit qualified contractors to provide the services defined in the detailed Scopes-of-Work. The goal is to begin these efforts in early 2012 and complete them by the end of that same year.

15) In a parallel effort, timed to coincide with the tasks described above, the Technical Committee and the Knowledge-Gained Subcommittee are developing a Conceptual Model and Approach for the valley wide CV-SNMP. A contract Scope-of-Work is forthcoming.

APPROVED November 15, 2011
The Management Practice Subcommittee’s (Subcommittee) charter is to assist CV-SALTS to improve salt and nitrate management through industry and community management practices, identifying and screening the management practices to improve implementation and monitoring of results. This document is part of the Management Practice Document Review developed in 2010 and 2011. This approach and process draw from others used to review stormwater and water conservation practice and criteria.\textsuperscript{2}

1 Management Practice Review Approach
At the recommendation of the CV-SALTS Committees or in accordance with the sector schedule below the Subcommittee will evaluate a management practices in accordance with the following process and standards. These standards will be used to screen management practices for inclusion in a “toolbox” of Effective or Beneficial Management Practices, generally referred to as Management Practices (MPs) in this document. These MPs have been vetted in the CV-SALTS process to assist others in reducing salinity and nitrate. This “toolbox” of MPs provides a range of new and existing MP options, their documented effectiveness, expected reductions, current status of implementation and cost when available. The listed practices provide early implementation opportunities and the basis to recommend reasonable implementation requirements for the Basin Plan Amendment. In addition, the “toolbox” identifies new technology and innovative practices that may provide further improvement and flexibility.

1.1 Products
A brief description of the products of the Subcommittees efforts are described in the following sections.

1.1.1 Screening Tool
The Subcommittee uses the enclosed procedure and standards along with a related Nomination Form to evaluate the presence of adequate evidence and information to characterize the utility and efficacy of MP’s to reduce or manage salt components and nitrates. The purpose of the screening tool and standards is to assist in the review of the scientific and monitoring documentation, not to perform that assessment or certify a practice for purposes other than those evaluated. The use of the screening tool requires that the Subcommittee (or help available to it) be able to understand the information provided.

\textsuperscript{1} International Stormwater BMP Database Performance evaluation
\url{http://www.bmpdatabase.org/MonitoringEval.htm#PerformanceEval}

\textsuperscript{2} California Urban Water Conservation Example BMP Development \url{http://cuwcc.org/resource-center/technical-resources/bmp3-resources.aspx} EPA WaterSense Program Criteria \url{http://www.epa.gov/watersense/about_us/watersense_label.html}

Version 10 10-17-11
not necessarily be experts in the scientific area or the region it is being applied. The screening tool Nomination Form will result in practices added to the “toolbox”. The screening process will rely on groups, industries, and practice proponents to nominate and complete the nomination form and supporting information for evaluation. This process will be described in the sections below.

1.1.2 Toolbox of Practices
The Management Practice Subcommittee will utilize volunteers and technical support available to it to review and evaluate MPs that reduce salt constituents and nitrates of relevance to the Central Valley. Initially the “toolbox” may be a reviewed set of electronic documents for each practice with supporting materials. Later, as the number and diversity of practices increase, the “toolbox” format will likely need to become more sophisticated to facilitate its use. The “toolbox” and the practices were extensively discussed among the Subcommittee members.

The Subcommittee identified the best use of the “toolbox” as a source of documented and validated practices that regulated entities could use to develop their management plans for salinity and nitrate for both voluntary action and Regional Board consideration as part of the permittees plan or other regulatory programs.

A factsheet or summary technical document should be prepared for practices accepted into the “toolbox” so that potential users can easily evaluate the practices for their own use. Other examples of “toolbox” development include the Stormwater BMP Manual\(^3\) and the Salinity Guideline\(^4\). The Subcommittee however wants to ensure that users of the “toolbox” understand the need to evaluate any practice for their own application. Additionally, regulatory programs and permits should not inappropriately default to the “toolbox” as a requirement for any specific facility or location.

Dischargers will be able to take advantage of the information developed on the treatment and control options provided in the “toolbox”, but the “toolbox” will not limit their options. Any discharger that wants to use an alternative approach to manage salt or nitrate will be able to submit information that will be evaluated by the same process the committee followed when creating the “toolbox”. This consistency will provide the discharger and Regional Board a clear understanding of how nominated practices perform relative to practices documented in the “toolbox”.

2 Process
The process for documenting new or developing practices and validated practices differ. The new and developing and validated practices are described in section 3 of this document. The process for each is summarized below (additional details or modifications may be made by the Subcommittee). After a call for and nomination of practices by an industry, the practices will be evaluated for acceptance in the “toolbox” with the screening tool, or further information and study may be requested and developed, as needed. The Subcommittee may then recommend to the Executive Committee that the practice be included (or not) in the toolbox.


The Subcommittee will likely request support from the Technical Project Manager or contract for support or consulting entities where their support is needed to develop documentation. The Subcommittee will also propose projects for grant support or coordination with other efforts where this is consistent with MP development goals.

2.1 Sector Review Schedule

The Pilot Salt and Nitrate Source Implementation Study\(^5\) identified sources of salt. Each significant source of salt shown in the report will be scheduled for review. Review priority will be based on salt and nitrate loading that was reported in the pilot implementation study. This initial list and prioritization is intended as a guideline, and should not result in exclusion of unlisted sources. The list will be reviewed and revised as needed by the Subcommittee. Industries or communities which have prepared MP

documents may request to be reviewed ahead of schedule, subject to Subcommittee approval. The Subcommittee will establish the final schedule for review of practices and technologies in each sector, at a pace that is manageable but that reviews BMPs from all significant source before implementation plan development. The Call Dates shown below are set to allow 2-3 months for preparation and review of the MPs before the next is called. As processes are reviewed, the common BMPs will be reviewed for consistent assumptions and completeness. When a practice’s effectiveness is obvious based on readily-available information, it may be recommended for approval by the Executive Committee with less rigorous review or scientific study. The Waterboards will assist with the calls for practices via their Lyris List for CV-SALTS and other related groups.

<table>
<thead>
<tr>
<th>Source</th>
<th>Call Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pilot Implementation candidates</td>
<td>November 2011</td>
</tr>
<tr>
<td>2. Surface Drinking and Irrigation Water</td>
<td>January 2012</td>
</tr>
<tr>
<td>4. Irrigated agriculture/Fertilizer</td>
<td>January 2012</td>
</tr>
<tr>
<td>5. Non-point source/stormwater</td>
<td>May 2012</td>
</tr>
<tr>
<td>6. Wetlands</td>
<td>May 2012</td>
</tr>
<tr>
<td>7. Wastewater/Industrial dischargers</td>
<td>May 2012</td>
</tr>
<tr>
<td>8. Food processing industries</td>
<td>October 2012</td>
</tr>
<tr>
<td>10. Dairy and CAFO</td>
<td>October 2012</td>
</tr>
<tr>
<td>11. Water treatment and softening</td>
<td>January 2013</td>
</tr>
<tr>
<td>12. Septic tank discharges</td>
<td>January 2013</td>
</tr>
<tr>
<td>13. Other point sources and discharges to land</td>
<td>January 2013</td>
</tr>
<tr>
<td>14. Atmospheric deposition and other sources</td>
<td>May 2013</td>
</tr>
</tbody>
</table>

Nominations provided will undergo a preliminary review to be sure the documentation is adequately complete for review. This initial review will include data on use of the practice in field implementation, or recommendation by an industry association, farm advisor, public agency, a disinterested user of the practice in the Central Valley or recommendation from a Subcommittee member. Review of practices is limited to the capacity of the Subcommittee and its resources.

2.2 Conflicts
Because the Subcommittee has an active role in the review and recommendation for approval of MPs, the credibility of the process relies on member’s objectivity. Members will disclose any potential conflicts of interest to the Co-Chairs of the Subcommittee who may ask them to recuse themselves from practices where the member has a direct or indirect personal financial interest.

2.3 Committee Test Run
Subcommittee members performed a “test run” of the screening tool and Nomination Form to identify gaps in the tool and to better understand the level of effort that will be required to complete the review. This review took place in summer 2011. Parry Klassen, Linda Dorn and Debbie Webster provided practices to screen from Ag and wastewater treatment industries.

2.4 Committee Pilot Testing
As the Subcommittee continues developing the screening tool and toolbox the Subcommittee may prepare a technical scope of work for pilot implementation of the screening tool on several practices.
This testing will expand on the reviews completed by the committee in the “test run” and help improve the screening tool and “toolbox” as well as help to determine the cost of the review process. The Pilot Test was encouraged to include a broader variety of practices, including physical change projects and outreach or management projects, in order to better explore diverse practices.

2.5 Consultant Scope of Work
After pilot testing, the committee may recommend broader application through a scope of work for larger scale review of practices for the “toolbox”.

3 Practice Types
To simplify review and inclusion in the “toolbox” the MPs have been separated into three types: validated practices, new or developing practices, and indirect or policy practices. All three types of practices may be included in the “toolbox” if they meet the standards provided in section 4.0 as screened in the tool. Each type of practice represents a different stage or expectation for the documentation and analysis. Additionally, practice types may characterize single practices or sets of practices that address salt, nitrate, or both. Additional types of practices, or practice variants, may be developed in the future. Validated practices are intended to be a “high bar” for completely validated practices. Most other practices will fall into the developing category. Developing practices require additional evaluation and monitoring before they can be validated.

3.1 Validated Practices
MPs for which information shown in Attachment 1 (to be developed by the Subcommittee) is available should be submitted under the validated practices category. The standards (described in Section 4) for effectiveness and field implementation should be met by documentation including scientific studies (university research, trade research publications, other technical literature), by monitoring results, or by some other verifiable evidence. These practices will allow the greatest implementation flexibility and lowest monitoring requirements. Attachment 1 will provide the information and evaluation framework and formats for information to be submitted. The result will be a compendium of information concerning the practice or action that makes it amenable to implementation (inclusion in the “toolbox”). MPs that have been evaluated by other Best Management Practice programs acceptable to the Subcommittee may be submitted in their existing formats provided they contain equivalent information.

3.2 New or Developing Practices
Many MPs to address salt and nitrate are new or documentation is still being developed, demonstrated or validated. The identification of a practice as new or developing should not detract from its perceived effectiveness or value, but only indicates it status of implementation and review. New or developing practices will not have all documentation under the standards section and will not generally have monitoring necessary for full validation. When practices characterized as new or developing it may be anticipated that additional monitoring or information may need to be provided by implementing industries or communities for it to be considered a fully validated practice.

3.3 Indirect or Policy Practices
Another grouping of practices includes practices that are deemed appropriate or necessary, that may not directly impact salt or nitrates in the environment, and for which the only possible quantification of
impact may be a general estimate. For these practices, inclusion in the “toolbox” will be based on industry recommendations or regulatory requirements or where they are a clear adjunct to other practices. Examples of such practices may include public outreach to improve awareness of urban and rural water users, or economic incentives (e.g., rate structures and fees) to reduce salt and nitrate releases. When salt and nitrate load reductions cannot be reliably estimated, cost effectiveness of the practice may be impossible to determine.

4 Standards
Screening of practices requires review of their effectiveness in reducing salt and nitrate in the system. If a practice is demonstrated as superior to general current practices for salt and nitrate management, and meets other (e.g., cost, feasibility) criteria, then it warrants consideration for the “toolbox”. General practice is defined as the unregulated or unimproved baseline. Industries that previously or voluntarily reduced salt or nitrate discharges will not be penalized for such leadership. MPs in this document are defined as beneficial or effective at management of salt and nutrients. The demonstration of Best Practices may be highly situational or impossible to determine before practices are implemented and monitored in several locations. The Subcommittee will further develop screening standards to provide additional detail on standards, as needed. The Screening of nominations uses the following standards. The nominator of the practice shall provide readily available documentation of the practice relative to each are of the Nomination Form (Attachment 3). The standards discussion in this section includes the directions to reviewers in reviewing the evaluating a nomination. The Nomination Form has corresponding instructions for those completing the form.

4.1 Technical Effectiveness – does it work?
Demonstrating technical effectiveness is critical for a MP to be implemented and accepted by industry or communities. Reviewers will look for evidence of technical effectiveness as demonstrated by lab, pilot and evaluated demonstration studies. The documentation should indicate the practice removes, destroys, manages or otherwise reduces negative impacts to beneficial uses from salt and nutrient constituents or otherwise assists with compliance or improvement of the waters of the valley for these constituents.

4.2 Implementability – can it be used broadly?
Implementability includes both feasibility as well as well as broad applicability. In most cases, satisfactory implementability is demonstrated by documentation of the use of the MP by a significant portion of the sector and considers other issues related to cost and efficiency covered in other sections.

4.3 Benefits and Impacts
In evaluating the implementability of MPs the Subcommittee should consider the benefits and impacts of the MP. Have the benefits and impacts been acceptably quantified? Do the benefits appear to outweigh identified negative impacts of its implementation?

Additionally, the Subcommittee should consider cross-media impacts, such as impacts to air quality, water supply, energy consumption and other water quality constituents. The ideal practices are effective on salt and nutrient constituents and have few or minimal impacts to other areas.
Reviewers should look for MPs that reduce any detrimental effect to other media while achieving the goals of the MP. These should be identified and any impact quantified if possible.

4.4 Cost effectiveness – is it economic to implement today?
Cost effectiveness is critical to being an effective best practice. Low efficiency costly practices are not likely to be broadly implemented. High value practices will likely be implemented with minimal regulatory encouragement. Reviewers assessment of effectiveness related to cost is not always a simple as dollars per ton of salt or pound of nitrate, often costs include a technically trained workforce to implement, operate and maintain the practices. Additionally, this may vary across industry and across regions. The cost effectiveness should strive to take into account all benefits to the entity implementing the practice as well as direct and indirect cost of implementation. In other words not just the technology but the impacts on quality of the product or preparation or disposal of wastes and other potential cross media impacts. These costs should evaluate life cycle benefits and costs of implementations and societal and environmental benefits and costs, when possible.

The ideal practice nomination will provide information on the practices costs on an industry appropriate unit basis such as, per acre, per acre foot, per million gallons, per ton or etc. so it may be compared.

4.5 Monitoring – proving it works?
Reviewers should evaluate both the ability to monitor as well as the length and breadth of the monitoring history as a part of screening. Monitoring during the implementation stage may be greater in developing practices than fully validated practices that have already identified critical monitoring parameters for implementation and operations.

4.6 Other Regulatory or Non-Regulatory Approvals
CV-SALTS, as an option, may be able to utilize prior validation work performed by Regional Water Quality Control Boards (Regional Water Board) and State Water Resources Control Board (State Water Board) collectively Waterboards, Department of Public Health, building codes or other accreditation groups for validation. Where appropriate this should be done to reduce the cost and delays associated with duplication of validation. Cost effectiveness of the MP should still be evaluated.

Additionally, in cases where a practice is obvious, broadly implemented and effective it may be recommended with less rigorous review or scientific study for approval by the Executive Committee.

5 Management Practice Toolbox
The Subcommittee will establish and update a list of MPs for each sector in the form of a “toolbox”. The “toolbox” will change as more information is reviewed and may also be used to track MPs, alternatives and technologies. The list will be maintained by the Subcommittee and Central Valley Salinity Coalition (CVSC). The “toolbox” will be available on the cvsalinity.org website and facilitate tracking the status of evaluation, verification, and monitoring. The Preliminary list of practices is shown as Attachment 2; this list will be updated or replaced as the “toolbox” is developed by the Subcommittee.
6 CV-SALTS Management Practice or Technology Presentations

MPs and Technologies that warrant recommendation for approval by the CV-SALTS Technical Committee and Executive Committee will have been reviewed according to the processes described previously. Recommended items will have been found to merit wider application to CV-SALTS stakeholders. Technologies warranting recommendation should have been monitored during several pilot deployments to demonstrate effectiveness. Exceptions may be granted by the Subcommittee for practices that show special promise or at the request of the Executive Committee. Executive or Technical Committee members may recommend practices for Subcommittee consideration at the next regularly scheduled meeting.

Vendors or technology proponents who wish to have specific practices evaluated for inclusion in the “toolbox” should contact the Central Valley Salinity Coalition or the Subcommittee Chair. Nominations provided will undergo a preliminary review to be sure the documentation is adequately complete for review. This initial review will include data on use of the practice in field implementation, or recommendation by an industry association, farm advisor, public agency, a disinterested user of the practice in the Central Valley or recommendation from a Subcommittee member. Review of practices is limited to the capacity of the Subcommittee and its resources.
Attachment 1

This attachment provides information on the review of MPs for inclusion in the CV-SALTS “toolbox” for reductions in salt and nitrate that are significant to the Central Valley.

Screening Process

The Subcommittee will use the evaluation framework process in Section 2 and standards in Section 4 to review MP documentation submitted on the Nomination Form in Attachment 3 or alternatively provided as industry collections of MPs.

1. Industry nomination or source or sector call for nominations request
2. Formatting for screening by nominator or tech support using the Nomination Form or alternate format acceptable to the Subcommittee.
3. Initial review for completeness and appropriateness for review
4. Assessment of submitted data by Subcommittee and additional info/expert review, if needed
5. MP Subcommittee and Technical Committee recommend practices
6. Executive Committee Approves and Toolbox is updated
7. Practice Implementation, Operations and Maintenance, Monitoring, Reporting
8. Revision, if needed and review

This is also shown in Figure 1 in Section 2.

The Subcommittee developed the Nomination Form with brief instructions for users shown in Attachment 3 to ensure nominated practices meet the standards presented in section 4.0.
Attachment 2

A preliminary list of potential MPs to manage salt and nitrate as suggested by the subcommittee is listed below for development of the scope of the Pilot Testing of the screening process: THIS LIST IS TO BE REVISED BY THE SUBCOMMITTEE IN THE 11/21/11 MEETING WITH THE TECHNICAL PROJECT MANAGER.

1. Nitrogen/Nutrient Management by well testing for leaching of nutrients to groundwater
2. Soil testing for accurate nutrient fertilization (Ag)
3. Selected Sustainable Growing Practices, (Almond Board) – Parry or others
4. Selected Dairy Practices - Dairy CARES/ JP or Paul
5. Nitrate removal from drinking water by fluidized bed reactor technology (TBD)
6. Selective pumping of well water without TDS via insitu membrane filtration/RO (TBD)
7. KOCI substitution for NaOCl use in cleaning and processes (Tom - Enviro Tech)

Potential Practices (listed to promote discussion only, not as nominations to prioritize)

1. Irrigation efficiency/reduce irrigation – Reduce salts imported with water or from groundwater
2. Tailwater reuse/drainage recirculation – reduced discharged of salt
3. Growing salt tolerant crops – reduced imported water while maintaining production
4. Evaporation ponds, solar evaporators – isolates the salt to allow management
5. Salt separation and utilization – fractionate and create products for reuse or sale
6. Drain water and brackish water desalination- Isolates salt for management
7. Detergent reformulation - source control
8. Industrial biomass and brine management – isolates salts and potentially reuses salts
9. Reduce imported feed for CAFO’s – reduces salt import from feed sources
10. Reduce seepage from brine conveyance - reduces dissolution of salt from soils
11. Industrial salt source reduction/reuse – reduces salts for production
12. Increase export of salt containing products - exports salt unless salt is imported for products
13. Increase salt export in surface waters leaving the region
14. Increase outdoor landscape irrigation efficiency – reduces imported water/groundwater use
15. Increase indoor water use efficiency – reduces imported water and groundwater use
16. Reduce water softening need or shift to ocean disposal of brine – reduces residential salt source
17. Local salt collection and disposal – Disposal and removal from basins
18. Increase salt discharge at EB MUD – ocean discharge and removal from basins
19. Salt collection and treatment (ocean qualified brine) for ocean discharge and removal
20. Deep well injection for storage and recovery of salts – Removal of salt from basins, with recovery when economic
Attachment 3

MP Screening Nomination Form is located at:
and appears on the following pages in PDF format.
CV-SALTS Management Practice Nomination Form

This Nomination Form includes limited instructions for the completion of the form. Initial reviewer instructions are included the Subcommittee Screening Document and will be further developed in future work. The nominator of the practice will provide all available information for the practice and may include estimated information to be verified if noted in the text. Should additional information be required to complete the review it will be requested.

In the pilot phase additional standardization of requested information on the management practices will likely be developed. Additionally review of the practice implementation and effect on overall salinity and nitrate management in the Central Valley may be further assessed at a future date. Submittal of management practices for inclusion into the toolbox should answer the following questions with the best information available to the submitter. Please annotate responses with references and source documents, list these under Question 7.

A. Is this nomination for a plan or programmatic activity as opposed to a field implementation practice or technology? □ YES □ NO
   if yes, complete the following sections as appropriate, if no proceed to question 1.

1. Title – Please provide a short descriptive tile for the practice

2. Description – Please provide a short (1-2 paragraphs) description of the practice/technologies to summarize the practice, industries and important information

3. Constituent Salts or Nutrients Managed – Identify the primary and secondary constituents (EC TDS, Nitrates other nutrients etc) that are treated, reduced or managed by this practice and how they are reduced or managed.

4. Applicability – Describe the documented application of this practice, where how and how extensively the practice has been implemented what conditions or circumstances limit the application of this practice. Industry specific application and limitations may be developed and show as Attachment A. Such limitations may include industry, region, soil type, media or other limits.
5. **Practice Benefits and Impacts** – Describe the documented benefits of implementing the practice (what does it do) including any negative impacts of implementation (including cross media/air/energy/supply etc)

6. **Effectiveness Documentation** – 6 a. Describe the documented effectiveness of implementing the practice on the target constituents. Whenever possible quantify the effectiveness of the practice as completely as possible. 6 b. Summarize and critical factors or limitations to effectiveness. If documentation of a cost benefit study please reference it below in 7.

7. **Supporting studies, Research and Source Documents** – List all documents referenced in responses above or other documents that provide information evidence or background on the technology or practice and electronic availability.

8. **Implementation**

8.1 **Costs** - Summarize and document costs for implementation of this practice both Capital and Annual operations and maintenance costs. If possible, express in industry relevant units of $/acre foot or $/million gallons, $/ton or etc. to allow comparison with other practices.

8.2 **Status and Potential** – Describe the Historic and current level of implementation, at the level know. List any information known on the potential full implementation of this practice

8.3 **Monitoring Documentation** – Describe the level of monitoring and documentation available to support the practice. If known, what additional monitoring is needed? If known what level of monitoring will be needed at implementation.

9. **Other Regulatory Approvals or Requirements** – Has this practice been approved or required by any other government agency or independent standard setting body, if so summarize this and any information you may have on the process and status of approvals. Indicate what level of review if required for that regulatory requirement or guidance?
Standards and information repeated for the Nominator from the Subcommittee screening document.

4 Standards
Screening of practices to include in the toolbox requires the review of practices for effectiveness in reducing salt and nitrate in the system. The Screening tool uses the following standards as documented by the proposer of the practice for screening.

4.1 Technical Effectiveness – does it work?
Demonstrating technical effectiveness is critical for a management practice to be implemented and accepted by industry or communities. Evidence of technical effectiveness is demonstrated by lab, pilot and demonstration studies and evaluation of the studies. Does the documentation indicate strongly that the practice removes, destroys, manages or otherwise reduce any negative impacts to beneficial uses associated with its presence and assist with compliance or improvement of the waters of the valley.

4.2 Implementability – can it be used broadly?
Implementability includes both feasibility as well as well as broad applicability. In most cases, satisfactory implementability is demonstrated by documentation of the use of the management practice by a significant portion of the sector and considers other issues related to cost and efficiency covered in other sections. Implementability of management practices may consider cross-media impacts, and look for management practices that reduce any detrimental effect to other media while achieving the goals of the management practice. These should be identified and any impact quantified if possible.

4.3 Cost effectiveness – is it economic to implement today?
Cost effectiveness is critical to being an effective best practice. Low efficiency costly practices are not likely to be broadly implemented. High value practices will likely be implemented with minimal regulatory requirements. The assessment of effectiveness related to cost is not always a simple as dollars per ton of salt or pound of nitrate, often costs include a technically trained workforce to implement, operate and maintain the practices. Additionally, this may vary across industry and across regions. The cost effectiveness should strive to take into account all benefits to the entity implementing the practice as well as direct and indirect cost of implementation. In other words not just the technology but the impacts on quality of the product or preparation or disposal of wastes and other potential cross media impacts. These costs should evaluate life cycle benefits and costs of implementations and societal and environmental benefits and costs, when possible.

4.4 Monitoring – proving it works?
Both the ability to monitor as well as the length and breadth of the monitoring history will be reviewed as a part of screening. Monitoring during the implementation stage may be greater in developing practices than fully validated practices that have already completed it.
Nomination Form Attachment 1

Applicability checklist by Industry, Processes or Region

The following industries, processes and regions may have specific screening requirements that the Subcommittee will develop in the future.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Agriculture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Food Processing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Manufacturing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Wine Industry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. WWTP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Water Treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. OTHERS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
May 2, 2011

To: Potential Salinity Services Vendors

REQUEST FOR PROPOSAL:
The San Joaquin Valley Drainage Authority is requesting proposals in response to the attached RFP.

IMPORTANT DATES:
Proposals are due – May 31, 2011, 4:00 PM
Contract expected to be signed by July 15, 2011

SUBMISSIONS:
Please reply by email to the address below if you intend to participate in this procurement. Submit your proposal electronically by email to jmcgahan@summerseng.com. You can expect an acknowledgement soon after the proposal is received. If you have any doubt please email for confirmation or call Joseph C. McGahan, Project Manager at 559-582-9237.

Please submit a single PDF file in an email with the subject line: CV-SALTS WATER QUALITY CRITERIA STUDIES

AND

By mail, UPS or FedEx to be received prior to the deadline to:
San Joaquin Valley Drainage Authority
c/o Joseph C. McGahan
Summers Engineering
887 N. Irwin St.
P. O. Box 1122
Hanford, CA 93232
jmcgahan@summerseng.com
559-582-9237

A Standard Services Agreement for the San Joaquin Valley Drainage Authority is attached to the RFP.

We appreciate your interest in providing services to help understand and solve salt and nitrate issues in the Central Valley.

Very truly yours,

Joseph C. McGahan
SJVDA Project Manager
Central Valley Salinity Coalition with CV-SALTS Initiative

Request for Proposal (RFP) 2011-001
For Consulting Services to Conduct

Water Quality Criteria Studies

1 INTRODUCTION

Organization Background
The Central Valley Salinity Coalition (CVSC) was formed in 2008 to integrate and augment the efforts of the Central Valley Salinity Alternatives for Long Term Sustainability (CV-SALTS) initiative. The purpose of the organization is the governance and organization of the efforts needed to plan, develop and implement the salinity and nitrate management plan for the Central Valley. This plan will incorporate, and become implemented through, a basin plan amendment for the basins in the Central Valley.

Project Background
The objective of these two projects is to contract with an entity (herein referred to as Consultant) to identify for aquatic life and livestock drinking water supply: 1) water quality criteria that could be used to establish water quality objectives and 2) existing water quality objectives, standards, goals, and policies that have been established to protect these beneficial uses. The Consultant will accomplish these objectives through literature and internet searches and through interviews with regulatory agency staff, specialists and university researchers in California, other states, and if needed, other countries.

2 SJVDA Contract, CVSC and CV-SALTS Coordination

The funding for the project will come from the State Water Resources Control Board (SWRCB) to the San Joaquin Valley Drainage Authority (SJVDA). The contract will be executed between the SJVDA and the Consultant for the scope. Primary day to day coordination will be with a point of contact identified by the CV-SALTS Technical Committee. The Consultant will also work closely with the Technical Project Manager of CV-SALTS when available to insure focused use of time and to maintain continuity in the program.

3 Work Schedule and Budget

The Consultant shall propose a budget for all tasks in the Scope of Work. Cost should be well documented in the proposal, and should be organized to allow increases or decreases in scope based on

CVSC RFP 2011-01
available funding. The funding for the budget may be developed from multiple sources but will be primarily from a State Water Board Cleanup and Abatement Contract. The project should be completed within 6 months of award.

Request for Work

This request is for professional services to accomplish the scope of work shown in Attachment A. Proposers may provide proposals for one or both of the scopes based on their qualifications. CV-SALTS may award to one or more firms for this effort.

The selected Consultant will provide all materials, equipment, labor, planning and coordination to provide the deliverables listed in Attachment A with Technical Committee input and oversight. The Consultant will provide a proposal documenting scope of work to be performed, project budget and project schedule.

4 Scope of Work

The scope of work is shown in Attachment A.

5 Instructions

Responses to this RFP must be made according to the requirements set forth in the Scope of Work. Failure to adhere to these requirements or to include conditions, limitations, or misrepresentations may be cause for rejection of the proposal. Any correction and resubmission by the proposer will not extend the time for evaluation of the proposal. Proposals will be reviewed by a group composed of members of the SJVDA and CV-SALTS Lower San Joaquin River Committee.

Submit one electronic file and six (6) complete copies of the proposal and related information to:

San Joaquin Valley Drainage Authority
c/o Joseph C. McGahan
Summers Engineering
887 N. Irwin St.
P. O. Box 1122
Hanford, CA 93232
jmcgahan@summerseng.com

All proposals must be received by May 31, 2011 – 4:00 pm.

5.1 Required Information

All proposals must include the following information:
   1. Cover letter, including name, telephone number, and address of the firm.
   2. Table of contents.
   3. Description of the proposer’s business; i.e., individual, partnership, joint venture, etc.
4. Background information about the proposer, including technical qualifications and licenses.
5. Description of the proposer’s experience, including the scope of similar projects.
6. Organizational chart showing proposed management and project team.
7. Complete list of personnel, including subcontractors that will be dedicated to this project.
8. Assigned personnel background, experience, and job title/classification.
9. Proposed scope of work including deliverable formats and products.
10. Detailed project schedule.
11. Fee proposal shall include breakdown of labor hours by employee billing classification, expense reimbursement schedule that includes cost of non-labor and sub-contractor services.
12. Hourly billing rates for personnel to be assigned to the project

6 Evaluation Criteria (to be updated by LSJRC)

Evaluation of Technical Qualifications will be conducted on the following:
1. Responsiveness to the RFP
2. Project approach and technical understanding in the scope of work
3. Contractor proposes to complete scope on schedule
4. Experience and qualifications of the assigned individuals
5. Experience and qualifications of the firm in
   a. Salts and nutrients
   b. Criteria evaluation
   c. Reviews supporting regulatory actions
   d. Regional/ Basin Planning
   e. others???
6. Project management qualifications of the firm and staff
   a. Demonstrated completion on schedule
   b. Cost and schedule
   c. Coordination, reporting and responsiveness

Evaluation of Cost will be on the basis of the following:
7. Clarity and completeness of the breakdown of costs and explanation
8. Appropriateness of proposed fee structure and anticipated value and quality of services received
9. Total Cost compared to the value of products and services

The selection process is anticipated to include an evaluation of the proposal and may include an interview with the top ranked firms.
7 General Requirements

All proposers are hereby advised that this RFP is an informal solicitation and is not a commitment or offer to enter into an agreement or engage into any competitive bidding or negotiation pursuant to any statute, ordinance, rule, or regulation. CVSC the Drainage Authority and Waterboards reserve the right to negotiate with any qualified source. CVSC the Drainage Authority and Waterboards reserves the right to reject any or all proposals for any reason or for no reason at all.

CVSC the Drainage Authority and Waterboards reserves the right to request further information from the proposer, either in writing or orally. Such request will be addressed to that person or persons authorized by the proposer to represent the proposer.

CVSC the Drainage Authority and Waterboards reserves the sole right to judge the proposer’s representations, either written or oral.

Proposers understand and agree that submission of a proposal constitutes acknowledgement and acceptance of, and a willingness to comply with, all terms, conditions, and criteria contained in this RFP.

False, incomplete, or unresponsive statements in connection with a proposal may be sufficient cause for the rejection of the proposal. The valuation and determination of the fulfillment of the above requirement will be CVSC the Drainage Authority and Waterboards responsibility and its decision shall be final.

The Drainage Authority and Waterboards reserve the right to interpret or change any provisions of this RFP at any time prior to the proposal submission date. Such interpretations or changes will be in the form of addenda to this RFP. Such addenda will become part of this RFP and may become part of any resultant contract. Such addenda will be made available to each person or organization that is known to have received this RFP. Should such addenda require additional information not previously requested, a proposer’s failure to address the requirements of such addenda might result in the proposal being disqualified or ranked lower in review. All proposals submitted in response to this RFP will become the exclusive property of the Drainage Authority and Waterboards and will be made available to CV-SALTS stakeholders.

This project is intended to be funding from grant funds awarded by the SWRCB. The terms and condition of those grant funds and the requirements of that contract will apply to the contractor. The Drainage Authority may at their discretion fund this project from proceeds of State, Federal or other grants or agreements and consultant contract may be managed by the agency providing funding with different or additional requirements which must be complied with. These issues will be resolved at the time of contracting with the selected contractor.

The Drainage Authority and Waterboards shall not in any way be liable for any costs incurred in connection with the preparation of any proposal submitted in response to this RFP.
The contractor shall execute the Standard DRAINAGE AUTHORITY Agreement for services with the San Joaquin Valley Drainage Authority accepting terms and conditions without exception unless noted in the proposal.

8 Schedule of Proposal Events

The following table contains the expected schedule of events for the RFP process. SJVDA and the CVSC retain the right to modify this schedule as needed to support unexpected circumstances.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFP Distributed/posted to website</td>
<td>May 2, 2011</td>
</tr>
<tr>
<td>Proposals Due</td>
<td>May 31, 2011 – 4:00 pm</td>
</tr>
<tr>
<td>Committee Recommendation of Award</td>
<td>June 14, 2011</td>
</tr>
<tr>
<td>CVSALTS Executive Committee Approval</td>
<td>June 16, 2011</td>
</tr>
<tr>
<td>SJVDA Approval</td>
<td>July 5, 2011</td>
</tr>
<tr>
<td>Execution of Agreement with Contractor</td>
<td>By July 15, 2011</td>
</tr>
</tbody>
</table>
9  Proposal Authorization

(Please provide this document on your letterhead)

I certify I am authorized to submit a binding proposal on behalf of my company, _______________(company name), and this proposal conforms to required specifications unless otherwise noted.

___________________________________________
Company Name

___________________________________________
Proposal Submitted by

___________________________________________
Title

___________________________________________
Signature

___________________________________________
Date

___________________________________________
Email

___________________________________________
Telephone Number

___________________________________________
Facsimile Number
May 30, 2011

To: Potential Salinity Services Vendors

REQUEST FOR QUALIFICATIONS:
On behalf of CV-SALTS the San Joaquin Valley Drainage Authority is requesting proposals in response to the attached RFQ.

IMPORTANT DATES:
Proposals are due – July 1, 2011, 4:00 PM
Contract expected to be signed by August 15, 2011

SUBMISSIONS:
Please reply by email to the address below if you intend to participate in this procurement. Submit your qualifications electronically by email to jmcgahan@summerseng.com. You can expect an acknowledgement soon after the proposal is received. If you have any doubt please email for confirmation or call Joseph C. McGahan, Project Manager at 559-582-9237.

Please submit a single PDF file in an email with the subject line: CV-SALTS TECHNICAL PROJECT MANAGER RFQ

AND

By mail, UPS or FedEx to be received prior to the deadline to:
San Joaquin Valley Drainage Authority
c/o Joseph C. McGahan
Summers Engineering
887 N. Irwin St.
P. O. Box 1122
Hanford, CA 93232
jmcgahan@summerseng.com
559-582-9237

A Standard Services Agreement for the San Joaquin Valley Drainage Authority is attached to the RFP.

We appreciate your interest in providing services to help understand and solve salt and nitrate issues in the Central Valley.

Very truly yours,

Joseph C. McGahan
SJVDA Project Manager
1 INTRODUCTION

Organization Background
The Central Valley Salinity Coalition (CVSC) was formed in 2008 to integrate and augment the efforts of the Central Valley Salinity Alternatives for Long Term Sustainability (CV-SALTS) Initiative. The purpose of the organization is the governance and organization of the efforts needed to plan, develop and implement the Salinity and Nitrate Management Plan (SNMP) for the Central Valley. The SNMP will identify implementation mechanisms to ensure protection of beneficial uses and provide the basis for a basin plan amendment to support application in the Central Valley.

Project Background
CV-SALTS is a stakeholder driven effort intended to provide long term economic and environmental sustainability throughout the Central Valley while simultaneously satisfying the requirements of the State’s Recycled Water Policy.

The objective of this RFQ is to receive qualifications from firms with experience in managing technical projects leading to successful Basin Plan Amendments. The intention is to contract with an entity (herein referred to as Consultant) to perform services as a Technical Project Manager (TPM) for the CV-SALTS initiative and also receive Consultant’s qualifications for various technical services to ensure that the final SNMP developed is scientifically defensible and contains all technical information needed to support a Basin Plan Amendment. The TPM will use their understanding of the scientific and technical documentation required to support new regulatory requirements as demonstrated by their experience with use attainability assessments, site-specific objectives, variances and/or actual adopted Basin Plan Amendments that have been developed in a collaborative setting. Consultants bidding solely on the technical work are expected to provide examples of projects related to those in the scope of work. The selected Consultants (consultant firms or teams) will receive oversight from the Technical Committee and Executive Committee and will participate in development of a workplan that identifies the critical path for technical studies needed and feasible to ensure successful completion of the SNMP.
Over $4-million has been secured to date to complete this effort. Additional funding is anticipated. The final salt and nitrate management plan must be completed by May 2014.

2 SJVDA Contract, CVSC and CV-SALTS Coordination

The funding for the project may come from one or more sources including the State Water Resources Control Board (SWRCB) directly, a contract with the San Joaquin Valley Drainage Authority (SJVDA), from the CVSC or other sources. The initial contract will be executed between the SJVDA and the Consultant for the scope of work, but may include funding for task orders to be approved in the future by the Executive Committee. Approximately $400,000 is currently available under the contract with the SJVDA for this effort but the contract may be augmented with additional funding. Other funding is available to the Executive Committee and they may award additional funds to the contract under other contracting mechanisms as they determine. The funding for the budget may be developed from multiple sources but will be primarily from a State Water Board Cleanup and Abatement Contract. Primary day-to-day coordination will be with a point of contact identified by the CV-SALTS Technical Committee and with the Program Manager.

2.1 Request for Qualifications
This request is for a Statement of Qualifications (SOQ) for providers of professional services to accomplish the scope of work shown in Attachment A. Responding entities may provide SOQ document covering one, multiple, or all tasks in the scope. The Consultant shall provide qualifications for all areas within the scope that they wish to be considered for. CV-SALTS may award to one or more firms for this effort. Consultants who are not qualified or do not wish to be evaluated for the TPM task in the scope will mark their SOQ as NON-TPM SOQ for review. The Consultant will provide a SOQ documenting their project approach, hourly rates for all staff listed in the qualifications document and needed to perform the scope of work, any other rates or charges for the staff, any travel costs for staff and any other charges including markup on subcontracting or any standard charges. Charges or fees not included in the SOQ will not be allowable costs under the contract.

Consultant should address how they would manage Task Orders under their contract. They should address how they would recommend work scope tasks be done by the Consultant’s staff or team or a third party. The Consultant should explain how they would manage the work of outside parties, other Consultants and volunteers or in-kind work provided.

2.2 TPM Work, Schedule and Budget
While the Consultant’s SOQ should focus on qualifications for the Technical Project Manager the Consultant should also provide additional documentation on their project approach and scope for the TPM. The Consultant should propose a budget, work breakdown structure, schedule and TPM Scope based on a 1-year period of performance with two 1-year extensions for the TPM scope only. These
documents will illustrate the qualifications of the proposed TPM and provide the draft source
documents for the contract with the Consultant.

Cost assumptions for the TPM proposal should be well documented and organized to allow the
Executive Committee to increase or decrease efforts based on available funding, duration or workload.
The selected Consultant will provide all materials, equipment, labor, planning and coordination to
provide the services listed in Attachment A with Technical Committee input and oversight.

CV-SALTS will require the Consultant commit to providing the selected individual as Technical Project
Manager for the duration of the program. Should the individual become unavailable, the contract may
be terminated. Should the Executive Committee elect not to terminate the Consultant shall bear all
costs related in any way to changes in staffing.

3 Scope of Work

The scope of work is shown in Attachment A.

4 Instructions

Responses to this RFQ must be made according to the requirements set forth in the Scope of Work.
Failure to adhere to these requirements or to include conditions, limitations, or misrepresentations may
be cause for rejection of the submission. Any correction and resubmission by the proposer will not
extend the time for evaluation of the submission. SOQ documents will be reviewed by a group
composed of members of CV-SALTS Technical and Executive Committees.

Submit one electronic file and six (6) complete copies of the submission and related information to:

San Joaquin Valley Drainage Authority
c/o Joseph C. McGahan
Summers Engineering
887 N. Irwin St.
P. O. Box 1122
Hanford, CA 93232
jmcgahan@summerseng.com

All submissions must be received by July 1, 2011 – 4:00 pm.

4.1 Required Information

All submissions must include the following information:
   1. Cover letter, including name, telephone number, and address of the firm
   2. Table of contents
   3. Description of the firm’s business; i.e., individual, partnership, joint venture, etc.
   4. Background information about the proposer, including technical qualifications and licenses

RFQ 2011-02
5. Description of the firm’s experience, including the scope of similar projects
6. Organizational chart showing proposed management and project team
7. Complete list of personnel, their qualifications for CV-SALTS work, this should also include any subcontractors that will be dedicated to this project
8. Assigned personnel background, experience, and job title/classification
9. Proposed scope of work for the TPM task
10. Detailed project schedule for the TPM task
11. Fee proposal shall include breakdown of labor hours by employee billing classification, expense reimbursement schedule that includes cost of non-labor and sub-contractor services for the TPM task
12. Hourly billing rates for personnel to be assigned to the project
13. Any exceptions to the Standard Services Agreement (Attachment C), exceptions will be considered in award qualifications.

5 Evaluation Criteria

Evaluation of Technical Qualifications will be conducted on the following:
1. Responsiveness to RFQ and SOQ organization and clarity
2. Experience and qualifications of the Technical Project Manager and assigned individuals in salinity and nutrients in relation to regulatory issues
3. Project approach and understanding
4. Contractor ability to complete work products on schedule
5. Demonstrated ability to act independently and perform unbiased evaluations
6. Experience and qualifications of the firm in
   a. Groundwater and surface water integration
   b. Simplifying complex information into simplified concepts for presentation
   c. Project management in a stakeholder driven regulatory environment
   d. Salts and nutrients issues
   e. Basin planning and successful Basin Plan Amendment completion
   f. Technical skills and experience in studies supporting Basin Planning
   g. Regional planning and Central Valley agricultural issues
7. Project management qualifications of the firm and staff
   a. Demonstrated management experience
   b. Track record of completion of complex tasks on schedule
   c. Scope, cost and schedule development and review
   d. Clarity of the task order process including authorization and completion
   e. Coordination, reporting and responsiveness in a stakeholder environment

Evaluation of Cost will be on the basis of the following:
8. Clarity and completeness of the breakdown of costs and explanation for the TPM task
9. Appropriateness of proposed fee structure and anticipated value and quality of services received for the TPM task
10. Total cost compared to the value of products and services

The selection process is anticipated to include an evaluation of the qualifications and cost proposal for the TPM task and may include an interview with top ranked firms.

RFQ 2011-02
6 General Requirements

All proposers are hereby advised that this RFQ is an informal solicitation and is not a commitment or offer to enter into an agreement or engage into any competitive bidding or negotiation pursuant to any statute, ordinance, rule, or regulation. CVSC, SJVDA, and Waterboards reserve the right to negotiate with any qualified source. CVSC, the Drainage Authority, and Waterboards reserve the right to reject any or all submissions for any reason or for no reason at all.

CVSC, SJVDA, and Waterboards reserve the right to request further information from the proposer, either in writing or orally. Such request will be addressed to that person or persons authorized by the proposer to represent the proposer. CVSC, SJVDA and Waterboards reserve the sole right to judge the proposer’s representations, either written or oral. The Executive Committee will make the final selection decision for the award contracts.

Proposers understand and agree that submission of the SOQ constitutes acknowledgement and acceptance of, and a willingness to comply with, all terms, conditions, and criteria contained in this RFQ. False, incomplete, or unresponsive statements in connection with a submission may be sufficient cause for the rejection of the submission. The valuation and determination of the fulfillment of the above requirement will be CVSC, SJVDA, and Waterboards responsibility and their decision shall be final.

The CVSC, SJVDA, and Waterboards reserve the right to interpret or change any provisions of this RFP at any time prior to the submission date. Such interpretations or changes will be in the form of addenda to this RFQ. Such addenda will become part of this RFQ and may become part of any resultant contract. Such addenda will be made available to each person or organization that is known to have received this RFQ. Should such addenda require additional information not previously requested, a firm’s failure to address the requirements of such addenda might result in the submission being disqualified or ranked lower in reviews. All SOQs submitted in response to this RFP will become the exclusive property of the CVSC, Drainage Authority and Waterboards and will be made available to CV-SALTS stakeholders.

This project is intended to be funded from Cleanup and Abatement (CAA) funds awarded by the SWRCB. The terms and condition of those funds and the requirements of that contract will apply to the contractor. The SJVDA or other CV-SALTS entities may at their discretion fund this project from proceeds of State, Federal or other grants or agreements and Consultant contract may be managed by the agency providing funding with different or additional requirements which must be complied with. These issues will be resolved at the time of contracting with the selected contractor.

The SJVDA and Waterboards shall not in any way be liable for any costs incurred in connection with the preparation of any submission submitted in response to this RFQ.
The Consultant shall execute a Standard Agreement for services with the selected agency. The San Joaquin Valley Drainage Authority terms are shown in Appendix C, Submission of an SOQ is deemed accepting terms and conditions without exception unless noted in the submission.

7 Schedule of Submission Events

The following table contains the expected schedule of events for the RFQ process. SJVDA and the CVSC retain the right to modify this schedule as needed to support unexpected circumstances.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFQ Distributed/posted to website</td>
<td>May 30, 2011</td>
</tr>
<tr>
<td>Submissions Due</td>
<td>July 1, 2011 – 4:00 pm</td>
</tr>
<tr>
<td>Committee Recommendation of Award</td>
<td>July 15, 2011</td>
</tr>
<tr>
<td>CVSALTS Executive Committee Approval</td>
<td>July 21, 2011</td>
</tr>
<tr>
<td>SJVDA Approval</td>
<td>August 2, 2011</td>
</tr>
<tr>
<td>Execution of Agreement with Contractor</td>
<td>By August 15, 2011</td>
</tr>
</tbody>
</table>
8 SOQ Authorization

(Please provide this document on your letterhead)

I certify I am authorized to submit this SOQ on behalf of my company, ______________(company name), and this submission conforms to required specifications unless otherwise noted.

___________________________________________
Company Name

___________________________________________
Submission Submitted by

___________________________________________
Title

___________________________________________
Signature

___________________________________________
Date

___________________________________________
Email

___________________________________________
Telephone Number

___________________________________________
Facsimile Number
ATTACHMENT A

CV-SALTS Program and Technical Work Management Scope of Work

The following Work elements are intended to be Contracted as a part of this RFQ or other mechanisms.

Then following elements have not been contracted but are needed to support CV-SALTS.

1. Technical Project Manager (TPM) using a strong understanding of the scientific and technical documentation required to support regulatory programs will support the CV-SALTS collaborative efforts.

2. Future Technical Projects and Studies
   2.1. BUOS Phase II – additional work to improved existing data developed in Phase I
   2.2. CV-SALTS Conceptual Model of Water, Salt and Nitrate Sources and Interactions
   2.3. Studies and Data Collection to support policy elements of the Salt and Nitrate Management Plan (SNMP)
   2.4. Economics Studies and Documentation
   2.5. CEQA Equivalent Documentation supporting the Basin Plan Amendment

3. Central Valley Salt and Nutrient Management Plan (SNMP), including a Plan of Implementation that describes the implementation plans for the Basin Plan Implementation Section as well as the programs and projects stakeholders need to manage salinity and nitrate. The SNMP will provide the basis for the draft Basin Plan Amendment.

4. Basin Plan Amendment Document Development
   4.1. Policy Development
   4.2. Technical and Document Production

1.0 The TPM Performance Statement

The role of TPM is that of an individual or firm with the base capability to manage the technical work required to support the CV-SALTS program. In addition to the base capabilities and qualifications the RFQ would solicit the firm’s capabilities and qualifications to perform the work activities that are expected in the CV-SALTS program. The Technical Committee will act as the advisory committee for all technical work performed under the TPM. The Executive Committee will serve in the advisory role during the development of the Salt and Nitrate Management Plan.

The RFQ would seek to solicit one or more firms with various expertise or capabilities. Firms that do not wish to provide TPM services would be held for future technical contract efforts.

At a minimum the TPM shall provide all materials, labor, equipment, (subcontract services), and perform the following in a management role under the general oversight of the Technical Committee with funding authorization and policy direction from the Executive Committee:

a. Develop the scopes of technical work (research, data, modeling, economics and related efforts) along with a draft schedule and draft cost budget.
b. When the scope, budget and schedule have been reviewed and approved by the Technical and Executive committees, work with the contracting entity to procure or assign staff to perform work in accordance with the approved budget and schedule.

c. With the Technical Committee, develop technical standards and guidelines for Basin Plan related work as requested.

d. Manage the scope, schedule and cost for all technical efforts to ensure the work is completed on budget and within schedule. Provide status of all authorized work, including contracted efforts, subcontracted work, and in-kind efforts. Provide updates on work to be contracted and an estimate of funding needed for completion of work.

e. Assist the Technical Committee with process and work products including technical committee meetings and subcommittee meetings to develop work as directed by the Executive Committee.

f. Develop the draft Technical Committee Meeting Agenda in coordination with the Co-chairs and Program Manager.

g. Coordinate with the Program Manager, Regional Board and others to inform and coordinate technical work.

h. Critically review all technical work performed by contractors and in-kind efforts by stakeholders and prepare comments and acceptability review for the Technical Committee

i. Support the technical committee meetings and subcommittee meetings

j. Support the organization of management practices as determined by the Management Practice Subcommittee

k. Coordinate with the Program Manager, State Water Board Staff, Regional Water Board staff and CV-SALTS committees as needed to be informed and accomplish all efforts required

l. Ensure all technical work needed for a salt and nitrate management plan robust enough to support a basin plan amendment, is completed by January 2014 for final review and approval by May 2014.

The Technical Project Manager must have a strong understanding of the scientific and technical documentation required to support new regulatory requirements as demonstrated by a history of actual adopted basin plan amendments, use attainability assessments, site-specific objectives, and/or variances developed in a collaborative setting.

2.0 Future Technical Projects and Studies

This section provides a brief overview of potential projects and studies that may be included in the contract, subcontracts, or other projects managed by the TPM, with final determination on contracting as directed by the executive committee. A list of prior works and data sources may be found at this link on the CV-SALTS website.

2.1 Beneficial Use and Objective Study (BUOS) Phase II – Update GIS Work and Water Quality Criteria to reduce errors in collected existing data by working with stakeholders to improve sections where they are knowledgeable and engaged. Add needed layers of information related to diversions and outfalls not available when originally compiled. The GIS tools should show all tributary relationships, wastewater outfalls, stormwater drains, Ag drains, water intakes, water supply wells, irrigation-only wells, basin plan segments, 303(d) listings,
etc. In addition the information compiled during the development of the Inland Surface Waters Program should be incorporated into the GIS to allow it to improve the data and inform the program. These coverages being developed will eventually show monitoring locations, stations, points of compliance, land use types and changes, drainage-shed, and become the backbone of the plan of implementation. The materials from the Phase 1 work are posted on the CV-SALTS Website at the following link:

**BUOS P-1 TM-1 Geodatabase**

**BUOS P-1 TM-2 Basin Plan**

**BUOS P-1 TM-3 Water Quality Criteria Lit Review**

The viewer website is at http://kjweb3.kennedyjenks.com/cvsalts/
User Name: cvsalts Password: password

2.2 Conceptual Model of Water, Salt and Nitrate Sources and Interactions – Drawing on the Pilot Salt and Nitrate Source work, West Side Salt and Nitrate Study, BUOS Phase I and II and other sources of information, compile and organize existing information to develop missing information to prepare an initial conceptual model of water, salt and nitrate movement and interactions for the Central Valley Basins. This will be the basis of planning and evaluation of plans for salt control on a high level. This should be developed to use or be compatible with the GIS Tools developed in BUOS work. The documents which are completed are available on the CV-SALTS Website at http://cvsalinity.org/index.php/component/content/article/18-events/60-admin

2.3 Studies and data to support policy changes proposed in the final salt and nutrient management plans and the draft Basin Plan Amendment, as determined in discussions with the Executive Committee.

2.4 Economics Studies and Documentation – Based on the conceptual model and implementation planning, there is a need for study, evaluation and documentation of the economic costs and benefits as well as societal impacts of current regulation, future regulation and proposed program of implementation. Draft work may be needed during the development of 3.2.

2.5 CEQA Equivalent Documentation - To be determined during 3.2
3.0 Central Valley Salt and Nitrate Management Plan

This area of scope will bring together the policy elements developed in the Program Management and Facilitation scope with the technical studies that detail and demonstrate the plan of implementation into a complete Salt and Nitrate Management Plan (SNMP) that is robust enough to support a basin plan amendment. The SNMP must clearly support the policy objectives, beneficial uses, water quality objectives, implementation, and other elements proposed in the draft Basin Plan amendment. The SNMP must at a minimum satisfy the requirements of the Recycled Water Policy with augmentation as directed by the Executive Committee. For the implementation component, the Program Manager and the Technical Project Manager will work with stakeholders to develop and document their actions and the results of those actions to control salts and nitrate. These actions and elements of the policy changes and requirements, monitoring and other program requirements (adaptive management, future implementation and etc.) will be integrated at within the Program of Implementation. Elements of the Program of Implementation will be used in the development of the Basin Plan Implementation Section or incorporated by reference.

3.1 Description of major efforts, changes and impacts
3.2 Integration of regional and valley wide efforts and expected results
3.3 POI Draft document preparation support
3.4 POI Final document preparation support

4.0 Basin Plan Amendment Draft Document Development (Based on final SNMP)

4.1 Policy Development – initially occurs in the facilitation section and will proceed to development and approval by Executive Committee. At the completion this will be incorporated and documented in draft basin plan language.
4.2 Technical and Document Production – Technical efforts and document management and production will be required to assemble the document for incorporation into the basin plan. This effort and other preparation and documentation would be included in this section.
ATTACHMENT B

Explanation of CV-SALTS Program and Roles of Various Groups

The earlier sections detail the activities and role of the TPM. This section briefly describes the role of the other groups or functions within CV-SALTS. An organization chart is shown following the descriptions.

Executive Committee of CV-SALTS – is the programmatic Management Committee of the CV-SALTS initiative. They provide oversight of all committees and consultant work products to ensure review and policy acceptance. Committee has final authority in approval of scope, services and acceptance of products. The Committee Directs the Program Manager and Policy Facilitator.

Program Manager – Provides overall program management and prime contract for administration, coordination and facilitation. Under the direction of the Executive Committee provides coordination, program definition and integration of policy, outreach and technical activities supported by the TPM.

Policy Facilitator – Working under the Program Management contract develops and facilitates agreement on the policy issues and requirements to be developed for the basin plan

Technical and Economic Committees – Committee under the direction of the Executive Committee plans and manages technical studies and provides direction and reviews technical work making recommendations to the Executive Committee. Including the Management Practice Subcommittee, Knowledge Gained Subcommittee and others named by the Technical and Economic Committees.

Central Valley Salinity Coalition – The Coalition is the organizing entity for the Stakeholders to provide funding and coordinate stakeholder issues for CV-SALTS. Many Coalition Board Members are members of the Executive Committee.

Regional Water Board – The Regional Water Board composed of appointed members who participate in meetings but have a primary responsibility for consideration and approval of the basin plan amendments when proposed. The Regional Board is a member of the MOA for CV-SALTS.

Regional Water Board Staff – Under direction of the Regional Board, participate as active stakeholders and provide oversight and feedback on efforts developed and coordination with other state agencies. The Regional Board is a member of the Executive Committee.

State Water Board – The Board is a member of the MOA for CV-SALTS and is a primary source of funding for the CV-SALTS efforts. Their primary responsibility will be for consideration and approval of the final basin plan when approved by the Regional Water Board.

State Board Staff – Participate as representative members of the MOA members to assist in coordination of State Board Issues and as a participant and member of the Executive Committee.

US EPA – The EPA should be represented as a participant in CV-SALTS and would have the role of coordination with their internal programs and with other federal agencies. Their primary responsibility will be for consideration and approval of the final basin plan amendment following approval by the State Water Board and Office of Administrative Law.

SJVDA – The Authority is a member of the Coalition and has also volunteered to act as contracting agent for State Board Cleanup and Abatement Funding for CV-SALTS.
SAN JOAQUIN VALLEY DRAINAGE AUTHORITY

AGREEMENT FOR PROFESSIONAL SERVICES

THIS AGREEMENT, effective __________, 20010 between the San Joaquin Valley Drainage Authority, hereinafter referred to as "Drainage Authority" or "SJVDA" and __________________________, hereinafter referred to as "Contractor" or "Contractor Name".

The Drainage Authority requires services for the projects to implement the Central Valley Salinity Alternatives for Long-term Sustainability (CV-Salts), a stakeholder initiative being conducted by the Central Valley Water Board (Regional Board) and the Central Valley Salinity Coalition (Coalition) in conjunction with the State Water Resources Control Board (State Water Board); and the Contractor is willing to perform these services pursuant to the terms and conditions set out in this Agreement.

IT IS MUTUALLY AGREED, as follows:

1. PURPOSE OF CONTRACT

   The Drainage Authority is entering into this Agreement with Contractor in order to obtain professional services required to fulfill Contractor’s obligations under Agreement No. 09-076-150 (Agreement) between the San Joaquin Valley Drainage Authority and the State Water Resources Control Board (SWRCB), a complete copy of which is attached as Appendix 1 to this Agreement.

2. SCOPE OF SERVICES

   The Drainage Authority hereby engages the Contractor, and the Contractor agrees to perform the services for the San Joaquin Valley Drainage Authority, as described in Exhibit A, which is incorporated by reference herein. The Contractor has been identified as a subcontractor of the Drainage Authority, and the Contractor’s services have been described and budgeted in Appendix 1. Contractor shall perform and coordinate work with the Drainage Authority so that the master Agreement can be completed.

   A. Modification of Scope of Services Any change in the Scope of the Professional Services to be done, method of performance, nature of materials or price thereof, or to any other matter materially affecting the performance of nature of the professional services will not be paid for or accepted unless such change, addition or deletion be approved in advance, in writing, by the Drainage Authority.

   B. Contractor’s Subcontracts The Contractor shall not enter into subcontracts for any
services work contemplated under this Agreement without the prior written consent of the Drainage Authority.

3. TERM OF AGREEMENT AND PERFORMANCE SCHEDULE

This Agreement shall become effective as of the effective date on page 1. Contractor shall perform the services specified under this Agreement between ______ and _______June 30, 2007, in accordance for the Performance Schedule set forth in Exhibit B, which is incorporated by reference herein, unless such Schedule is modified by mutual agreement, with the approval of the State Water Board, Central Valley Regional Contract Manager (Contract Manager). Neither party shall be liable for delays from causes beyond its control.

4. COMPENSATION AND METHOD OF PAYMENT

A. Amount Compensation for services shall be as described in Exhibit C, which is incorporated by reference herein, not to exceed $____________ for all work contemplated by this Agreement.

B. Payment Upon submission of an invoice by the Contractor, and upon approval by the Drainage Authority's representative, the Drainage Authority shall pay the Contractor within 14 days after payment is received by the Drainage Authority from the SWRCB for said invoice no more often than monthly for fees and allowed expenses incurred the prior month, up to the maximum amount provided for in paragraph 4 of this Agreement. Ten percent of any progress payment that may be provided under this agreement shall be withheld by the SWRCB pending satisfactory completion of the work under this agreement in accordance with Appendix 1. Satisfactory completion will require approval from the SWRCB Contract Manager.

5. CONTRACTOR’S PROFESSIONAL STATUS

A. Performance Standard The Contractor shall conduct all work consistent with the professional standards of the industry and type of work being performed under the Agreement.

B. Warranty The Drainage Authority has relied upon the professional ability and training of the Contractor as a material inducement to enter into this Agreement. The Contractor hereby warrants that all of its work will be performed in accordance with generally accepted professional practices and standards, as well as the requirements of applicable federal, state and local laws.

C. Professional Liability Insurance Contractor shall procure and/or maintain Professional Liability Insurance coverage for protection from claims arising out of performance of any professional services under this Agreement due to the Engineer’s professional negligent acts errors or omissions. Total liability under this provision shall not exceed the Contractor’s compensation for services.

6. INSURANCE
Contractor will file with the Drainage Authority before beginning professional services, certificates of insurance satisfactory to the Drainage Authority evidencing general liability coverage of not less than $1,000,000 per occurrence ($2,000,000 general aggregate) for bodily injury, personal injury and property damage; auto liability of at least $1,000,000 for bodily injury and property damage each accident limit; workers’ compensation (statutory limits); requiring 30 days (10 days for non-payment of premium) notice of cancellation to the Drainage Authority. Any insurance, self-insurance or other coverage maintained by the Drainage Authority, its directors, officers, employees, or authorized volunteers shall not contribute to it. Coverage is to be placed with a carrier with an A.M. Best rating of no less than A-:VII or as otherwise approved by the Drainage Authority. In the event that the Contractor employs other contractors (sub-consultants or sub-contractors) as part of the work covered by this Agreement, it shall be the Contractor’s responsibility to require and confirm that each sub-contractor meets the minimum insurance requirements specified above.

7. INDEMNIFICATION

Consultant hereby covenants and agrees that SJVDA, its officers, employees, and agents shall not be liable for any claims, liabilities, penalties, fines or any damage to property, whether real or personal, nor for any personal injury or death caused by, or resulting from, or claimed to have been caused by or resulting from, any act or omission or misconduct of Consultant. Consultant shall save and hold harmless, defend and indemnify SJVDA and its officers, employees, agents and volunteers from and against any and all liability, loss, damage, fines, penalties, expense and costs, including, without limitation, attorneys’ fees and litigation expenses and costs, of every nature arising out of or related to Consultant’s performance of the work required under this Agreement and any related Exhibit or Task Order or Consultant’s failure to comply with any of its obligations contained in this Agreement and any related Exhibit or Task Order, except such loss or damage which was caused by the active negligence or willful misconduct of SJVDA. If requested by any of the indemnities, Consultant will defend any such suits at their sole cost and expense. Consultant’s obligations under this section shall exist regardless of concurrent active negligence or willful misconduct on the part of SJVDA or any other person, SJVDA’s obligation to indemnify and defend shall be limited to the proportion of active negligence or willful misconduct attributable to SJVDA, their sub consultants or any person under the direction or control of SJVDA.

8. GENERAL CONDITIONS

The Contractor agrees to comply with the Standard Conditions described in Exhibit D to this Agreement, said Exhibit D being incorporated by reference herein.

9. SPECIAL CONDITIONS

The Contractor agrees to comply with the Special Conditions described in Exhibit E to this Agreement, said Exhibit E being incorporated by reference herein.

10. COMPLIANCE WITH LAW
The Contractor shall be subject to and comply with all federal, state and local laws and regulations applicable with respect to its performance under this Agreement, including but not limited to, employment and purchasing practices; wages, hours and conditions of employment; and licensing and permit requirements.

11. TERMINATION

This Agreement may be terminated by the Drainage Authority for cause as specified in Exhibit D, General Conditions 7, and may be terminated by the Drainage Authority at any time, without cause, upon written notification to the Contractor. The Contractor may terminate this Agreement upon 60 days written notice to the Drainage Authority.

Subject to the provisions of Exhibit D, General Conditions 7, following termination by the Drainage Authority or the Contractor, the Contractor shall be reimbursed for all invoices due and payable and other expenditures made in good faith in accordance with the terms of this Agreement that are unpaid at the time of termination.

12. REPRESENTATION & NOTICE

A. Joseph C. McGahan is the SJVDA Project Manager. Unless this Agreement or a written notice to the Contractor provides to the contrary, the SJVDA Project Manager is the representative of the Drainage Authority authorized to execute agreements, issue approvals, and take all actions required to implement this Agreement, except that all payments shall be issued by the Drainage Authority’s Accounting Department. Contractor shall submit all reports, invoices and other items required by this Agreement to the SJVDA Project Manager.

B. The Contractor’s designated representative for purposes of this contract is ______________________.

C. Any notice provided for herein are necessary to the performance of this Agreement and shall be given in writing by personal delivery or by prepaid first-class mail addressed as follows:

<table>
<thead>
<tr>
<th>DRAINAGE AUTHORITY</th>
<th>CONTRACTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joseph C. McGahan</td>
<td></td>
</tr>
<tr>
<td>SJVDA Project Manager</td>
<td></td>
</tr>
<tr>
<td>San Joaquin Valley Drainage Authority</td>
<td></td>
</tr>
<tr>
<td>P. O. Box 1122</td>
<td></td>
</tr>
<tr>
<td>887 N. Irwin Street</td>
<td></td>
</tr>
<tr>
<td>Hanford, CA 93232</td>
<td></td>
</tr>
<tr>
<td>559-582-9237 Phone</td>
<td></td>
</tr>
<tr>
<td>559-582-7632 Fax</td>
<td></td>
</tr>
<tr>
<td><a href="mailto:jmcmahan@summerseng.com">jmcmahan@summerseng.com</a></td>
<td></td>
</tr>
</tbody>
</table>

13. INTERPRETATION OF DOCUMENTS
A. Abbreviations and acronyms not expressly spelled out in this Agreement shall be called to attention of the Project Manager for clarification.

B. In the event any provision of this Agreement conflicts with terms contained in Appendix 1, the terms of this Agreement shall prevail over conflicting terms in Appendix 1.

14. AGREEMENT BINDING

This Agreement binds and is for the benefit of the parties and their respective heirs, successors, assigns and representatives.

15. HEADINGS

The titles of sections of this Agreement are for convenience only and no presumption or implication of the intent of the parties as to the construction of this Agreement shall be drawn therefrom.

16. CONFLICTS OF INTEREST

Contractor shall comply with all applicable State laws and rules pertaining to conflict of interest, including, but not limited to, Government Code section 1090, Government Code section 81000 et seq. (Political Reform Act), and Public Contract Code sections 10410 and 10411. Contractor certifies that its employees and the officers of its governing body shall avoid any actual or potential conflicts of interest and that no officer or employee who exercises any functions or responsibilities in connection with this Agreement shall have any personal financial interest or benefit which either directly or indirectly arises from this Agreement. Contractor shall establish safeguards to prohibit its employees or its officers from using their positions for a purpose which could result in private gain or which gives the actual appearance of being motivated for private gain for themselves or others, particularly those with whom they have family, business, or other ties.

The parties have executed this Agreement the day and year first above written. If the Contractor is a corporation, documentation must be provided that the person signing below for the Contractor has the authority to do so.

San Joaquin Valley Drainage Authority

Contractor: ________________________

By: ______________________________

Joseph C. McGahan

SJVDA Project Manager

Date: ____________________________

By: ______________________________

Date: ______________________________
EXHIBIT D – GENERAL CONDITIONS
(Use Exhibit C from Master Agreement 09-076-150)
1. **Contract Amendments**

   Should either party, during the term of this agreement, desire a change or amendment to the terms of this Agreement, such changes or amendments shall be proposed in writing to the other party, who will respond in writing as to whether the proposed changes/amendments are accepted or rejected. If accepted and after negotiations are concluded, the agreed upon changes shall be made through the State's official agreement amendment process. No amendment will be considered binding on either party until it is formally approved by the State.

2. **Cancellation / Termination**

   A. This agreement may be cancelled or terminated without cause by either party by giving thirty (30) calendar days advance written notice to the other party. Such notification shall state the effective date of termination or cancellation and include any final performance and/or payment/invoicing instructions/requirements.

   B. Upon receipt of a notice of termination or cancellation from the State Water Board, San Joaquin Valley Drainage Authority shall take immediate steps to stop performance and to cancel or reduce subsequent contract costs.

   C. San Joaquin Valley Drainage Authority shall be entitled to payment for all allowable costs authorized under this agreement, including authorized non-cancelable obligations incurred up to the date of termination or cancellation, provided such expenses do not exceed the stated maximum amounts payable.

3. **Dispute Resolution Process**

   If San Joaquin Valley Drainage Authority believes there is a dispute or grievance between San Joaquin Valley Drainage Authority and the State Water Board, both parties shall follow the two-step procedure outlined below.

   A. San Joaquin Valley Drainage Authority should first discuss the problem informally with the State Water Board program contract manager. If the problem cannot be resolved at this stage, San Joaquin Valley Drainage Authority must direct the grievance together with any evidence, in writing, to the program Section Chief. The grievance must state the issues in dispute, the legal authority or other basis for San Joaquin Valley Drainage Authority position and the remedy sought. The Section Chief must make a determination on the problem within ten (10) working days after receipt of the written communication from San Joaquin Valley Drainage Authority. The Section Chief shall respond in writing to San Joaquin Valley Drainage Authority indicating the decision and reasons therefore. Should San Joaquin Valley Drainage Authority disagree with the Section Chief’s decision, San Joaquin Valley Drainage Authority may appeal to the second level.
B. San Joaquin Valley Drainage Authority must prepare a letter indicting why the Section Chief’s decision is unacceptable, attaching to it San Joaquin Valley Drainage Authority original statement of the dispute with supporting documents along with a copy of the Section Chief’s response. This letter shall be sent to the Division Chief of the division in which the section is organized within ten (10) working days from receipt of the Section Chief’s decision. The Division Chief or designee shall meet with San Joaquin Valley Drainage Authority to review the issues raised. A written decision signed by the Division Chief or designee shall be returned to San Joaquin Valley Drainage Authority within twenty (20) working days of receipt of San Joaquin Valley Drainage Authority’s letter.

4. **Audit and Record Retention**

A. The Contractor and/or Subcontractor shall maintain books, records, documents, and other evidence, accounting procedures, and practices, sufficient to properly reflect all direct and indirect costs of whatever nature claimed to have been incurred in the performance of this agreement, including any matching costs and expenses. The foregoing constitutes "records" for the purposes of this provision.

B. The Contractor's and/or Subcontractor's facility or office or such part thereof as may be engaged in the performance of this agreement and his/her records shall be subject at all reasonable times to inspection, audit, and reproduction.

C. Contractor agrees that the State Water Board, the Department of General Services, the Bureau of State Audits, or their designated representatives shall have the right to review and to copy any records and supporting documentation pertaining to the performance of this agreement. Contractor agrees to allow the auditor(s) access to such records during normal business hours and to allow interviews of any employees who might reasonably have information related to such records. Further, the Contractor agrees to include a similar right of the State to audit records and interview staff in any subcontract related to performance of this agreement. (GC 8546.7, CCR Title 2, Section 1896).

D. The Contractor and/or Subcontractor shall preserve and make available his/her records (1) for a period of three years from the date of final payment under this agreement, and (2) for such longer period, if any, as is required by applicable statute, by any other provision of this agreement, or by subparagraphs (1) or (2) below.

1) If this agreement is completely or partially terminated, the records relating to the work terminated shall be preserved and made available for a period of three years from the date of any resulting final settlement.
2) If any litigation, claim, negotiation, audit, or other action involving the
records has been started before the expiration of the three-year period, the records shall be retained until completion of the action and resolution of all issues which arise from it, or until the end of the regular three-year period, whichever is later.

E. The Contractor and/or Subcontractor shall comply with the above requirements and be aware of the penalties for violations of fraud and for obstruction of investigation as set forth in Public Contract Code § 10115.10, if applicable.

F. The Contractor and/or Subcontractor may, at its discretion, following receipt of final payment under this agreement, reduce its accounts, books and records related to this agreement to microfilm, computer disk, CD ROM, or other data storage medium. Upon request by an authorized representative to inspect, audit or obtain copies of said records, the Contractor and/or subcontractor must supply or make available applicable devices, hardware, and/or software necessary to view, copy and/or print said records. Applicable devices may include, but are not limited to, microfilm readers and microfilm printers, etc.

5. Performance Evaluation

A. The Contractor’s performance under this agreement shall be evaluated at the conclusion of the term of this agreement. The evaluation shall include, but not be limited to:

1) Whether the contracted work or services were completed as specified in the agreement and reasons for and amount of any cost overruns.
2) Whether the contracted work or services met the quality standards specified in the agreement.
3) Whether the Contractor fulfilled all requirements of the agreement.
4) Factors outside the control of the Contractor, which caused difficulties in contractor performance. Factors outside the control of the Contractor shall not include a Subcontractor’s poor performance.

B. The evaluation of the Contractor shall not be a public record.

6. Progress Reports or Meetings

A. Contractor shall submit progress reports or attend meetings with state personnel at intervals determined by SWRCB to determine if the Contractor is on the right track, whether the project is on schedule, provide communication of interim findings, and afford occasions for airing difficulties or special problems encountered so that remedies can be developed quickly.

B. At the conclusion of this agreement and if applicable, Contractor shall hold a final meeting at which Contractor shall present any findings, conclusions, and
recommendations. If required by this agreement, Contractor shall submit a comprehensive final report by the date specified.

7. **Freeze Exemptions**

A. Contractor agrees that any hiring freeze adopted during the term of this contract shall not be applied to the positions funded, in whole or part, by this contract.

B. Contractor agrees not to implement any personnel policy, which may adversely affect performance or the positions funded, in whole or part, by this contract.

C. Contractor agrees that any travel freeze or travel limitation policy adopted during the term of this contract shall not restrict travel funded, in whole or part, by this contract.

D. Contractor agrees that any purchasing freeze or purchase limitation policy adopted during the term of this contract shall not restrict or limit purchases funded, in whole or part, by this contract.

8. **Avoidance of Conflicts of Interest by Contractor**

A. SWRCB intends to avoid any real or apparent conflict of interest on the part of the Contractor, subcontractors, or employees, officers and directors of the Contractor or subcontractors. Thus, SWRCB reserves the right to determine, at its sole discretion, whether any information, assertion or claim received from any source indicates the existence of a real or apparent conflict of interest; and, if a conflict is found to exist, to require the Contractor to submit additional information or a plan for resolving the conflict, subject to SWRCB review and prior approval.

B. Conflicts of interest include, but are not limited to:

1) An instance where the Contractor or any of its subcontractors, or any employee, officer, or director of the Contractor or any subcontractor has an interest, financial or otherwise, whereby the use or disclosure of information obtained while performing services under the contract would allow for private or personal benefit or for any purpose that is contrary to the goals and objectives of the contract.

2) An instance where the Contractor’s or any subcontractor’s employees, officers, or directors use their positions for purposes that are, or give the appearance of being, motivated by a desire for private gain for themselves or others, such as those with whom they have family, business or other ties.
C. If SWRCB is or becomes aware of a known or suspected conflict of interest, the Contractor will be given an opportunity to submit additional information or to resolve the conflict. A Contractor with a suspected conflict of interest will have five (5) working days from the date of notification of the conflict by SWRCB to provide complete information regarding the suspected conflict. If a conflict of interest is determined to exist by SWRCB and cannot be resolved to the satisfaction of SWRCB, the conflict will be grounds for terminating the contract. SWRCB may, at its discretion upon receipt of a written request from the Contractor, authorize an extension of the timeline indicated herein.

9. Force Majeure

Except for defaults of subcontractors, neither party shall be responsible for delays or failures in performance resulting from acts beyond the control of the offending party. Such acts shall include but shall not be limited to acts of God, fire, flood, earthquake, other natural disaster, nuclear accident, strike, lockout, riot, freight embargo, public regulated utility, or governmental statutes or regulations superimposed after the fact.
Appendix 1
Agreement No. 09-076-150 (Agreement) between the San Joaquin Valley Drainage Authority and the State Water Resources Control Board (SWRCB)
STATE OF CALIFORNIA  
STANDARD AGREEMENT  
STD 213 (Rev 06/03)  

AGREEMENT NUMBER  
09-076-160  

REGISTRATION NUMBER  

1. This Agreement is entered into between the State Agency and the Contractor named below:  

STATE AGENCY'S NAME:  (Also referred to as SWRCB or the State)  
State Water Resources Control Board  

CONTRACTOR'S NAME:  (Also referred to as Contractor)  
San Joaquin Valley Drainage Authority  

2. The term of this Agreement is:  

Upon DAS' Approval through January 31, 2012  

3. The maximum amount of this Agreement is:  

$1,200,000 One Million Two Hundred Thousand Dollars.  

4. The parties agree to comply with the terms and conditions of the following exhibits, which are by this reference made a part of the Agreement.  

- Exhibit A – Scope of Work  
- Exhibit B – Budget Detail and Payment Provisions  
- Exhibit B, Attachment I – Budget  
- Exhibit C* – General Terms and Conditions  
- Exhibit D – Additional Provisions  
- Exhibit E – Travel Reimbursement Information  

5 pages  
6 pages  
1 page  
GTC 307  
6 pages  
2 pages  

Items shown with an Asterisk (*) are hereby incorporated by reference and made part of this agreement as if attached hereto.  
These documents can be viewed at www.ois.dgs.ca.gov/Standard+Language  

IN WITNESS WHEREOF, this Agreement has been executed by the parties hereto.  

CONTRACTOR  
San Joaquin Valley Drainage Authority  

DATE SIGNED (Do not type)  
12.30.09  

PRINTED NAME AND TITLE OF PERSON SIGNING  
Daniel G. Nelson, Executive Director  

ADDRESS  
887 N. Irwin Street, P.O. Box 1122  
Hanford, CA 93232  

STATE OF CALIFORNIA  

AGENCY NAME  
State Water Resources Control Board  

DATE SIGNED (Do not type)  
1.6.10  

PRINTED NAME AND TITLE OF PERSON SIGNING  
Esteban Almanza, Deputy Director, Division of Administrative Services  

ADDRESS  
1001 I Street, 18th Floor, Sacramento, CA 95814  

California Department of General Services Use Only  

Exempt per:  
Water Code Section 1330.6.(2)
1. Overview

The San Joaquin Valley Drainage Authority (SJVDA) will provide contracting and contract administration services for projects to implement the Central Valley Salinity Alternatives for Long-term Sustainability (CV-SALTS), a stakeholder initiative being conducted by the Central Valley Water Board (Regional Board) and the Central Valley Salinity Coalition (Coalition) in conjunction with the State Water Resources Control Board (State Water Board).

2. Project Representatives

A. The project representatives during the term of this Agreement will be:

<table>
<thead>
<tr>
<th>State Water Board, Central Valley Region</th>
<th>San Joaquin Valley Drainage Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rudy Schnabl, Contract Manager</td>
<td>Name: Dan Nelson, Project Director</td>
</tr>
<tr>
<td>Phone: (916) 464-4701</td>
<td>Phone: (209) 826-9696</td>
</tr>
<tr>
<td>Fax: (916) 464-4600</td>
<td>Fax: (209) 826-9698</td>
</tr>
<tr>
<td>E-mail: <a href="mailto:rschnabl@waterboards.ca.gov">rschnabl@waterboards.ca.gov</a></td>
<td>E-mail: <a href="mailto:dan.nelson@sfwmwa.org">dan.nelson@sfwmwa.org</a></td>
</tr>
</tbody>
</table>

B. Direct all inquiries to:

<table>
<thead>
<tr>
<th>State Water Resources Control Board Central Valley Region</th>
<th>San Joaquin Valley Drainage Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention: Linda Bracamonte</td>
<td>Attention: Joseph McGahan</td>
</tr>
<tr>
<td>11020 Sun Center Drive, Suite 200</td>
<td>Summers Engineering, Inc.</td>
</tr>
<tr>
<td>Rancho Cordova, CA 95670-6114</td>
<td>887 N. Irwin St., P.O. Box 1122</td>
</tr>
<tr>
<td></td>
<td>Hanford, CA 93232</td>
</tr>
<tr>
<td>Phone: (916) 464-4620</td>
<td>Phone: (559) 582-9237</td>
</tr>
<tr>
<td>Fax: (916) 464-4600</td>
<td>Fax: (559) 582-7632</td>
</tr>
<tr>
<td>E-mail: <a href="mailto:lbracamonte@waterboards.ca.gov">lbracamonte@waterboards.ca.gov</a></td>
<td>E-mail: <a href="mailto:JMcGahan@Summerseng.com">JMcGahan@Summerseng.com</a></td>
</tr>
</tbody>
</table>

C. Either party may make changes to the information above by giving written notice to the other party. Said changes shall not require an amendment to this agreement.
3. Background

A. The State Water Board and the Regional Board have identified salinity as a major, widespread growing threat to maintaining the beneficial uses of surface water and groundwater in the Central Valley. Salinity and nitrate from past and current sources impair beneficial uses of waters throughout the basin and result in pollution of drinking water sources for some communities in the Central Valley. While there are salinity regulatory controls in place, a much more comprehensive approach is needed to effect regional change, including the development of Basin Plan amendments and involvement of the many stakeholders that use Central Valley waters.

B. The Regional Board and the State Water Board have concluded that as the surface water and groundwater supplies of the Central Valley become intensely used and as wastewater streams become more concentrated, salinity and nitrate impairments are being discovered with greater frequency. The Regional Board and the State Water Board have initiated a comprehensive effort to address salinity problems in California’s Central Valley and adopt long-term solutions that will lead to enhanced water quality and economic sustainability. Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) is an effort to develop and implement a comprehensive salinity/nutrient management program. The goal of CV-SALTS is to maintain a healthy environment and a good quality of life for all Californians by protecting our most essential and vulnerable resource, water.

C. The State Water Board and the Regional Board established a Central Valley Salinity Advisory Group (known today as the Central Valley Salinity Leadership Group) in 2006 to take the lead in the CV-SALTS effort, and committees (CV-SALTS Committees) of this group have been meeting ever since.

D. The Central Valley Salinity Coalition (Coalition) is an organization formed under Internal Revenue Code Section 501(c)(6) for purposes of seeking supplemental funding from non-State parties for the Study and for assisting in the administration of CV-SALTS efforts. The Coalition has entered into a Memorandum of Agreement with the Regional Board and the State Water Board for CV-SALTS. Standing Rules have been approved to document the roles of the State Water Board, Regional Board, CV-SALTS Committees and Coalition.
E. The San Joaquin Valley Drainage Authority (SJVDA) is a joint powers agency organized pursuant to the California Government Code Section 6500 et seq., comprised of 12 member local agencies for the purpose, among others, to identify and implement feasible regional long-term solutions to drainage issues affecting irrigated agricultural lands in the San Joaquin Valley, either along or together with the State of California and/or the United States. The SJVDA is a member of the Coalition and an active participant in the CV-SALTS initiative.

F. On March 17, 2009 the State Water Board adopted Resolution No. 2009-0023, which approves the use of $1.2 million in Cleanup and Abatement Account funding for the development of a salinity and nitrate management plan for the Central Valley (the State Board CV-SALTS Fund). Specifically, the funding was allocated for a Salinity and Nitrate Objective and Beneficial Use Study (Study), which will establish a model using existing, reliable, and usable data from areas and water bodies within the Central Valley. The expectation is that this model can then be used to establish beneficial uses and objectives for areas where little or no data exist. The Study will be implemented through multiple projects. Match funding for proposed projects is expected to be developed through the Coalition to augment the State Board CV-SALTS Fund for the Study.

4. Services to be Performed

A. Project Selection

1) With input from CV-SALTS Committees, the State Water Board/Regional Board Contract Manager will identify and prioritize specific projects that will be conducted to complete the Study and will prepare a detailed scope of work, including a description of the expected tasks for such project, budgets, schedule, and deliverables, such as report requirements (the Scope of Work) for each project proposed for funding.

2) The State Water Board/Regional Board Contract Manager will also ask the CV-SALTS Executive Committee to: i) review and comment on the Scope of Work for each proposed project; ii) advise as to whether the Scope of Work is final; iii) recommend projects for funding from the State Board C-V SALTS Fund; iv) designate the CV-SALTS Committee with primary review responsibility; and v) advise as to whether or not matching funds are available for the project. Information provided by
Exhibit A
Scope of Work

the CV-SALTS Executive Committee will be compiled by the State
Water Board/Regional Board Contract Manager and provided to the
SJVDA with the notice to proceed.

4) The State Water Board/Regional Board Contract Manager shall
provide the SJVDA with a notice to proceed together with the Scope of
Work and any appropriate supporting documents for each approved
project.

B. Matching Funds

One goal of the CV-SALTS effort is to raise funds and conduct projects
that support the development of a Salinity and Nitrate Management Plan
for the Central Valley. The SJVDA may use State Board CV-SALT funds
and funding from other sources to subcontract work related to the Study.
When this occurs, the subcontract will clearly state which work products
are paid for by State Board CV-SALT funds.

C. Contracts and Administration

1) Promptly upon receipt of the notice to proceed from the State Water
Board/Regional Board Contract Manager, the SJVDA will implement a
process to solicit services to implement the approved project.

   a) Because the work for the Study will consist primarily of scientific
investigations, data collection and modeling and will not include
public works construction, the SJVDA will develop appropriate
packages and request proposals in accordance with the
requirements of Section 3.06 of the State Contracting Manual.

b) Prior to the award of a subcontract for any approved project, the
SJVDA shall submit the proposed subcontract for approval by the
State Water Board/Regional Board Contract Manager.

2) The SJVDA shall provide oversight and management of the projects,
including, but not limited to the following:

   a) All projects must include a process for providing progress reports
and draft reports to the State Water Board/Regional Board Contract
Manager and appropriate CV-SALTS committees, allowing time for
development of comments by these parties, and for responding to
the comments received.
b) For projects with match funding, SJVDA shall ensure that projects include measures to verify i) that information included in the proposals describes the tasks to be funded with State Board CV-SALTS Funds and separately describes the additional or augmented tasks to be accomplished with match funds; and ii) that match funding is available in the amount described in the approved project prior to the start of work performed under the subcontract.

c) The SJVDA will prepare and submit quarterly reports describing work completed during the quarter and invoices as described in Exhibit B of this contract; no work performed prior to the approval of State Board Resolution 2009-023 is eligible for reimbursement and funds expended prior to that date shall be considered match funds of any project approved prior to that date.

d) Five hard copies and one electronic copy of each of the final project reports prepared under this contract will be submitted to the State Water Board/Regional Board Contract Manager. Final payment will not be made until the reports are received and accepted by the State Water Board/Regional Board Contract Manager.

e) The SJVDA will prepare and submit a final report summarizing all work completed under this contract.

5. Deliverables

<table>
<thead>
<tr>
<th>Deliverable</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quarterly reports describing work completed during the quarter and invoices</td>
<td>30 days following calendar quarter</td>
</tr>
<tr>
<td>Final individual project reports</td>
<td>As approved by Contract Manager but no later than 15 September 2011</td>
</tr>
<tr>
<td>Draft overall final report</td>
<td>As approved by Contract Manager but no later than 15 September 2011</td>
</tr>
<tr>
<td>Final report and final invoice</td>
<td>1 December 2011</td>
</tr>
</tbody>
</table>
Exhibit B
Budget Detail and Payment Provisions

1. Invoicing

A. For services satisfactorily rendered, and upon receipt and approval of the invoices, the State agrees to compensate the Contractor for actual expenditures incurred in accordance with the budget(s) attached hereto.

B. Invoices shall include the Agreement Number and shall be submitted in triplicate not more frequently than monthly in arrears to:

Rudy Schnagl  
State Water Resources Control Board  
California Regional Water Quality Control Board  
Central Valley Region  
11020 Sun Center Drive, Suite 200  
Rancho Cordova, CA 95670-6114

C. Invoices shall:

1) Be prepared on agency letterhead. If invoices are not on produced letterhead, invoices must be signed by an authorized official, employee, or agent certifying that the expenditures claimed represent actual expenses for the service performed under this contract.

2) Bear the Contractor’s name as shown on the agreement.

3) Itemize the billing and/or performance period covered by the invoice.

4) Itemize costs for the billing period in the same or greater level of detail as indicated in this agreement. Only those costs and/or cost categories expressly identified as allowable in this agreement may be reimbursed.

2. Progress Payment Withholds

A. Progress payments shall not be made more frequently than monthly in arrears or at clearly identifiable stages of progress, based upon written progress reports submitted with contractor’s invoices. In the aggregate, progress payments shall not exceed Ninety percent (90%) of the total agreement amount, regardless of agreement length.

B. Ten percent (10%) shall be withheld by the State Water Board from each invoice submitted for reimbursement, under the following conditions:

1) For services and costs associated with contractor and/or subcontractor performance that is considered to be of an ongoing nature or performed continuously throughout the term of the agreement.
Exhibit B
Budget Detail and Payment Provisions

2) For individual services associated with a specific agreement deliverable that has not yet been received or completed in its entirety.

3) For individual and/or distinct tasks, work plans, or project activities that have not yet been completed in their entirety.

C. Release of Amounts Withheld: As individual and/or distinct task, services, work plans, or project activities are completed in their entirety by either the Contractor or Subcontractor and any scheduled/required deliverables or reports are delivered to the State Water Board; then any funds so withheld may be released to the Contractor upon acceptance and/or acknowledgement that all such items have been completed to the full satisfaction of the State Water Board.

3. Budget Contingency Clause

A. It is mutually agreed that if the Budget Act of the current year and/or any subsequent years covered under this Agreement does not appropriate sufficient funds for the program, this Agreement shall be of no further force and effect. In this event, the State shall have no liability to pay any funds whatsoever to Contractor or to furnish any other considerations under this Agreement and Contractor shall not be obligated to perform any provisions of this Agreement.

B. If funding for any fiscal year is reduced or deleted by the Budget Act for purposes of this program, the State shall have the option to either cancel this Agreement with no liability occurring to the State, or offer an agreement amendment to Contractor to reflect the reduced amount.

4. Amounts Payable

A. The amounts payable under this agreement shall not exceed:

1) $1,200,000 from the date of Division of Administrative Services (DAS) approval through January 31, 2012.

B. Reimbursement shall be made for allowable expenses up to the amount annually encumbered commensurate with the state fiscal year in which services are performed and/or goods are received.
5. Recovery of Overpayments

A. SJVDA agrees that claims based upon a contractual agreement or an audit finding and/or an audit finding that is appealed and upheld, will be recovered by the State Water Board via one of the following options:

1) SJVDA remittance to the State Water Board of the full amount of the audit exception within 30 days following the State Water Board’s request for repayment;

2) Repayment schedule which is agreeable to both the State Water Board and SJVDA.

B. The State Water Board reserves the right to select the recovery option that will be employed and the SJVDA will be notified by the State Water Board in writing of the claim procedure to be utilized.

C. Interest on the unpaid balance of the audit finding or debt will accrue at a rate equal to the monthly average of the rate received on investments in the Pooled Money Investment Fund commencing on the date that an audit or examination finding is mailed to the SJVDA, beginning 30 days after SJVDA receipt of the State Water Board’s demand for repayment.

D. If the SJVDA has filed a valid appeal to the State Water Board regarding the report of audit findings, recovery of the overpayments will be deferred until a final administrative decision on the appeal has been reached. If SJVDA loses the final administrative appeal, SJVDA shall repay, to the State Water Board, the over-claimed or disallowed expenses, plus accrued interest. Interest accrues from the SJVDA first receipt of the State Water Board’s notice requesting reimbursement of questioned audit costs or disallowed expenses.

6. Budget Flexibility Clause

A. Subject to the prior review and approval of the contract manager, line items shifts of up to $25,000 or 10% of the annual contract total, whichever is less, may be made up to a cumulative maximum of $25,000 or 10%, whichever is less, for all line items shifts over the life of the contract.

B. There must be a substantial business justification for any shifts made. Fund shifts which increase Indirect, Overhead or General Expense line items are prohibited.
Exhibit B
Budget Detail and Payment Provisions

C. Line item shifts may be proposed/requested by either the State Water Board or the Contractor in writing and must not increase or decrease the total contract amount allocated. Any line item shifts must be approved in writing by the Deputy Director of (managing division), or his/her designee, and must be sent to Contract Office within 10 days of approval for inclusion in the contract folder.

D. If the contract is formally amended, any line item shifts agreed to by the parties must be included in the amendment.

7. Expense Allowability / Fiscal Documentation

A. Invoices, received from a Contractor and accepted and/or submitted for payment by the State, shall not be deemed evidence of allowable agreement costs.

B. Contractor shall maintain for review and audit and supply to the State Water Board upon request, adequate documentation of all expenses claimed pursuant to this agreement to permit a determination of expense allowability.

C. If the allowability or appropriateness of an expense cannot be determined by the State because invoice detail, fiscal records, or backup documentation is nonexistent or inadequate according to generally accepted accounting principles or practices, all questionable costs may be disallowed and payment may be withheld by the State. Upon receipt of adequate documentation supporting a disallowed or questionable expense, reimbursement may resume for the amount substantiated and deemed allowable.

D. Costs and/or expenses deemed unallowable are subject to recovery by the State Water Board. See provision 5 in this exhibit entitled, “Recovery of Overpayments” for more information.

8. Timely Submission of Final Invoice

A. A final undisputed invoice shall be submitted for payment no later than December 1, 2011 unless a later or alternate deadline is agreed to in writing by the program contract manager. Said invoice should be clearly marked “Final invoice”, thus indicating that all payment obligations of the State under this agreement have ceased and that no further payments are due or outstanding.

B. The State may, at its discretion, choose not to honor any delinquent final invoice if the Contractor fails to obtain prior written State approval of an alternate final invoices submission deadline. Written State approval shall be
sought from the program contract manager prior to the expiration or termination date of this agreement.

9. **Travel and Per Diem Reimbursement**

Reimbursement for travel and per diem expenses from SWRCB under this agreement shall, unless otherwise specified in this agreement, be at the rates currently in effect, as established by the California Department of Personnel Administration (DPA), for non-represented State employees as stipulated in SWRCB Travel Reimbursement Information Exhibit. If the DPA rates change during the term of the agreement the new rates shall apply upon their effective date and no amendment to this agreement shall be necessary. Exceptions to DPA rates may be approved by SWRCB upon the submission of a statement by the Contractor indicating that such rates are not available to the Contractor. No travel outside the State of California shall be reimbursed without prior authorization from SWRCB. Verbal authorization should be confirmed in writing. Written authorization may be in a form including fax or e-mail confirmation.

10. **Subcontracting Requirements**

As a requirement of this Agreement (and any amendments thereto), subcontracting is limited to $50,000 or 25% of the total contract, whichever is less. If the total of all subcontracts exceeds the limitation, all subcontracts must be in accordance with the following conditions:

A. Subcontract service(s) must be selected by the primary contractor pursuant to a bidding process requiring at least three bids from responsible bidders. A bidding process is not a required when a subcontractor(s) is one of the following entities:

   Entities excluded from bidding:

   1) Another state entity, including:
      a) A governmental agency from any state (Public Contract Code § 10340)
      b) A state college or state university from any state.

   2) A local governmental entity or agency, including those created as a Joint Powers Authority (JPA)

   3) An auxiliary organization of the California State University (CSU), or a California community college

   4) The Federal Government

   5) A foundation organized to support the Board of Governors of the California Community Colleges, or
Exhibit B
Budget Detail and Payment Provisions

6) An auxiliary organization of the Student Aid Commission established under Education code § 69522.

B. By signing this Agreement, the Contractor is certifying selection of a non-excluded subcontractor(s) was pursuant to a bidding process requiring at least three bids from responsible bidders.

C. In the event subcontracted service(s) cannot be selected through the bidding process as described in paragraph A above the contractor then must submit to the State Water Board: in advance name(s) of the subcontractor(s), services being provided, an explanation outlining the subcontractor(s) unique qualifications that qualified them to be selected through a non-competitive bid process, and the number of contracts awarded to them by the primary contractor in the last twelve months.

D. The State Water Board will only pay overhead charges on the first $25,000 for each subcontract.

E. Subcontracted services must be disclosed in the line item budget.
San Joaquin Valley Drainage Authority  
09-076-150

**Exhibit B, Attachment I**  
**Budget**  
(Upon DAS’ Approval through January 31, 2012)

<table>
<thead>
<tr>
<th>Position Title and Number of each</th>
<th>Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accountant</td>
<td>$77.31 - $79.64</td>
</tr>
<tr>
<td>Project Manager</td>
<td>$155 - $160</td>
</tr>
<tr>
<td>Attorney</td>
<td>$195 - $250</td>
</tr>
</tbody>
</table>

**Total Personnel $90,948**

**Fringe Benefits** (included in Personnel)

**Operating Expenses**  
$5,000

**Travel**  
$0

**Equipment**  
$0

**Subcontracts**  
TBD - These services will be subcontracted in accordance with SCM 3.06 as detailed in Exhibit B, Scope of Work.

**Total Subcontracts $1,104,052**

**Other Costs**  
$0

**Total Costs $1,200,000**
1. **APPROVAL:** This Agreement is of no force or effect until signed by both parties and approved by the Department of General Services, if required. Contractor may not commence performance until such approval has been obtained.

2. **AMENDMENT:** No amendment or variation of the terms of this Agreement shall be valid unless made in writing, signed by the parties and approved as required. No oral understanding or Agreement not incorporated in the Agreement is binding on any of the parties.

3. **ASSIGNMENT:** This Agreement is not assignable by the Contractor, either in whole or in part, without the consent of the State in the form of a formal written amendment.

4. **AUDIT:** Contractor agrees that the awarding department, the Department of General Services, the Bureau of State Audits, or their designated representative shall have the right to review and to copy any records and supporting documentation pertaining to the performance of this Agreement. Contractor agrees to maintain such records for possible audit for a minimum of three (3) years after final payment, unless a longer period of records retention is stipulated. Contractor agrees to allow the auditor(s) access to such records during normal business hours and to allow interviews of any employees who might reasonably have information related to such records. Further, Contractor agrees to include a similar right of the State to audit records and interview staff in any subcontract related to performance of this Agreement. (Gov. Code §8546.7, Pub. Contract Code §10115 et seq., CCR Title 2, Section 1896).

5. **INDEMNIFICATION:** Contractor agrees to indemnify, defend and save harmless the State, its officers, agents and employees from any and all claims and losses accruing or resulting to any and all contractors, subcontractors, suppliers, laborers, and any other person, firm or corporation furnishing or supplying work services, materials, or supplies in connection with the performance of this Agreement, and from any and all claims and losses accruing or resulting to any person, firm or corporation who may be injured or damaged by Contractor in the performance of this Agreement.

6. **DISPUTES:** Contractor shall continue with the responsibilities under this Agreement during any dispute.

7. **TERMINATION FOR CAUSE:** The State may terminate this Agreement and be relieved of any payments should the Contractor fail to perform the requirements of this Agreement at the time and in the manner herein provided. In the event of such termination the State may proceed with the work in any manner deemed proper by the State. All costs to the State shall be deducted from any sum due the Contractor under this Agreement and the balance, if any, shall be paid to the Contractor upon demand.
8. **INDEPENDENT CONTRACTOR**: Contractor, and the agents and employees of Contractor, in the performance of this Agreement, shall act in an independent capacity and not as officers or employees or agents of the State.

9. **RECYCLING CERTIFICATION**: The Contractor shall certify in writing under penalty of perjury, the minimum, if not exact, percentage of post consumer material as defined in the Public Contract Code Section 12200, in products, materials, goods, or supplies offered or sold to the State regardless of whether the product meets the requirements of Public Contract Code Section 12209. With respect to printer or duplication cartridges that comply with the requirements of Section 12156(e), the certification required by this subdivision shall specify that the cartridges so comply (Pub. Contract Code §12205).

10. **NON-DISCRIMINATION CLAUSE**: During the performance of this Agreement, Contractor and its subcontractors shall not unlawfully discriminate, harass, or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, physical disability (including HIV and AIDS), mental disability, medical condition (cancer), age (over 40), marital status, and denial of family care leave. Contractor and subcontractors shall insure that the evaluation and treatment of their employees and applicants for employment are free from such discrimination and harassment. Contractor and subcontractors shall comply with the provisions of the Fair Employment and Housing Act (Gov. Code §12990 (a-f) et seq.) and the applicable regulations promulgated thereunder (California Code of Regulations, Title 2, Section 7285 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code Section 12990 (a-f), set forth in Chapter 5 of Division 4 of Title 2 of the California Code of Regulations, are incorporated into this Agreement by reference and made a part hereof as if set forth in full. Contractor and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other Agreement. Contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the Agreement.

11. **CERTIFICATION CLAUSES**: The CONTRACTOR CERTIFICATION CLAUSES contained in the document CCC 307 are hereby incorporated by reference and made a part of this Agreement by this reference as if attached hereto.

12. **TIMELINESS**: Time is of the essence in this Agreement.

13. **COMPENSATION**: The consideration to be paid Contractor, as provided herein, shall be in compensation for all of Contractor's expenses incurred in the performance hereof, including travel, per diem, and taxes, unless otherwise expressly so provided.

14. **GOVERNING LAW**: This contract is governed by and shall be interpreted in accordance with the laws of the State of California.
15. **ANTITRUST CLAIMS:** The Contractor by signing this agreement hereby certifies that if these services or goods are obtained by means of a competitive bid, the Contractor shall comply with the requirements of the Government Codes Sections set out below.

a. The Government Code Chapter on Antitrust claims contains the following definitions:
   1). "Public purchase" means a purchase by means of competitive bids of goods, services, or materials by the State or any of its political subdivisions or public agencies on whose behalf the Attorney General may bring an action pursuant to subdivision (c) of Section 16750 of the Business and Professions Code.
   2). "Public purchasing body" means the State or the subdivision or agency making a public purchase. Government Code Section 4550.

b. In submitting a bid to a public purchasing body, the bidder offers and agrees that if the bid is accepted, it will assign to the purchasing body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, materials, or services by the bidder for sale to the purchasing body pursuant to the bid. Such assignment shall be made and become effective at the time the purchasing body tenders final payment to the bidder. Government Code Section 4552.

c. If an awarding body or public purchasing body receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under this chapter, the assignor shall be entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the public body any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the public body as part of the bid price, less the expenses incurred in obtaining that portion of the recovery. Government Code Section 4553.

d. Upon demand in writing by the assignor, the assignee shall, within one year from such demand, reassign the cause of action assigned under this part if the assignor has been or may have been injured by the violation of law for which the cause of action arose and (a) the assignee has not been injured thereby, or (b) the assignee declines to file a court action for the cause of action. See Government Code Section 4554.

16. **CHILD SUPPORT COMPLIANCE ACT:** “For any Agreement in excess of $100,000, the contractor acknowledges in accordance with Public Contract Code 7110, that:

a). The contractor recognizes the importance of child and family support obligations and shall fully comply with all applicable state and federal laws relating to child and family support enforcement, including, but not limited to, disclosure of information and compliance with earnings assignment orders, as provided in Chapter 8 (commencing with section 5200) of Part 5 of Division 9 of the Family Code; and

b) The contractor, to the best of its knowledge is fully complying with the earnings assignment orders of all employees and is providing the names of all new employees to the New Hire Registry maintained by the California Employment Development Department.”
17. UNENFORCEABLE PROVISION: In the event that any provision of this Agreement is unenforceable or held to be unenforceable, then the parties agree that all other provisions of this Agreement have force and effect and shall not be affected thereby.

18. PRIORITY HIRING CONSIDERATIONS: If this Contract includes services in excess of $200,000, the Contractor shall give priority consideration in filling vacancies in positions funded by the Contract to qualified recipients of aid under Welfare and Institutions Code Section 11200 in accordance with Pub. Contract Code §10353.
1. **Contract Amendments**

   Should either party, during the term of this agreement, desire a change or amendment to the terms of this Agreement, such changes or amendments shall be proposed in writing to the other party, who will respond in writing as to whether the proposed changes/amendments are accepted or rejected. If accepted and after negotiations are concluded, the agreed upon changes shall be made through the State's official agreement amendment process. No amendment will be considered binding on either party until it is formally approved by the State.

2. **Cancellation / Termination**

   A. This agreement may be cancelled or terminated without cause by either party by giving thirty (30) calendar days advance written notice to the other party. Such notification shall state the effective date of termination or cancellation and include any final performance and/or payment/invoicing instructions/requirements.

   B. Upon receipt of a notice of termination or cancellation from the State Water Board, San Joaquin Valley Drainage Authority shall take immediate steps to stop performance and to cancel or reduce subsequent contract costs.

   C. San Joaquin Valley Drainage Authority shall be entitled to payment for all allowable costs authorized under this agreement, including authorized non-cancelable obligations incurred up to the date of termination or cancellation, provided such expenses do not exceed the stated maximum amounts payable.

3. **Dispute Resolution Process**

   If San Joaquin Valley Drainage Authority believes there is a dispute or grievance between San Joaquin Valley Drainage Authority and the State Water Board, both parties shall follow the two-step procedure outlined below.

   A. San Joaquin Valley Drainage Authority should first discuss the problem informally with the State Water Board program contract manager. If the problem cannot be resolved at this stage, San Joaquin Valley Drainage Authority must direct the grievance together with any evidence, in writing, to the program Section Chief. The grievance must state the issues in dispute, the legal authority or other basis for San Joaquin Valley Drainage
Exhibit D
Additional Provisions

Authority position and the remedy sought. The Section Chief must make a
determination on the problem within ten (10) working days after receipt of
the written communication from the San Joaquin Valley Drainage Authority.
The Section Chief shall respond in writing to the San Joaquin Valley Drainage
Authority indicating the decision and reasons therefore. Should San
Joaquin Valley Drainage Authority disagree with the Section Chief's
decision, the San Joaquin Valley Drainage Authority may appeal to the
second level.

B. The San Joaquin Valley Drainage Authority must prepare a letter indicting why
the Section Chief's decision is unacceptable, attaching to it San Joaquin
Valley Drainage Authority original statement of the dispute with supporting
documents along with a copy of the Section Chief's response. This letter
shall be sent to the Division Chief of the division in which the section is
organized within ten (10) working days from receipt of the Section Chief's
decision. The Division Chief or designee shall meet with San Joaquin
Valley Drainage Authority to review the issues raised. A written decision
signed by the Division Chief or designee shall be returned to San Joaquin
Valley Drainage Authority within twenty (20) working days of receipt of
San Joaquin Valley Drainage Authority's letter.

4. Audit and Record Retention

A. The Contractor and/or Subcontractor shall maintain books, records,
documents, and other evidence, accounting procedures, and practices,
sufficient to properly reflect all direct and indirect costs of whatever nature
claimed to have been incurred in the performance of this agreement,
including any matching costs and expenses. The foregoing constitutes
"records" for the purposes of this provision.

B. The Contractor's and/or Subcontractor's facility or office or such part
thereof as may be engaged in the performance of this agreement and
his/her records shall be subject at all reasonable times to inspection, audit,
and reproduction.

C. Contractor agrees that the State Water Board, the Department of General
Services, the Bureau of State Audits, or their designated representatives
shall have the right to review and to copy any records and supporting
documentation pertaining to the performance of this agreement.
Contractor agrees to allow the auditor(s) access to such records during
normal business hours and to allow interviews of any employees who
might reasonably have information related to such records. Further, the
Exhibit D

Additional Provisions

Contractor agrees to include a similar right of the State to audit records and interview staff in any subcontract related to performance of this agreement. (GC 8546.7, CCR Title 2, Section 1896).

D. The Contractor and/or Subcontractor shall preserve and make available his/her records (1) for a period of three years from the date of final payment under this agreement, and (2) for such longer period, if any, as is required by applicable statute, by any other provision of this agreement, or by subparagraphs (1) or (2) below.

1) If this agreement is completely or partially terminated, the records relating to the work terminated shall be preserved and made available for a period of three years from the date of any resulting final settlement.

2) If any litigation, claim, negotiation, audit, or other action involving the records has been started before the expiration of the three-year period, the records shall be retained until completion of the action and resolution of all issues which arise from it, or until the end of the regular three-year period, whichever is later.

E. The Contractor and/or Subcontractor shall comply with the above requirements and be aware of the penalties for violations of fraud and for obstruction of investigation as set forth in Public Contract Code § 10115.10, if applicable.

F. The Contractor and/or Subcontractor may, at its discretion, following receipt of final payment under this agreement, reduce its accounts, books and records related to this agreement to microfilm, computer disk, CD ROM, or other data storage medium. Upon request by an authorized representative to inspect, audit or obtain copies of said records, the Contractor and/or subcontractor must supply or make available applicable devices, hardware, and/or software necessary to view, copy and/or print said records. Applicable devices may include, but are not limited to, microfilm readers and microfilm printers, etc.
5. **Performance Evaluation**

A. The Contractor's performance under this agreement shall be evaluated at the conclusion of the term of this agreement. The evaluation shall include, but not be limited to:

1) Whether the contracted work or services were completed as specified in the agreement and reasons for and amount of any cost overruns.
2) Whether the contracted work or services met the quality standards specified in the agreement.
3) Whether the Contractor fulfilled all requirements of the agreement.
4) Factors outside the control of the Contractor, which caused difficulties in contractor performance. Factors outside the control of the Contractor shall not include a Subcontractor's poor performance.

B. The evaluation of the Contractor shall not be a public record.

6. **Progress Reports or Meetings**

A. Contractor shall submit progress reports or attend meetings with state personnel at intervals determined by SWRCB to determine if the Contractor is on the right track, whether the project is on schedule, provide communication of interim findings, and afford occasions for airing difficulties or special problems encountered so that remedies can be developed quickly.

B. At the conclusion of this agreement and if applicable, Contractor shall hold a final meeting at which Contractor shall present any findings, conclusions, and recommendations. If required by this agreement, Contractor shall submit a comprehensive final report by the date specified.

7. **Freeze Exemptions**

A. Contractor agrees that any hiring freeze adopted during the term of this contract shall not be applied to the positions funded, in whole or part, by this contract.

B. Contractor agrees not to implement any personnel policy, which may adversely affect performance or the positions funded, in whole or part, by this contract.
Exhibit D
Additional Provisions

C. Contractor agrees that any travel freeze or travel limitation policy adopted during the term of this contract shall not restrict travel funded, in whole or part, by this contract.

D. Contractor agrees that any purchasing freeze or purchase limitation policy adopted during the term of this contract shall not restrict or limit purchases funded, in whole or part, by this contract.

8. Avoidance of Conflicts of Interest by Contractor

A. SWRCB intends to avoid any real or apparent conflict of interest on the part of the Contractor, subcontractors, or employees, officers and directors of the Contractor or subcontractors. Thus, SWRCB reserves the right to determine, at its sole discretion, whether any information, assertion or claim received from any source indicates the existence of a real or apparent conflict of interest; and, if a conflict is found to exist, to require the Contractor to submit additional information or a plan for resolving the conflict, subject to SWRCB review and prior approval.

B. Conflicts of interest include, but are not limited to:

1) An instance where the Contractor or any of its subcontractors, or any employee, officer, or director of the Contractor or any subcontractor has an interest, financial or otherwise, whereby the use or disclosure of information obtained while performing services under the contract would allow for private or personal benefit or for any purpose that is contrary to the goals and objectives of the contract.

2) An instance where the Contractor's or any subcontractor's employees, officers, or directors use their positions for purposes that are, or give the appearance of being, motivated by a desire for private gain for themselves or others, such as those with whom they have family, business or other ties.

C. If SWRCB is or becomes aware of a known or suspected conflict of interest, the Contractor will be given an opportunity to submit additional information or to resolve the conflict. A Contractor with a suspected conflict of interest will have five (5) working days from the date of notification of the conflict by SWRCB to provide complete information regarding the suspected conflict. If a conflict of interest is determined to exist by SWRCB and cannot be resolved to the satisfaction of SWRCB, the conflict will be grounds for terminating the contract. SWRCB may, at
Exhibit D
Additional Provisions

its discretion upon receipt of a written request from the Contractor, authorize an extension of the timeline indicated herein.

9. Force Majeure

Except for defaults of subcontractors, neither party shall be responsible for delays or failures in performance resulting from acts beyond the control of the offending party. Such acts shall include but shall not be limited to acts of God, fire, flood, earthquake, other natural disaster, nuclear accident, strike, lockout, riot, freight embargo, public regulated utility, or governmental statutes or regulations superimposed after the fact.
Travel Reimbursement Information
(State Water Resources Control Board)

1. The following rate policy is to be applied for reimbursing the travel expenses of persons under contract. The terms “contract” and/or “subcontract” have the same meaning as “grantee” and/or “subgrantee” where applicable.

   a. Reimbursement for travel and/or per diem shall be at the rates established for nonrepresented/excluded state employees. Exceptions to DPA lodging rates may be approved by SWRCB upon the receipt of a statement on/invoices indicating that such rates are not available.

   b. Short Term Travel is defined as a 24-hour period, and less than 31 consecutive days, and is at least 50 miles from the main office, headquarters or primary residence. Starting time is whenever a contract or subcontract employee leaves his or her home or headquarters. "Headquarters" is defined as the place where the contracted personnel spends the largest portion of their working time and returns to upon the completion of assignments. Headquarters may be individually established for each traveler and approved verbally by the program funding the agreement. Verbal approval shall be followed up in writing or email.

   c. Contractors on travel status for more than one 24-hour period and less than 31 consecutive days may claim a fractional part of a period of more than 24 hours. Consult the chart appearing on page 2 of this exhibit to determine the reimbursement allowance. All lodging must be receipted. If contractor does not present receipts, lodging will not be reimbursed.

(1) Lodging (with receipts):

<table>
<thead>
<tr>
<th>Travel Location / Area</th>
<th>Reimbursement Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statewide (excluding the counties identified below)</td>
<td>$ 84.00 plus tax</td>
</tr>
<tr>
<td>Counties of Los Angeles and San Diego</td>
<td>$110.00 plus tax</td>
</tr>
<tr>
<td>Counties of Alameda, San Francisco, San Mateo, and Santa Clara</td>
<td>$140.00 plus tax</td>
</tr>
</tbody>
</table>

Reimbursement for actual lodging expenses exceeding the above amounts may be allowed with the advance approval of the Deputy Director of the State Water Resources Control Board or his or her designee. Receipts are required. Receipts from internet lodging reservation services such as Priceline.com, which require prepayment to that service, ARE NOT ACCEPTABLE LODGING RECEIPTS and are not reimbursable without a valid lodging receipt from a lodging establishment.

(2) Meal/Supplemental Expenses (with or without receipts). With receipts, the contractor will be reimbursed actual amounts spent up to the maximum for each full 24-hour period of travel.

<table>
<thead>
<tr>
<th>Meal / Expense</th>
<th>Reimbursement Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>$ 6.00</td>
</tr>
<tr>
<td>Lunch</td>
<td>$ 10.00</td>
</tr>
<tr>
<td>Dinner</td>
<td>$ 18.00</td>
</tr>
<tr>
<td>Incidental expenses</td>
<td>$ 6.00</td>
</tr>
</tbody>
</table>

   d. Out-of-state travel may only be reimbursed if such travel is necessitated by the scope or statement of work and has been approved in advance by the program with which the contract is held. For out-of-state travel, contractors may be reimbursed actual lodging expenses, supported by a receipt, and may be reimbursed for meals and supplemental expenses for each 24-hour period computed at the rates listed in c. (2) above. For all out-of-state travel, contractors/subcontractors must have prior SWRCB written or verbal approval. Verbal approval shall be confirmed in writing (email or memo).

   e. In computing allowances for continuous periods of travel of less than 24 hours, consult the chart appearing on page 2 of this exhibit.

   f. No meal or lodging expenses will be reimbursed for any period of travel that occurs within normal working hours, unless expenses are incurred at least 50 miles from headquarters.
2. If any of the reimbursement rates stated herein are changed by the Department of Personnel Administration, no formal contract amendment will be required to incorporate the new rates. However, SWRCB shall inform the contractor, in writing, of the revised travel reimbursement rates.

3. For transportation expenses, the contractor must retain receipts for parking; taxi, airline, bus, or rail tickets; car rental; or any other travel receipts pertaining to each trip for attachment to an invoice as substantiation for reimbursement. Reimbursement may be requested for commercial carrier fares; private car mileage; parking fees; bridge tolls; taxi, bus, or streetcar fares; and auto rental fees when substantiated by a receipt.

4. Note on use of autos: If a contractor uses his or her car for transportation, the rate of pay will be 55 cents maximum per mile. If a contractor uses his or her car “in lieu of” airfare, the air coach fare will be the maximum paid by the State. The contractor must provide a cost comparison upon request by the state. Gasoline and routine automobile repair expenses are not reimbursable.

5. The contractor is required to furnish details surrounding each period of travel. Travel expense reimbursement detail may include, but not be limited to: purpose of travel, departure and return times, destination points, miles driven, mode of transportation, etc. Reimbursement for travel expenses may be withheld pending receipt of adequate travel documentation.

6. Contractors are to consult with the program with which the contract is held to obtain specific invoicing procedures.

### Travel Reimbursement Guide

<table>
<thead>
<tr>
<th>Length of travel period</th>
<th>This condition exists...</th>
<th>Allowable Meal(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 24 hours</td>
<td>Travel begins at 6:00 a.m. or earlier and continues until 9:00 a.m. or later.</td>
<td>Breakfast</td>
</tr>
</tbody>
</table>
| Less than 24 hours      | • Travel period ends at least one hour after the regularly scheduled workday ends, or  
                          • Travel period begins prior to or at 4:00 p.m. and continues beyond 7:00 p.m. | Dinner            |
| 24 hours                | Travel period is a full 24-hour period determined by the time that the travel period begins and ends. | Breakfast, lunch, and dinner |
| Last fractional part of more than 24 hours | Travel period is more than 24 hours and traveler returns at or after 8:00 a.m. | Breakfast         |
|                         | Travel period is more than 24 hours and traveler returns at or after 2:00 p.m. | Lunch             |
|                         | Travel period is more than 24 hours and traveler returns at or after 7:00 p.m. | Dinner            |

7. At SWRCB’ discretion, changes or revisions made by SWRCB to this exhibit, excluding travel policy established by DPA may be applied retroactively to any agreement to which a Travel Reimbursement Information exhibit is attached, incorporated by reference, or applied by SWRCB program policy.
CCC-307

CERTIFICATION

I, the official named below, CERTIFY UNDER PENALTY OF PERJURY that I am duly authorized to legally bind the prospective Contractor to the clause(s) listed below. This certification is made under the laws of the State of California.

<table>
<thead>
<tr>
<th>Contractor/Bidder Firm Name (Printed)</th>
<th>Federal ID Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Joaquin Valley Drainage Authority</td>
<td>77-0518862</td>
</tr>
</tbody>
</table>

By (Authorized Signature)

\[Signature\]

Printed Name and Title of Person Signing

Daniel G. Nelson, Executive Director

Date Executed

12.30.09

Executed in the County of

Merced

CONTRACTOR CERTIFICATION CLAUSES

1. STATEMENT OF COMPLIANCE: Contractor has, unless exempted, complied with the nondiscrimination program requirements. (Gov. Code §12990 (a-f) and CCR, Title 2, Section 8103) (Not applicable to public entities.)

2. DRUG-FREE WORKPLACE REQUIREMENTS: Contractor will comply with the requirements of the Drug-Free Workplace Act of 1990 and will provide a drug-free workplace by taking the following actions:

a. Publish a statement notifying employees that unlawful manufacture, distribution, dispensation, possession or use of a controlled substance is prohibited and specifying actions to be taken against employees for violations.

b. Establish a Drug-Free Awareness Program to inform employees about:

1) the dangers of drug abuse in the workplace;
2) the person's or organization's policy of maintaining a drug-free workplace;
3) any available counseling, rehabilitation and employee assistance programs; and,
4) penalties that may be imposed upon employees for drug abuse violations.

c. Every employee who works on the proposed Agreement will:

1) receive a copy of the company's drug-free workplace policy statement; and,
2) agree to abide by the terms of the company's statement as a condition of employment on the Agreement.

Failure to comply with these requirements may result in suspension of payments under the Agreement or termination of the Agreement or both and Contractor may be ineligible for award of any future State agreements if the department determines that any of the following has occurred: the Contractor has made false certification, or violated the
certification by failing to carry out the requirements as noted above. (Gov. Code §8350 et seq.)

3. NATIONAL LABOR RELATIONS BOARD CERTIFICATION: Contractor certifies that no more than one (1) final unappealable finding of contempt of court by a Federal court has been issued against Contractor within the immediately preceding two-year period because of Contractor's failure to comply with an order of a Federal court, which orders Contractor to comply with an order of the National Labor Relations Board. (Pub. Contract Code §10296) (Not applicable to public entities.)

4. CONTRACTS FOR LEGAL SERVICES $50,000 OR MORE- PRO BONO REQUIREMENT: Contractor hereby certifies that contractor will comply with the requirements of Section 6072 of the Business and Professions Code, effective January 1, 2003.

Contractor agrees to make a good faith effort to provide a minimum number of hours of pro bono legal services during each year of the contract equal to the lesser of 30 multiplied by the number of full time attorneys in the firm's offices in the State, with the number of hours prorated on an actual day basis for any contract period of less than a full year or 10% of its contract with the State.

Failure to make a good faith effort may be cause for non-renewal of a state contract for legal services, and may be taken into account when determining the award of future contracts with the State for legal services.

5. EXPATRIATE CORPORATIONS: Contractor hereby declares that it is not an expatriate corporation or subsidiary of an expatriate corporation within the meaning of Public Contract Code Section 10286 and 10286.1, and is eligible to contract with the State of California.

6. SWEATFREE CODE OF CONDUCT:

a. All Contractors contracting for the procurement or laundering of apparel, garments or corresponding accessories, or the procurement of equipment, materials, or supplies, other than procurement related to a public works contract, declare under penalty of perjury that no apparel, garments or corresponding accessories, equipment, materials, or supplies furnished to the state pursuant to the contract have been laundered or produced in whole or in part by sweatshop labor, forced labor, convict labor, indentured labor under penal sanction, abusive forms of child labor or exploitation of children in sweatshop labor, or with the benefit of sweatshop labor, forced labor, convict labor, indentured labor under penal sanction, abusive forms of child labor or exploitation of children in sweatshop labor. The contractor further declares under penalty of perjury that they adhere to the Sweatfree Code of Conduct as set forth on the California Department of Industrial Relations website located at www.dir.ca.gov, and Public Contract Code Section 6108.

b. The contractor agrees to cooperate fully in providing reasonable access to the contractor's records, documents, agents or employees, or premises if reasonably required by authorized officials of the contracting agency, the Department of Industrial Relations,
or the Department of Justice to determine the contractor's compliance with the requirements under paragraph (a).

7. DOMESTIC PARTNERS: For contracts over $100,000 executed or amended after January 1, 2007, the contractor certifies that contractor is in compliance with Public Contract Code section 10295.3.

**DOING BUSINESS WITH THE STATE OF CALIFORNIA**

The following laws apply to persons or entities doing business with the State of California.

1. CONFLICT OF INTEREST: Contractor needs to be aware of the following provisions regarding current or former state employees. If Contractor has any questions on the status of any person rendering services or involved with the Agreement, the awarding agency must be contacted immediately for clarification.


   1). No officer or employee shall engage in any employment, activity or enterprise from which the officer or employee receives compensation or has a financial interest and which is sponsored or funded by any state agency, unless the employment, activity or enterprise is required as a condition of regular state employment.

   2). No officer or employee shall contract on his or her own behalf as an independent contractor with any state agency to provide goods or services.

   Former State Employees (Pub. Contract Code §10411):

   1). For the two-year period from the date he or she left state employment, no former state officer or employee may enter into a contract in which he or she engaged in any of the negotiations, transactions, planning, arrangements or any part of the decision-making process relevant to the contract while employed in any capacity by any state agency.

   2). For the twelve-month period from the date he or she left state employment, no former state officer or employee may enter into a contract with any state agency if he or she was employed by that state agency in a policy-making position in the same general subject area as the proposed contract within the 12-month period prior to his or her leaving state service.

   If Contractor violates any provisions of above paragraphs, such action by Contractor shall render this Agreement void. (Pub. Contract Code §10420)

   Members of boards and commissions are exempt from this section if they do not receive payment other than payment of each meeting of the board or commission, payment for preparatory time and payment for per diem. (Pub. Contract Code §10430 (e))
2. **LABOR CODE/WORKERS’ COMPENSATION**: Contractor needs to be aware of the provisions which require every employer to be insured against liability for Worker’s Compensation or to undertake self-insurance in accordance with the provisions, and Contractor affirms to comply with such provisions before commencing the performance of the work of this Agreement. (Labor Code Section 3700)

3. **AMERICANS WITH DISABILITIES ACT**: Contractor assures the State that it complies with the Americans with Disabilities Act (ADA) of 1990, which prohibits discrimination on the basis of disability, as well as all applicable regulations and guidelines issued pursuant to the ADA. (42 U.S.C. 12101 et seq.)

4. **CONTRACTOR NAME CHANGE**: An amendment is required to change the Contractor's name as listed on this Agreement. Upon receipt of legal documentation of the name change the State will process the amendment. Payment of invoices presented with a new name cannot be paid prior to approval of said amendment.

5. **CORPORATE QUALIFICATIONS TO DO BUSINESS IN CALIFORNIA**:
   a. When agreements are to be performed in the state by corporations, the contracting agencies will be verifying that the contractor is currently qualified to do business in California in order to ensure that all obligations due to the state are fulfilled.
   b. "Doing business" is defined in R&TC Section 23101 as actively engaging in any transaction for the purpose of financial or pecuniary gain or profit. Although there are some statutory exceptions to taxation, rarely will a corporate contractor performing within the state not be subject to the franchise tax.
   c. Both domestic and foreign corporations (those incorporated outside of California) must be in good standing in order to be qualified to do business in California. Agencies will determine whether a corporation is in good standing by calling the Office of the Secretary of State.

6. **RESOLUTION**: A county, city, district, or other local public body must provide the State with a copy of a resolution, order, motion, or ordinance of the local governing body which by law has authority to enter into an agreement, authorizing execution of the agreement.

7. **AIR OR WATER POLLUTION VIOLATION**: Under the State laws, the Contractor shall not be: (1) in violation of any order or resolution not subject to review promulgated by the State Air Resources Board or an air pollution control district; (2) subject to cease and desist order not subject to review issued pursuant to Section 13301 of the Water Code for violation of waste discharge requirements or discharge prohibitions; or (3) finally determined to be in violation of provisions of federal law relating to air or water pollution.

8. **PAYEE DATA RECORD FORM STD. 204**: This form must be completed by all contractors that are not another state agency or other governmental entity.
<table>
<thead>
<tr>
<th>JANUARY</th>
<th>FEBRUARY</th>
<th>MARCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>MON TUE WED THU FRI SAT SUN</td>
<td>MON TUE WED THU FRI SAT SUN</td>
<td>MON TUE WED THU FRI SAT SUN</td>
</tr>
<tr>
<td>1 2</td>
<td>1 2 3 4 5 6 7 8</td>
<td>1 2 3 4 5 6 7 8</td>
</tr>
<tr>
<td>9 10</td>
<td>8 9 10 11 12 13 14 15</td>
<td>4 5 6 7 8 9 10 11</td>
</tr>
<tr>
<td>17 18 19 20 21</td>
<td>14 15 16 17 18</td>
<td>12 13</td>
</tr>
<tr>
<td>24 25 26 27 28 29 30</td>
<td>21 22 23 24</td>
<td>25 26 27</td>
</tr>
</tbody>
</table>

Sac Regional

**APRIL**

<table>
<thead>
<tr>
<th>MON TUE WED THU FRI SAT SUN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>11 12 13 14 15 16 17 18</td>
</tr>
<tr>
<td>25 26 27 28 29 30</td>
</tr>
</tbody>
</table>

Sac Regional

**MAY**

<table>
<thead>
<tr>
<th>MON TUE WED THU FRI SAT SUN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>8 9 10 11 12 13 14</td>
</tr>
<tr>
<td>16 17 18 19 20 21</td>
</tr>
<tr>
<td>23 24 25 26 27 28 29</td>
</tr>
<tr>
<td>30</td>
</tr>
</tbody>
</table>

Sac Regional

**AUGUST**

<table>
<thead>
<tr>
<th>MON TUE WED THU FRI SAT SUN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7 8</td>
</tr>
<tr>
<td>9 10 11 12 13 14</td>
</tr>
<tr>
<td>15 16 17 18 19 20 21</td>
</tr>
<tr>
<td>22 23 24 25 26 27 28 29</td>
</tr>
<tr>
<td>30</td>
</tr>
</tbody>
</table>

Sac Regional

**OCTOBER**

<table>
<thead>
<tr>
<th>MON TUE WED THU FRI SAT SUN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7 8 9</td>
</tr>
<tr>
<td>10 11 12 13 14 15 16</td>
</tr>
<tr>
<td>17 18 19 20 21 22 23</td>
</tr>
<tr>
<td>24 25 26 27 28 29 30</td>
</tr>
<tr>
<td>31</td>
</tr>
</tbody>
</table>

Sac Regional

**SALTS 5 Coordination Meetings**

- 1/3/11 Salts 5 January
- 2/7/11 Salts 5 February
- 3/7/11 Salts 5
- 4/4/11 Salts 5
- 5/4/11 Salts 5
- 6/6/11 Salts 5
- 7/11/11 Salts 5
- 8/1/11 Salts 5
- 9/12/11 Salts 5
- 10/1/11 Salts 5
- 11/7/11 Salts 5
- 12/9/11 Salts 5

Sac Regional

**CV-SALTS Committee Meetings**

- 2/24/11 Salinity Leadership Group
- 1/20/11 Committees Meetings
- 2/10/11 Committees Meetings
- 3/17/11 Committees Meetings
- 4/12/11 Committees Meetings
- 4/22/11 Committees Meetings
- 5/12/11 Committees Meetings
- 5/24/11 Committees Meetings
- 6/16/11 Committees Meetings
- 6/23/11 Committees Meetings
- 7/21/11 Committees Meetings
- 8/9/11 Committees Meetings
- 8/16/11 Committees Meetings
- 9/13/11 Committees Meetings
- 9/15/11 Committees Meetings
- 10/19/11 Committees Meetings
- 10/20/11 Committees Meetings
- 11/15/11 Committees Meetings
- 11/17/11 Committees Meetings
- 12/12/11 Committees Meetings
- 1/11/11 LSJR Committee
- 2/17/11 LSJR Committee

Sac Regional

**CV-SALTS Annual Meeting Calendar**

- JANUARY FEBRUARY MARCH
- APRIL MAY JUNE
- JULY AUGUST SEPTEMBER
- OCTOBER NOVEMBER DECEMBER

ACWA Downtown

**Cal EPA? Potential Conflicting Meetings**

- 6/7/11 State Board Meeting
- 6/8/11 Regional Board Meeting
- 6/8/11 State Board Meeting
- 6/9/11 Regional Board Meeting
- 6/10/11 Regional Board Meeting
- 6/21/11 State Board Meeting
- 6/22/11 State Board Meeting
- 7/5/11 State Board Meeting
- 7/6/11 State Board Meeting
- 7/19/11 State Board Meeting
- 7/20/11 State Board Meeting
- 8/2/11 State Board Meeting
- 8/3/11 Regional Board Meeting
- 8/4/11 Regional Board Meeting
- 8/5/11 Regional Board Meeting
- 8/16/11 State Board Meeting
- 8/17/11 State Board Meeting
- 9/6/11 State Board Meeting
- 9/7/11 State Board Meeting
- 9/20/11 State Board Meeting
- 9/21/11 State Board Meeting
CV Salinity Coalition

Because Salt Management is Critical for Water Supply and the Environment

What is CV-SALTS?

A non-profit coalition of Public Agencies, Business, Associations and other members working together to better manage Salts in the Central Valley of California

CVSC is non-profit and formed in July 2008 to organize, facilitate and fund efforts needed for the efficient management of salinity in the Central Valley. The Executive Committee of the Central Valley Policy Group approved the formation of the Coalition in July 2008 and the first members provided funding shortly thereafter. The Central Valley Salinity Coalition Inc. is a California member benefit 501 C-6 Corporation registered with the Secretary of State. CVSC is formed in a similar format to the Southern and Northern California Salinity Coalitions. As CVSC is further developed it will cooperate with other California Salinity Coalitions. Click here for the growing member list of organizations dedicated to water and salinity management in the Central Valley. Please Register and Log-in at right to see additional content and update your information.

News

Lorem ipsum dolor sit amet, conse
(Posted on 17 Jan 11, 2011)

What is CV Salinity?

CVSC is non-profit and formed in July 2008 to organize, facilitate and fund efforts needed for the...
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
Meeting Objective:

- To review the "Test Consensus" discussing the basis for designating, de-designating or subcategorizing AGR waters.

AGENDA

1) Welcome and Introductions Chair
   a) Review/Approve Executive Committee Meeting Notes for June 23, 2011 – 2 min
   b) Committee Roll call and Membership Roster

2) Review Schedule of Policy Discussions for 2011 – Tim Moore – 10 minutes


4) Review Test Consensus Summary for AGR – 2 hours

   Lunch on your own

4) Review Test Consensus Summary for AGR – 2 hours

5) Set next meeting dates and objectives (August 9, and September 15, 2011)

6) Future Items
   a. All administrative items are deferred to the August 9, 2011.

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
CV-SALTS Executive Committee Meeting
August 9, 2011 9:00 AM to 12:30 PM
Sacramento Regional Sanitation District Offices – Sunset Maple Room
10060 Goethe Rd, Sacramento 95827

(218) 339-4600 Code: 927571#
Posted 7-29-11 Revised 8-7-11

Meeting Objectives:
1. Program Development to mirror the policy development meetings
2. Execute business actions for CV-SALTS

AGENDA
1) Welcome and Introductions Chair
   a) Review/approve July 21, 2011 notes – 2 min
   b) Committee Roll Call and Membership Roster

2) State Board Hearing on CV-SALTS Progress in Winter 2011 – 30 min
   Action: Review and discuss

3) 2011 CV-SALTS Progress Milestones Updated Status and Program Funding – 30 min
   Action: Review and discuss Jan-June Progress & 2011-2012 Program Planning

4) South Delta Water Agency Letter – Nigel Quinn, Pamela Creedon – 15 min
   Action: Receive clarification on South Delta request

5) Technical Project Manager Recommendation - 10 min
   Action: Consider and Approve selection recommendation of the TPM Subcommittee

6) Triennial Review Update on Salt-Related Issues – Betty Yee – 25 min

7) San Joaquin Delta Flow and Salinity Standards Update – Mark Gowdy – 25 min

8) Calaveras Salt-Related Regional Board Basin Plan Amendment – Jim Martin – 5 min
   Summary of June scoping meeting


10) Knowledge Gained Committee Update – Michael Steiger – 25 min

11) Management Practice Subcommittee Update – Parry Klassen – 10 min
    Committee efforts and FREP Proposals update

12) CV-SALTS Website Subcontract Design Update - Daniel Cozad – 10 min

13) Set next meeting objectives and date (August 18th Policy Meeting ) and conference call date

14) Future Items
   a) 3a/3b Task Force Status
   b) Expected Future Roles of the State and Regional Boards, stakeholders, CVSC

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 www.cvsalinity.org
Meeting Objectives:
1. Program Development to mirror the policy development meetings
2. Execute business actions for CV-SALTS

AGENDA
1) Welcome and Introductions Chair
   a) Review/Approve August 9, 2011 notes – 2 min
   b) Committee Roll Call and Membership Roster

2) Animal Drinking Water Quality Criteria Study - Dennis Westcot - 20 min
   Action: Review and Approve recommendation from LSJR Committee

3) Lower San Joaquin River Committee Work Plan - Dennis Westcot - 20 min
   Action: Review and Discuss status of Work Plan

4) 2011 CV-SALTS Progress Milestones Status Updated status and Program Funding - 5 min
   Action: Review and discuss

5) Technical Project Manager Scope of Work Revisions Michael Steiger – 30 min
   Action: Review, modify and approve the scope changes, discuss Basin Plan Scope and process for additional awards under the RFQ

6) Scope for CDM Basin Planning Support Services - 15 min
   Action: Review and discuss

7) Management Practice Screening Tool Update – Parry Klassen – 20 min

8) Program Financial Report and Stakeholder input format – Daniel Cozad – 10 min

9) CV-SALTS Website Beta Review Request - Daniel Cozad – 5 min

10) Set next meeting objectives and date (September 15, 2011) and October conference call date
    Review Schedule of Policy Discussions and other meetings - 10 min

10) Future Items
   a) 3a/3b Task Force Status
   b) Expected Future Roles of the State and Regional Boards, stakeholders, CVSC

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 www.cvsalinity.org
Meeting Objective:

- To select archetypical examples from nominated waterbodies for the MUN and AGR designations.

AGENDA

1) Welcome and Introductions Chair
   a) Executive Committee Meeting Notes for July 21 were approved on August 9th
   b) Committee Roll call and Membership Roster

2) Review Schedule of Policy Discussions for 2011 – Tim Moore – 10 minutes

3) Review Expected Outcomes for September 15, 2011 Session – Tim Moore – 20 minutes

4) Review Nominated Waterbodies for MUN and AGR – 2 hours

   Lunch on your own

4) Select Archetypical Examples for MUN and AGR – 2 hours

5) Set next meeting dates and objectives (October 20, 2011 and next Conference Call date)

6) Future Items
   a. All administrative items are deferred to the next Administrative Conference Call.

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
Meeting Objectives:

1. Program Development to mirror the policy development meetings
2. Execute business actions for CV-SALTS

AGENDA

1) **Welcome and Introductions** - Chair
   a) Review/Approve September 13, 2011 notes – 2 min
   b) Committee Roll Call and Membership Roster

2) **City of Davis Salinity Study Workplan – Recommendation Letter** - 20 min
   Action: Review and Approve recommendation letter to Regional Board

3) **2011 CV-SALTS Progress Milestones Status Updated status and Program Funding** - 5 min
   Action: Review and discuss

4) **Technical Project Management: Budget Status and Task Prioritization** – Michael Steiger - 20 min
   Action: Discuss and Approve Prioritization Process for technical tasks

5) **State Board Hearing on CV-SALTS Progress-Winter 2011** – Jeanne Chilcott– 25 min
   Action: Discuss, Edit and Approve CV-SALTS Annual Report to State Board

6) **Cleanup & Abatement Fund Status Update** – Jeanne Chilcott – 5 min
   Review: Current status of $3.8 million dollar contract

7) **Set next meeting objectives and date (October 20, 2011) and November conference call date**
   Review Schedule of Policy Discussions and other meetings - 10 min

8) **Future Items**
   a) 3a/3b Task Force Status
   b) Expected Future Roles of the State and Regional Boards, stakeholders, CVSC

*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 [www.cvsalinity.org](http://www.cvsalinity.org)*
Meeting Objective:

- Continuation of selection of archetypical examples from nominated waterbodies for the MUN and AGR designations.
- Confirm and approve archetypes for BPA, document approval

AGENDA

1) Welcome and Introductions - Chair  
   a) Committee Roll call and Membership Roster  
   b) Review/Approve Executive Committee Meeting Notes for September 15, 2011 – 2 min

2) Review Expected Outcomes for October 15, 2011 Session – Tim Moore – 5 minutes

3) Review and Discuss Scopes for Previously Identified Archetypes – 2 hours  
   a) Waterbodies identified for appropriate beneficial use determinations  
   b) Communities with nitrate in drinking water

4) Summarize additional Nominated Waterbodies for MUN and AGR – 25 minutes

11:30 am to 1:00 pm - Lunch on your own

5) Discuss and Approve Archetypical Examples for MUN and AGR – 1.5 hours

6) Set next meeting dates and objectives (November 17, 2011 and next Conference Call date)

7) Future Items  
   a. All administrative items are deferred to the next Administrative Conference Call.  
   b. Review Schedule of Policy Discussions for 2011 – Tim Moore

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
ADDENDUM to Agenda packet of October 20, 2011

1) City of Davis Salinity Study Workplan
   a. Review Policy Issues contained in Recommendation Letter from Technical Committee
   b. Discuss completion date for review and recommendations

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
CV-SALTS Executive Committee Meeting
November 15, 2011 10:00 AM to 12:00 PM
Teleconference Only
(218) 339-4600 Code: 927571#
Posted 11-5-11 – Revised 11-14-11

Meeting Objectives:

1. Program Development to mirror the policy development meetings
2. Execute business actions for CV-SALTS

AGENDA

1) Welcome and Introductions Chair
   a) Review/Approve October 19, 2011 notes – 2 min
   b) Committee Roll Call and Membership Roster

2) 2011 CV-SALTS Progress Milestones Status Updated – Daniel Cozad - 5 min
   Action: Review and discuss

3) CV-SALTS Executive Committee Policy Discussions and Decisions – Daniel Cozad - 5 min
   Action: Review and discuss

4) Mgt. Practice Subcomm - Effective Management Practice Evaluation - Parry Klassen – 20 min
   Action: Consider and approve document

5) Technical Project Management: Task Approval Prioritization – Michael Steiger - 20 min
   Action: Discuss and Consider Approval of Prioritization Developed by “Small Group”

6) CV-SALTS Implementation Planning Outline for Discussion - Daniel Cozad- 20 min
   Action: Discuss and identify long term implementation needs, funding & monitoring

7) State Board Meeting - CV-SALTS Progress-Winter 2011 –Jeanne Chilcott – 20 min
   Action: Review CV-SALTS Annual Report to State Board & identify representatives to attend December hearing

8) IRWM Draft Letter and Call for Projects – Daniel Cozad – 10 min
   Action: Discuss and Approve letter

9) Set next meeting objectives/date (November 17, 2011) and December conference call date
   Review Schedule of Policy Discussions and other meetings - 10 min

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 www.cvsalinity.org
CV-SALTS Executive Committee Meeting
November 17, 2011 9:00 AM to 2:30 PM
Sacramento Regional Sanitation District Offices – Sunset Maple Room
10060 Goethe Rd, Sacramento 95827

Teleconference (218) 339-4600 Code: 927571#

Meeting Objectives:
- Determine priorities for developing revised nitrate and/or salinity objectives
- Assess the range of alternatives for further consideration
- Identify technical tasks essential to the development effort

AGENDA

1) Welcome and Introductions - Chair
   a) Committee Roll call and Membership Roster -5 min.
   b) Review/Approve Executive Committee Meeting Notes for October 20, 2011 – 5 min.


3) CV-SALTS Executive Committee Policy Discussions and Decisions – 15 min
   a) Review and discuss document

3) Discussion of Nitrate Objectives – 30 min.
   a) MUN standard (10 mg/L nitrate-nitrogen)
   b) AGR standard, Livestock standard
   c) Proposed Nutrient Control Policy
   d) Implementation Elements for the SNMP

4) Discussion of Salinity Objectives for MUN – 90 min.
   a) Human Health Concerns
   b) Other Domestic Use Concerns (non-drinking water)
   c) Aesthetic Concerns
   d) Identify Technical Tasks

   11:30 am to 1:00 pm - Lunch on your own

5) Discussion of Salinity Objectives for AGR – 90 min.
   a) Technical Basis for Current EC Targets
   b) Technical Concerns with Current EC Targets
   c) Alternative Approaches
   d) Identify Technical Tasks

6) Future Items
   a) Set next meeting date and objectives (December 15, 2011?)
   b) Set next Administrative Conference Call date

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
Meeting Objectives:
1. Program Development to mirror the policy development meetings
2. Execute business actions for CV-SALTS

AGENDA
1) Welcome and Introductions Chair
   a) Review/Approve November 15, 2011 notes – 2 min
   b) Committee Roll Call and Membership Roster

2) 2011 CV-SALTS Progress Milestones Status Updated – Daniel Cozad - 5 min
   Action: Review and discuss Milestones and Contracting

3) Proposed Calendar for 2012 - Daniel Cozad – 10 min
   Action: Review and provide revision or approve

4) Updates from Subgroup evaluating MUN Archetypes & CVWB Presentation-Draft Workplan for City of Willows MUN Eval. – Jeanne Chilcott– 20 min
   Action: Review and Discuss

5) Mgt. Practice Subcomm - Effective Management Practice Evaluation - Parry Klassen – 10 min
   Action: Status Update and Next Steps

6) Technical Project Management: Work Progress and Budget Status – Michael Steiger - 10 min
   Action: Review and Discuss

7) Five Year Work Plan and Strategy/Framework - Daniel Cozad- 20 min
   Water Quality Zone Mapping
   Action: Status Update – January 19, 2012 expectations

8) Regional Forum Design Team Participation – Daniel Cozad – 10 min
   Action: Review and Discuss

9) State Board Presentation 12/6/11 link only for your information only

10) Set next meeting objectives/date - January 17th Admin Call, January 19th Policy Session
    Review Schedule of meetings December 16, 2011 Conceptual Modeling Related- 10 min

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 www.cvsalinity.org
## CV-SALTS Committee Rosters

### Executive Committee Membership

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Leadership Partners</td>
<td>Central Valley Water Board</td>
<td>Pamela Creedon</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Central Valley Water Board</td>
<td>Jeanne Chicott</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>State Water Resources Control Bd.</td>
<td>Darrin Polhemus</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Department of Water Resources</td>
<td>Jose Farta</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Department of Water Resources</td>
<td>Enise Taylor</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>US Bureau of Reclamation</td>
<td>Jobaid Kabir</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Environmental Justice</td>
<td>TBD</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Environmental Water Quality</td>
<td>TBD</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>CV Salinity Coalition</td>
<td>CASA</td>
<td>Bobbi Larson</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>County of San Joaquin</td>
<td>Mel Lytle</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>County of San Joaquin</td>
<td>Brandon Nakagawa</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CCWCA</td>
<td>Debbie Webster</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>City of Fresno</td>
<td>Steve Higg</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CA League of Food Processors</td>
<td>Trub Hughes</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CA League of Food Processors</td>
<td>Rob Neenan</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wine Institute</td>
<td>Jim Schmelzer</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wine Institute</td>
<td>Chris Savage</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>City of Tracy</td>
<td>Steve Bailey</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sacramento Regional CSD</td>
<td>Linda Dorn</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>San Joaquin River Group</td>
<td>Dennis Westcot</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>City of Modesto</td>
<td>Gary DeJesus</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>California Rice Commission</td>
<td>Tim Johnson</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>City of Manteca</td>
<td>Phil Govia</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tulare Lake Drainage/Storage District</td>
<td>Mike Nordstrom</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tulare Lake Drainage/Storage District</td>
<td>Doug Davis</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stockton East Water District</td>
<td>Karna Harrigfield</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stockton East Water District</td>
<td>Jose DKirbon</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Western Plant Health Association</td>
<td>Renee Piel</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>City of Vacaville</td>
<td>Royce Cunningham</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>Comm./Chairs/Co-chairs</td>
<td>Chair Executive Committee</td>
<td>Parry Klassen</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vice Chair Executive Committee</td>
<td>Jeff Willett</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Technical Advisory Committee</td>
<td>Rosetta Tasey</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Technical Advisory Committee</td>
<td>Nigel Quinn, LBL</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Economic and Social Cost Committee</td>
<td>David Cory</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

* = Already votes as Leadership or Coalition member

### Past Participants:

- Tom Griffith, Envirotech
- John Herrick, EKI
- Katy Walsh, Wilderwater Services
- Mark Gowdy, SWRCB, Water Rights
- Betty Yew, SWRCB
- Claus Suverkropp, LWA
- Rik Rasmussen, SWRCB
- Michael Steiger, EKI
- Mark Felton, Culligan Water and PWQA
- Teus Durham, Somach
- Bruce Houdeleshield, NCBA/Sac Valley WCQ
- Mark Felton, Culligan Water and PWQA
- Stan Dean, SRCD
- Melanie Thomson, CUVWA

Participants also identified for 12/12:

- Pam Buford, CVRWQCB
- Laila Khoshb, Kennedy Jenkins
- Andy Safford, EKI
- Jean-Pierre, J.P., Cativiela, Dairy
CV-SALTS Subcommittee Meeting

Central Valley Management Practice Subcommittee
When: Monday, August 22nd, 2011 from 11:00 AM to 12:30 PM
Location: Conference Call only
Conference #: (218) 339-4600 Participant Code: 927571#

Agenda

1. Welcome and Introductions
2. Review “Test Run” screening results
   a. Presentation Ag – Parry
   b. Presentation WWTP- Linda or Debbie
   c. Questions and lessons learned/screening tool changes
3. Identify Management Practices to Evaluate for Pilot
4. Next Meeting/Call September _____ at ________
CV-SALTS Subcommittee Meeting

Central Valley Management Practice Subcommittee
When: Friday, September 16th 2011 from 2:00 PM to 3:30 PM
Location: Conference Call only
Conference #: (218) 339-4600 Participant Code: 927571#

Agenda

1. Welcome and Introductions
2. Review “Test Run” screening results
   a. Presentation WWTP- Linda or Debbie
   b. Questions and lessons learned/screening tool changes
3. Review Changes to Version 9 and Screening Tool 2
4. Prioritize Management Practices to Evaluate for Pilot
   a. Simple/Complete
   b. Complex/Developing
   c. Collections of practices or others
5. Next Meeting/Call September _____ at __________
CV-SALTS Subcommittee Meeting

Central Valley Management Practice Subcommittee

When: Monday, October 17, 2011 from 11:00 AM to 12:30 PM

Location: Conference Call only

Conference #: (218) 339-4600 Participant Code: 927571#

Agenda

1. Welcome and Introductions
2. Nominations for Subcommittee Co-Chairs
3. Document changes review and recommendation to the Executive Committee
4. Identify and prioritize Management Practices to Evaluate in Pilot
5. Any additional “Test Run” feedback?
6. Next Meeting/Call November _____ at ________
CV-SALTS Subcommittee Meeting

Central Valley Management Practice Subcommittee
When: Monday, November 21, 2011 from 11:00 AM to 12:30 PM
Location: Conference Call only
Conference #: (218) 339-4600 Participant Code: 927571#

Agenda

1. Welcome and Introductions
2. Approve Subcommittee Co-Chairs Rob Neenan and Parry Klassen
3. Approval by the Executive Committee – With edits from Pam Buford and questions
   a. What is the role of the Subcommittee in review of submissions?
   b. Who else is needed to complete reviews?
   c. What is the scope and cost if contract support is needed?
   d. Can practices be compared?
   e. Can a 1 page summary be prepared? for industry? for others?
   f. Identify and prioritize Management Practices to Evaluate in Pilot  Pg 10 Att 2
4. Regional Board Question, what is the final work product for toolbox?
5. Next Meeting/Call January _____ at ________
CV-SALTS Subcommittee Meeting

Central Valley Knowledge Gained Subcommittee

When: Wednesday, July 20, 9:00 AM

Location: Conference Call only

Conference #: (218) 339-4600 Participant Code: 927571#

Agenda

1. Welcome and Introductions
2. Document Review and final approval
3. Comments and Evaluation Table
4. Executive Committee Report
5. Next Meeting/Call if needed______ ______ at ___:_____
CV-SALTS Subcommittee Meeting

Central Valley Knowledge Gained Subcommittee

When: Wednesday, October 19, 3:00 PM-4:30 PM

Location: Conference Call only

Conference #: (218) 339-4600 Participant Code: 927571#

Agenda

1. Welcome and Introductions
2. Discussion of Comments on “Framework” Document
3. Discussion of Comments on Evaluation Table
4. Executive Committee Report
5. Next Meeting/Call (if needed)
A Framework for Salt/Nitrate Source Identification Studies
Prepared by: CV-SALTS Knowledge Gained Subcommittee for CV-SALTS Technical Advisory Committee

December 15, 2011

1. Introduction

At the April 22, 2011 Executive Committee Meeting, the Knowledge Gained Subcommittee presented a technical memorandum, dated April 15, 2011, to the Executive Committee outlining a framework for preparing salt/nitrate source identification studies. The Executive Committee approved the basic elements provided in the memorandum and directed the Knowledge Gained Subcommittee to complete a more detailed framework document. This document provides the more detailed framework for preparing regional-scale salt/nitrate source identification studies in the Central Valley, as requested by the Executive Committee. These studies would be completed as an element of salt and nutrient management plan development in the Central Valley. An overarching conceptual framework for preparation of salt and nitrate management plans in the Central Valley will be developed in the future by the CV-SALTS Technical Advisory Committee.

Our recommendation is that salt/nitrate source identification studies be conducted in a phased manner that utilizes best available information and tools to promote cost-effective and timely evaluations, and to provide an opportunity for on-going stakeholder input to that process. We have developed a suggested approach for preparing “Initial Studies” consisting primarily of initial data gathering and simplified conceptual modeling to establish preliminary water budgets and salt/nitrate balances for each identified Study Area.¹

The Knowledge Gained Subcommittee recommends that the Initial Studies include basic information about known sources of salt and nitrate, land uses, areas of contamination and impairment, recycled...
water and groundwater recharge projects, regulatory constraints, and past or ongoing local planning programs and monitoring pertaining to the management of salt and nitrate within the Study Area. Such basic information will be useful to Stakeholders for characterizing and categorizing identified Study Areas and evaluating the need and scope for subsequent “Follow-up Studies” needed to support the development of Salt and Nitrate Management Plans.

2. Technical Study Goals

The goals, or general statements of intent, of the salt/nitrate source identification studies, as an element of the overall Salt and Nutrient Management Plans, are to provide data and information that can contribute to:

- Characterization and categorization of identified Study Areas throughout the Central Valley;
- An understanding of the linkages between Study Areas;
- Prioritization of potential salt/nitrate management practices;
- Support for Salt and Nitrate Management Plans required by the Recycled Water Policy;
- Support for appropriate changes to beneficial use and water quality objective changes; and
- Support for proposed Basin Plan amendments.

3. Technical Study Objectives

Technical objectives define the strategies or steps to attain the identified goals. To provide flexibility to the parties performing the studies, these objectives are general in nature. Steps for performing studies that comply with these objectives are described in later sections of this document.

The key technical objectives for an Initial Study are:

1. Develop a conceptual model for the Study Area including identification of sources, sinks, and transformation processes necessary for the development of water budgets and salt/nitrate mass balances;

---

2 Such information does not include detailed evaluations of the current management and policy issues in Study Areas. However, we recognize the value and need for such evaluations and recommend that they be completed simultaneously with, but separate from, the Initial Studies. Ultimately, salt/nitrate source identification studies must consider these topics/issues to be relevant.

3 At this point, a detailed approach for preparing subsequent “Follow-up Studies” has not been developed because the specific scopes of such additional studies will depend on the Initial Study results and region-specific management and policy issues for the Study Area.

4 The term “salt/nitrate source identification studies” is a general term, and refers to both the Initial Studies and Follow-up Studies.
2. Characterize the current understanding of the movement of water and salt/nitrate into and out of neighboring Study Areas;
3. Develop preliminary water budgets and salt/nitrate mass balances using available information;
4. Identify potential management strategies;
5. Make a preliminary estimate of the rate of salt/nitrate accumulation or reduction in the unsaturated zone, surface water, and groundwater within a Study Area;
6. Analyze historical and projected salt/nitrate loading rates and concentrations for surface water and groundwater within the Study Area in cases where these loads can be quantified; and
7. Identify and evaluate data gaps, data sensitivity, default assumptions, and data limitations for the Study Area.

Follow-up Studies will likely be needed for a Study Area based upon stakeholder review of Initial Study results and the region-specific management and policy issues for the Study Area. Technical objectives for the Follow-up Studies include:

1. Delineate the lateral and vertical extents of regions within a Study Area where beneficial uses are being or have been impaired by salt/nitrate accumulation, or are vulnerable to such impairment;
2. Determine current and legacy salt/nitrate sources that may have contributed to beneficial use impairment and refine the estimates of the salt/nitrate load contribution of each source;
3. Assess the fate and transport of salt and nitrate in soil, surface water, and groundwater, including surface water mixing, denitrification and preferential migration pathways (e.g., presence or absence of low permeability strata, proximity of irrigation or potable supply wells);
4. Ensure compliance with the salt and nutrient management plan requirements of the Recycled Water Policy; and
5. Characterize temporal and spatial variations in salt/nitrate loads that may influence salt and nitrate management strategies and the implementation of new or improved management practices, e.g. the Real Time Management Program of discharges to the San Joaquin River.

4. Technical Study Approach

Studies should be conducted in a phased approach to promote cost-effective evaluations and provide an opportunity for stakeholder input at intermediate points in the technical study process.

Initial Studies should be completed for all Study Areas. They should consist of the initial data gathering and simplified conceptual modeling to determine preliminary water budgets and salt/nitrate balances. The Initial Studies should also include the collection of additional information about known contamination and impairments, recycled water and groundwater recharge projects, regulatory

---

5 The study area for any Follow-up Study should be the same as the study area for the Initial Study.
constraints, and local planning, monitoring and management programs pertaining to salt and nitrate within the Study Area.

**INITIAL STUDIES**

**Step 1: Study Area Delineation and Characteristics** - The first step in an Initial Study is a clear delineation of the Study Area and a description of Study Area characteristics. All studies should pertain to a clearly defined Study Area, with horizontal and vertical boundaries that are consistently used as the frame of reference for all subsequent evaluations. Considerations in establishing boundaries should include natural hydrological boundaries (watersheds and groundwater basins), water supply and wastewater infrastructure, boundaries for application of existing salt/nitrate water quality objectives or TMDL wasteload/load allocations, land use characteristics, data availability and coverage in compatible GIS format, availability and extent of existing surface and groundwater modeling tools, and boundaries of existing planning entities such as counties, water districts, agricultural coalitions, and Integrated Regional Water Management (IRWM) planning areas. An advantage to selecting Study Areas based on natural hydrological boundaries may be a reduction in the cost and amount of time it takes to develop water budgets and salt/nitrate mass balances. On the other hand, use of political boundaries may better define a sustainable management area that engages appropriate stakeholders and capitalizes on existing planning efforts and tools. Study area characteristics that should be described include land use, surface and groundwater quality, climate, physiography, geology, hydrology, and hydrogeology. GIS should be used to delineate Study Areas and Study Area features to promote consistency between Study Areas and to incorporate geo-spatial information into the conceptual model.

**Step 2: Screening Existing Analytical Tools** – The second step consists of choosing the appropriate analytical tool(s) for the evaluation and should include screening publicly available analytical tools, including GIS-based inventories and mapping approaches, watershed models and surface and groundwater simulation models, which cover the region of interest. The tools should be evaluated to assess the appropriateness of their use, including the development of a strategy for using these analytical tools to meet the objectives of identifying the occurrence and movement of salt and nitrate into, within, and from the selected study area (including all components of the hydrologic system), to produce the desired water and salinity budgets within the chosen region, and to identify potential management strategies. Tools may range from relatively simple spreadsheet models to GIS-based systems to more complex analytical models. Making use of existing models, in particular those that are calibrated and well-documented, can save considerable time and lend credibility to the water and salinity budget analysis. However, care should be taken to understand the conceptual basis of any model selected. Appendix A provides more detail on the types of models available and the issues that must be considered during the selection process.
Step 3: Preliminary Water Budgets - The third step in an Initial Study is the development of preliminary water budgets.\(^6\) A water budget is the characterization and accounting of inputs (water sources), outputs (water sinks), and changes in water volume (e.g., groundwater elevation changes) for a defined Study Area. Examples of water sources and sinks are provided in the attached Salt/Nitrate Balance Study Evaluation Checklist (Table 1). The study also may need to identify constraints to the water budget as applicable\(^7\) (e.g. permit terms, environmental regulations, risk management). The development of accurate water budgets is the foundation of the salt/nitrate mass balances.

Step 4: Preliminary Loads and Mass Balances - The fourth step in an Initial Study is the development of preliminary salt/nitrate loads and mass balances using available information. All salt/nitrate sources, sinks, concentrators and transformation processes are identified with appropriate quantitative, location, and associated land use data. Examples of salt/nitrate sources, sinks, and concentrators are provided in the attached Salt/Nitrate Balance Study Evaluation Checklist (Table 1). This information is used in conjunction with the water budgets to estimate salt/nitrate loads and to complete accompanying mass balances. Salt/nitrate loads being discharged to a particular water body are estimated by multiplying the flow volume of each discharge by its total dissolved solids (TDS) (or other measurement of salt concentration) and nitrate concentrations. For groundwater it will be necessary to define an appropriate unit of the aquifer system for purposes of analyzing assimilative capacity and to establish that there is an equivalent analysis of the groundwater data that is representative of that unit (e.g., it should not be assumed that the entire volume of groundwater in a basin/sub-basin is instantaneously and uniformly mixed).

Rudimentary salinity and nitrate budgets can be developed from these water budgets by assigning salinity and nitrate concentration values to hydrologic components of the surface and groundwater budgets. It needs to be recognized that salinity and nitrate accounting in the groundwater system is complex and poorly handled by many groundwater solute transport models. If a less rigorous approach is taken, care should be taken to document all model assumptions and to provide relevant water quality data that are the basis for these assumptions. Salinity budgets are only as good as the water budgets underlying them.

Whatever the approach taken - all data and assumptions relied upon to conduct the salt/nitrate mass balances should be clearly identified, inventoried (e.g., in the recommended database and GIS-based approach), and documented.

\(^6\) More than one water budget may need to be developed to capture variability in water volumes and management strategies attributable to different hydrologic conditions (e.g., wet, above normal, below normal, dry, and critical water year classifications, dry vs. rainy seasons). For surface water evaluations, a minimum of a monthly temporal scale for water budgets and salt/nitrate mass balances should be used. For groundwater evaluations, an annual, or if justified, longer temporal scale for water budgets and salt/nitrate balances should be used.

\(^7\) It is critical to identify the water that may be consumed in the Study Area and that which passes through or remains in place.
Step 5: Budget and Mass Balance Graphics - The fifth step in an Initial Study is to synthesize and create visualizations of water budget and salt/nitrate mass balance information. Data visualization should be done in consideration of salt/nitrate issues and regulatory endpoints so that stakeholders can determine if the studies are sufficient to accomplish the goals of the study (i.e., the goals established in Section 2 of this document) and facilitate development of regional Salt and Nutrient Management Plans that act together to protect or restore surface water and groundwater beneficial uses ultimately adopted in the Basin Plan.

The Knowledge Gained Subcommittee recommends that water budget and mass balance results be presented in a consistent manner and that uniform data visualization templates be developed by CV SALTS such that results of studies from different Study Areas can be compared and integrated.

Examples of recommended data visualization tools are water budget diagrams, mass balance diagrams, bar charts, pie charts, histograms and time series graphs. For consistency, we recommend that such data visualizations use the following units:

- Loading rates: tons/day, tons/month, or tons/year (depending on temporal scale of interest)
- Concentrations: mg/L
- Flow rates: acre-feet/day, acre-feet/month, or acre-feet/year (depending on temporal scale of interest)

The salt/nitrate source identification studies should contribute to the “common language” between regional Salt and Nitrate Management Plans, so as to enable regional management practices to be coordinated and not acting at cross-purposes to one another.

Step 6: Data Gaps and Limitations – The sixth step in an Initial Study is the Identification and evaluation of data gaps, data sensitivity, default assumptions, and data limitations for the Study Area.

FOLLOW-UP STUDIES

The nature and complexity of the necessary Follow-up Studies will vary depending on the situation. Additional investigations or computer modeling will likely be needed to refine water budgets, more accurately characterize temporal salt/nitrate concentration trends, evaluate salt/nitrate fate and transport, and help prioritize and implement management practices needed to meet (or attempt to meet) regulatory requirements (e.g., attainment of water quality objectives in local and downstream water bodies).

Follow-up Studies may include the following:

- Surface and groundwater modeling⁸ to develop more refined water budgets, salt/nitrate mass balances, and for other complex analytical needs;

---

⁸ It is critical that the strengths and weaknesses of the existing models be evaluated, particularly with respect to the work completed prior to the groundwater model development to physically characterize the coupling of storm
• Evaluation of surface water bodies carrying the largest loads and regions within groundwater basins with the highest salt/nitrate concentrations;
• Evaluation of drivers of surface water and groundwater management, including land cover and land use decisions in the Study Area;
• Evaluation of land cover at current development level and at estimated build out (or through end of existing general plan coverage);
• Evaluation of current best land use and water resources management practices in the region; and
• Evaluation of current monitoring gaps and funding/schedule to address such gaps.

DATA COMPLETENESS AND ACCURACY

All data relied upon to conduct the studies should be clearly documented.

The reliability of the water budgets and salt/nitrate mass balances largely depends upon data completeness and accuracy. Data completeness and accuracy varies broadly throughout the Central Valley. Incomplete or conflicting data should be described, and actions needed to address such problems (e.g., using other assumptions supported by references needed to develop salt/nitrate loads and mass balances) should be documented.

Only data that has undergone quality assurance/quality control review should be used to conduct salt/nitrate source identification studies. Other data, considered but not used, should be clearly documented as being of lower quality. Sensitivity analyses should be conducted to determine whether data variability affects water budgets and salt/nitrate mass balances.

Assumptions will need to be made in cases where no data exist. All assumptions should be clearly identified and, whenever, possible, supported by references. The Knowledge Gained Subcommittee recommends that CV SALTS develop a set of suggested default assumptions for use when data are not available. Sensitivity analyses can be used to determine whether default assumptions are appropriate, or whether additional data collection or studies are needed.

5. Suggested Initial Study Outline

A suggested general outline for the Initial Study report, along with a brief description of each report section, is provided below. In addition, the attached Salt/Nitrate Balance Study Evaluation Checklist (Appendix B) provides more detail and should be reviewed and used in conjunction with the outline below. The recommended outline for each Initial Study report includes:

water and groundwater systems. To the extent that complex surface water and groundwater flow dynamics are recognized for a sub-basin or planning and analysis unit with identified salt and nitrate issues, a flow model would allow for greater spatial and temporal differentiation, which is critical for salt and nitrate management.
• **Description of the Study Area and Physical Description of Regions:** This section should include an overview of the study goals and objectives, the constituents addressed in the study, and any stakeholders participating in study. In addition, both written and graphical descriptions should be provided of regional, watershed, and groundwater basin boundaries; areal extent of the region; climate, water sources, hydrology, geology, hydrogeology, and land use of the region.

• **Data:** This section should identify data sources, discuss data quality, limitations and sensitivity, and describe any assumptions used and the basis for those assumptions. Input databases should be summarized, and made available in digital format for more detailed review.

• **Tools:** This section should identify the analytical tools selected for the initial study and the evaluations conducted to ensure the appropriateness of the tools selected to meet the initial program objectives and to create the foundational basis for follow-up studies.

• **Water Budgets:** This section should include one or more preliminary water budgets that characterize the water dynamics and use of the region, at spatial and temporal scales that are appropriate for salt/nitrate management. This section should include a conceptual model of the budgets; discuss factors influencing the budgets; identify and quantify the significant surface and groundwater sources entering and pathways leaving the region; and should develop and discuss the water balances. All assumptions upon which the water budgets were based should be clearly identified, and the bases for the assumptions should be explained and, where possible, supported by references.

• **Salt/Nitrate Loads and Mass Balances:** This section should include preliminary salt/nitrate loads and mass balances that correspond to each water budget developed. This section should identify all significant salt/nitrate sources and sinks; quantify salt/nitrate loads associated with each source and sink; prioritize sources to soil, surface water and groundwater, and estimate the rate of salt/nitrate accumulation or loss and project groundwater TDS/nitrate concentrations into the future. Representative TDS/nitrate concentrations used to calculate salt/nitrate loads should be identified. All assumptions upon which the mass balances were based should be clearly identified, and the bases for the assumptions should be explained and, where possible, supported by references. Data gaps and recommended areas of further study, if needed, should be discussed.

• **Additional Basic information:** For each Study Area, additional basic information should be collected that will be needed for the overall CV-SALTS effort. This additional information should include a summary of:
  - Known contamination/impairment in the Study Area – this information could be obtained from individuals, organizations, or agencies familiar with water quality issues in the Study Area (e.g. County Environmental Health Departments, Integrated Regional Water
Management Groups, water purveyors, water users
- Recycled water and groundwater recharge projects in effect or planned in the Study Area
- Water quality objectives, beneficial uses, local planning objectives, and existing management programs and strategies pertaining to salt and nitrate loads and concentrations within the Study Area, and
- Surface water and groundwater monitoring programs collecting flow, groundwater level, and salt and nitrate-related water quality data.

• Recommendations: This section should discuss follow-up studies appropriate to the selected study area. For example, more populated areas and/or areas with intensive and diverse land and water use will likely require more comprehensive analyses and modeling efforts with sufficient spatial and temporal detail to achieve adequate understanding of salt and nitrate occurrence, loading and movement and to implement effective management strategies.
Appendix A
Additional Considerations in the Selection of Modeling Tools

In the performance of salt/nitrate source identification studies, a recommended early step is the screening and evaluation of existing analytical tools. This appendix provides additional information regarding issues that should be considered during the model screening and selection process, drawing from lessons learned in the Central Valley.

The use of existing modeling tools, in particular those that are calibrated and well-documented, can save considerable time and lend credibility to source identification and water and salinity budget analysis. Use of existing models also allows comparisons to previous studies, which helps to validate the analysis, especially if the previous studies were well accepted.

Linkage or integration of surface, groundwater and water quality models is desirable if this linkage allows more thorough tracking of basin hydrology and if the models are capable of exchanging component hydrology and water quality information in a prescribed manner. For example, the WARMF model is designed for simulation of natural soil layers within a few meters of the surface, including the root zone. Tile drainage and percolation to the deeper groundwater system are important processes in the San Joaquin River watershed. Adaption of WARMF to simulate these processes requires careful application of the model by an advanced WARMF modeler. Care should be taken to understand the conceptual basis of these models to avoid attempting to link models that are fundamentally incompatible. Attempting to force information exchange between models with different temporal (e.g. models with daily versus monthly time steps) or spatial (e.g. model layering) conceptual frameworks requires substantial project resources. When inadequately planned or funded, or when time allotted for completion of calibration/verification and other aspects of checking the modeling work is insufficient, the success of the overall analysis can be compromised. There is no substitute for careful and informed planning at this stage of the process to determine how the models that have been selected will be used to achieve program objectives, to determine the datasets available as inputs to each model, and to decide how outputs from “upstream” models will be mapped to the inputs to “downstream” models in the study framework.

Cogent examples of these issues relevant to CV-SALTS surfaced in the initial Salt and Nitrate source study performed for CV-SALTS, the, as yet unpublished, US Bureau of Reclamation-sponsored west-side study, and the Delta Drinking Water Policy Technical Working Group’s study of source influences in the Sacramento and San Joaquin watersheds. It should be noted that along with these lessons learned about the inherently complex studies of detailed source-sink relationships in a vast watershed, the power and utility of the tools employed were also strongly recognized in project conclusions.
The different evapotranspiration computation algorithms utilized in the WARMF model and used in groundwater models such as IWFM and MODFLOW, and the difficulty in determining a groundwater model component analogous to the WARMF deep recharge, present challenges in linking the models together. Where these sorts of data exchange problems arise, it should be incumbent on the modeling team to document these problems and the remedies adopted. The difficulties of linking models within a modeling framework are usually underestimated. Models such as MODFLOW and IWFM have built-in water budget subroutines – known as ZONEBUDGET, in the case of the finite difference MODFLOW model, and Z-Budget, in the case of the finite element IWFM model. These water budget outputs have been further manipulated into customized spreadsheets for model applications such as WESTSIM into terms that stakeholders may be more familiar with and therefore able to provide critical feedback. For example expressing recharge, evapotranspiration and seepage for a pre-defined three dimensional “zone” in units of acre-ft/acre (depth of water) makes sense to an irrigator who tends to think in these terms.
Appendix B – Suggested Components of a Central Valley Salt/Nitrate Balance

The following checklist was prepared by the CV-SALTS Knowledge Gained Subcommittee to provide guidance regarding the tasks involved in the preparation of salt and nitrate balances for selected areas. The goal of the list is twofold: (1) to aid parties during the planning stage of a project to determine the type of information that may be appropriate to consider during their study; and (2) to summarize what information was gathered at the end of the study.
# Suggested Components of a Central Valley Salt/Nitrate Balance

<table>
<thead>
<tr>
<th>Study Aspects</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Description of the Study and Physical Description of Study Area</strong></td>
<td></td>
</tr>
<tr>
<td>Identifies Stakeholders Participating in the Study</td>
<td>○</td>
</tr>
<tr>
<td>Identifies Goals and Objectives of the Study</td>
<td>○</td>
</tr>
<tr>
<td>Physical Description of Study Area</td>
<td></td>
</tr>
<tr>
<td>Describes physical boundaries of the Study Area</td>
<td>○</td>
</tr>
<tr>
<td>Describes the rationale for the physical boundaries</td>
<td>○</td>
</tr>
<tr>
<td>Applies physical boundaries to water, salt, and nitrate balances</td>
<td>○</td>
</tr>
<tr>
<td>Provides the areal extent (acreage) of the Study Area</td>
<td>○</td>
</tr>
<tr>
<td>Identifies watershed boundaries within and near the Study Area</td>
<td>○</td>
</tr>
<tr>
<td>Identifies groundwater subbasin boundaries within and near the Study Area</td>
<td>○</td>
</tr>
<tr>
<td>Identifies hydrologic areas (surface and groundwater) tributary to and from the Study Area</td>
<td>○</td>
</tr>
<tr>
<td>Describes Study Area geology</td>
<td>○</td>
</tr>
<tr>
<td>Describes Study Area hydrogeology</td>
<td>○</td>
</tr>
<tr>
<td>Describes current Study Area land use</td>
<td>○</td>
</tr>
<tr>
<td>Describes the Study Area climate</td>
<td>○</td>
</tr>
<tr>
<td>Identifies Study Area water sources</td>
<td>○</td>
</tr>
<tr>
<td>Are GIS shapefiles and data sources available for the following:</td>
<td></td>
</tr>
<tr>
<td>Physical boundaries of Study Area</td>
<td>○</td>
</tr>
<tr>
<td>Boundaries of watershed(s)</td>
<td>○</td>
</tr>
<tr>
<td>Boundaries of groundwater subbasin(s)</td>
<td>○</td>
</tr>
<tr>
<td>Surface water bodies</td>
<td>○</td>
</tr>
<tr>
<td>Land use</td>
<td>○</td>
</tr>
<tr>
<td><strong>2 Data</strong></td>
<td></td>
</tr>
<tr>
<td>Presents and references all flow data used for the study</td>
<td>○</td>
</tr>
<tr>
<td>Presents and references all salt data used for the study</td>
<td>○</td>
</tr>
<tr>
<td>Presents and references all nitrate data used for the study</td>
<td>○</td>
</tr>
<tr>
<td>Evaluates and discusses data sensitivity</td>
<td>○</td>
</tr>
<tr>
<td>Identifies and quantifies data limitations, including accessibility and availability in useful format</td>
<td>○</td>
</tr>
<tr>
<td><strong>3 Water Budget(s)</strong></td>
<td></td>
</tr>
<tr>
<td>Provides a conceptual model of the water budget(s)</td>
<td>○</td>
</tr>
<tr>
<td>Identifies and describes the water uses associated with various land uses</td>
<td>○</td>
</tr>
<tr>
<td>Defines and discusses an appropriate physical scale based on available data</td>
<td>○</td>
</tr>
<tr>
<td>Defines and discusses an appropriate temporal scale based on available data</td>
<td>○</td>
</tr>
<tr>
<td>Develops water budget(s) for dry, wet, and average conditions</td>
<td>○</td>
</tr>
<tr>
<td>Identifies and discusses the applicability of the following factors in the water budget:</td>
<td></td>
</tr>
<tr>
<td>assumed water usage used for different land use categories</td>
<td>○</td>
</tr>
<tr>
<td>hydrology</td>
<td>○</td>
</tr>
<tr>
<td>residence time factors</td>
<td>○</td>
</tr>
<tr>
<td>regulatory demands</td>
<td>○</td>
</tr>
<tr>
<td>habitat considerations</td>
<td>○</td>
</tr>
<tr>
<td>flood control</td>
<td>○</td>
</tr>
<tr>
<td>water supply variability</td>
<td>○</td>
</tr>
<tr>
<td>Identifies and discusses the applicability of the following elements in the water budget(s):</td>
<td></td>
</tr>
<tr>
<td>imported surface water</td>
<td>○</td>
</tr>
<tr>
<td>precipitation</td>
<td>○</td>
</tr>
<tr>
<td>land application of wastewater</td>
<td>○</td>
</tr>
<tr>
<td>wastewater discharges to surface water</td>
<td>○</td>
</tr>
</tbody>
</table>
Suggested Components of a Central Valley Salt/Nitrate Balance

<table>
<thead>
<tr>
<th>Study Aspects</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>residential irrigation</td>
<td></td>
</tr>
</tbody>
</table>
### Suggested Components of a Central Valley Salt/Nitrate Balance

#### Study Aspects

<table>
<thead>
<tr>
<th>Water Budget(s) (continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>irrigation subsurface drainage</td>
</tr>
<tr>
<td>agricultural runoff</td>
</tr>
<tr>
<td>stormwater runoff</td>
</tr>
<tr>
<td>groundwater extraction</td>
</tr>
<tr>
<td>groundwater recharge</td>
</tr>
<tr>
<td>groundwater seepage to surface water</td>
</tr>
<tr>
<td>groundwater inflow from outside the Study Area</td>
</tr>
<tr>
<td>groundwater outflow from the Study Area</td>
</tr>
<tr>
<td>surface water inflow from outside the Study Area</td>
</tr>
<tr>
<td>surface water outflow from the Study Area</td>
</tr>
<tr>
<td>infiltration</td>
</tr>
<tr>
<td>evaporation</td>
</tr>
<tr>
<td>evapotranspiration</td>
</tr>
</tbody>
</table>

- Defines terminologies used in the water budget(s)
- Provides a written explanation of the water budget(s)
- Identifies data gaps in the water budget(s) and recommends areas for further study
- Provides a graphical representation of the water budget(s)

#### Salt Balance(s)

- Provides a conceptual model of salt movement from sources to sinks in the Study Area
- Develops salt balance(s) for dry, wet, and average conditions
- Identifies and discusses the applicability of the following sources and sinks in the salt balance(s):
  - imported surface water
  - agricultural runoff
  - irrigation subsurface drainage
  - soil amendments
  - fertilizer
  - CAFOs (e.g., dairies)
  - industries (e.g., food processors, wineries)
  - food and other products exported from the Study Area
  - land application of wastewater
    - CAFOs
    - municipalities
    - food processors and other industries
  - wastewater discharges to surface water
    - municipalities
    - food processors and other industries
  - residential irrigation
  - septic tank systems
  - stormwater runoff
  - water transfers
  - groundwater extraction
  - groundwater recharge
  - groundwater seepage to surface water
  - groundwater inflow from outside the Study Area
  - groundwater outflow from the Study Area
### Suggested Components of a Central Valley Salt/Nitrate Balance

<table>
<thead>
<tr>
<th>Study Aspects</th>
</tr>
</thead>
<tbody>
<tr>
<td>surface water inflow from outside the Study Area</td>
</tr>
</tbody>
</table>
# Suggested Components of a Central Valley Salt/Nitrate Balance

## Study Aspects

<table>
<thead>
<tr>
<th>4 Salt Balance(s) (continued)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface water outflow from the Study Area</td>
<td></td>
</tr>
<tr>
<td>Mineral dissolution</td>
<td></td>
</tr>
<tr>
<td>Atmospheric deposition and scour</td>
<td></td>
</tr>
<tr>
<td>Upwelling of saline groundwater</td>
<td></td>
</tr>
<tr>
<td>Defines terminologies used in the salt balance(s)</td>
<td></td>
</tr>
<tr>
<td>Identifies, quantifies, and prioritizes salt sources to groundwater largest to smallest</td>
<td></td>
</tr>
<tr>
<td>Identifies, quantifies, and prioritizes salt sources to surface water largest to smallest</td>
<td></td>
</tr>
<tr>
<td>Provides concentrations and flow rates for each source</td>
<td></td>
</tr>
<tr>
<td>Provides loading rates for each source</td>
<td></td>
</tr>
<tr>
<td>lbs</td>
<td></td>
</tr>
<tr>
<td>tons</td>
<td></td>
</tr>
<tr>
<td>per day</td>
<td></td>
</tr>
<tr>
<td>per month</td>
<td></td>
</tr>
<tr>
<td>per year</td>
<td></td>
</tr>
<tr>
<td>per acre</td>
<td></td>
</tr>
<tr>
<td>per Study Area</td>
<td></td>
</tr>
<tr>
<td>Identifies and quantifies salt sinks</td>
<td></td>
</tr>
<tr>
<td>Provides loading rates to each sink</td>
<td></td>
</tr>
<tr>
<td>Provides a written explanation of the salt balance(s)</td>
<td></td>
</tr>
<tr>
<td>Provides a graphical representation of the salt balance(s)</td>
<td></td>
</tr>
<tr>
<td>-- Graphic identifies and quantifies all significant salt sinks out of the Study Area</td>
<td></td>
</tr>
<tr>
<td>Identifies data gaps in the salt balance and recommends areas for further study</td>
<td></td>
</tr>
<tr>
<td>Quantifies the rate of salt accumulation or reduction in the Study Area assuming current conditions</td>
<td></td>
</tr>
<tr>
<td>Projects salinity concentrations into the future assuming current conditions</td>
<td></td>
</tr>
</tbody>
</table>

## Nitrate Balance(s)

<table>
<thead>
<tr>
<th>5 Nitrate Balance(s)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides a conceptual model of nitrate movement from sources to sinks in the Study Area</td>
<td></td>
</tr>
<tr>
<td>Develops nitrate balance(s) for dry, wet, and average conditions</td>
<td></td>
</tr>
<tr>
<td>Identifies and discusses the applicability of the following sources and sinks in the nitrate balance(s):</td>
<td></td>
</tr>
<tr>
<td>Imported surface water</td>
<td></td>
</tr>
<tr>
<td>Agricultural runoff</td>
<td></td>
</tr>
<tr>
<td>Irrigation subsurface drainage</td>
<td></td>
</tr>
<tr>
<td>Soil amendments</td>
<td></td>
</tr>
<tr>
<td>Fertilizer</td>
<td></td>
</tr>
<tr>
<td>CAFOs (e.g., dairies)</td>
<td></td>
</tr>
<tr>
<td>Industries (e.g., food processors, wineries)</td>
<td></td>
</tr>
<tr>
<td>Food and other products exported from the Study Area</td>
<td></td>
</tr>
<tr>
<td>Land application of wastewater</td>
<td></td>
</tr>
<tr>
<td>-- Dairies and other CAFOs</td>
<td></td>
</tr>
<tr>
<td>-- Municipalities</td>
<td></td>
</tr>
<tr>
<td>-- Food processors and other industries</td>
<td></td>
</tr>
<tr>
<td>Wastewater discharges to surface water</td>
<td></td>
</tr>
<tr>
<td>-- Municipalities</td>
<td></td>
</tr>
<tr>
<td>-- Food processors and other industries</td>
<td></td>
</tr>
<tr>
<td>Residential irrigation</td>
<td></td>
</tr>
<tr>
<td>Septic tank systems</td>
<td></td>
</tr>
<tr>
<td>Stormwater runoff</td>
<td></td>
</tr>
<tr>
<td>Water transfers</td>
<td></td>
</tr>
</tbody>
</table>
Suggested Components of a Central Valley Salt/Nitrate Balance

<table>
<thead>
<tr>
<th>Study Aspects</th>
</tr>
</thead>
<tbody>
<tr>
<td>groundwater extraction</td>
</tr>
</tbody>
</table>
## Suggested Components of a Central Valley Salt/Nitrate Balance

### Study Aspects

<table>
<thead>
<tr>
<th>Nitrate Balance(s) (continued)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5</strong></td>
<td></td>
</tr>
<tr>
<td>groundwater recharge</td>
<td></td>
</tr>
<tr>
<td>groundwater seepage to surface water</td>
<td></td>
</tr>
<tr>
<td>groundwater inflow from outside the Study Area</td>
<td></td>
</tr>
<tr>
<td>groundwater outflow from the Study Area</td>
<td></td>
</tr>
<tr>
<td>surface water inflow from outside the Study Area</td>
<td></td>
</tr>
<tr>
<td>surface water outflow from the Study Area</td>
<td></td>
</tr>
<tr>
<td>atmospheric deposition and scour</td>
<td></td>
</tr>
<tr>
<td>naturally occuring nitrate in groundwater</td>
<td></td>
</tr>
<tr>
<td>plant uptake and nutrient cycle</td>
<td></td>
</tr>
<tr>
<td>reaction decay</td>
<td></td>
</tr>
<tr>
<td>gaseous loss, volatilization</td>
<td></td>
</tr>
</tbody>
</table>

- Defines terminologies used in the nitrate balance(s)
- Identifies transformation of nitrate precursors into nitrates by discharge type
- Identifies, quantifies, and prioritizes nitrate sources to groundwater largest to smallest
- Identifies, quantifies, and prioritizes nitrate sources to surface water largest to smallest
- Provides concentrations and flow rates for each source and pre-cursor
- Provides loading rates for each source and pre-cursor
- Includes nitrogen losses in analysis
- Provides a written explanation of the nitrate balance(s)
- Provides a graphical representation of the nitrate balance(s)
- Identifies data gaps in the nitrate balance and recommends areas for further study
- Quantifies the rate of nitrate accumulation or reduction in the Study Area assuming current conditions
- Projects nitrate concentrations into the future assuming current conditions
Appendix C – Review of Two Studies of Salt/Nitrate Balances in the Central Valley

In this Appendix, the checklist presented in Appendix B has been used to summarize reviews of the following two Central Valley salt/nitrate balance studies that have been reviewed by the CV-SALTS Knowledge Gained Subcommittee.


The first study utilized the WARMF analytical model and the second study utilized a spreadsheet model. The reader is also referred to the CV-SALTS website (www.cvsalinity.org) to access the technical reports for the studies in question and a narrative review.
## Comparison of Central Valley Salt/Nitrate Balance Studies

### Study Aspects

<table>
<thead>
<tr>
<th>Study Aspects</th>
<th>Pilot Studies¹</th>
<th>Turlock Study²</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Description of the Study and Physical Description of Study Area</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identifies Stakeholders Participating in the Study</td>
<td>●</td>
<td>-- ○</td>
</tr>
<tr>
<td>Identifies Goals and Objectives of the Study</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td><strong>Physical Description of Study Area</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Describes physical boundaries of the Study Area</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Describes the rationale for the physical boundaries</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Applies physical boundaries to water, salt, and nitrate balances</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Provides the areal extent (acreage) of the Study Area</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Identifies watershed boundaries within and near the Study Area</td>
<td>●</td>
<td>-- ○</td>
</tr>
<tr>
<td>Identifies groundwater subbasin boundaries within and near the Study Area</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Identifies hydrologic areas (surface and groundwater) tributary to and from the Study Area</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>Describes Study Area geology</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Describes Study Area hydrogeology</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Describes current Study Area land use</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Describes the Study Area climate</td>
<td>●</td>
<td>-- ○</td>
</tr>
<tr>
<td>Identifies Study Area water sources</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Are GIS shapefiles and data sources available for the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical boundaries of Study Area</td>
<td>●</td>
<td>-- ○</td>
</tr>
<tr>
<td>Boundaries of watershed(s)</td>
<td>●</td>
<td>-- ○</td>
</tr>
<tr>
<td>Boundaries of groundwater subbasin(s)</td>
<td>●</td>
<td>-- ○</td>
</tr>
<tr>
<td>Surface water bodies</td>
<td>●</td>
<td>-- ○</td>
</tr>
<tr>
<td>Land use</td>
<td>●</td>
<td>-- ○</td>
</tr>
<tr>
<td><strong>2 Data</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presents and references all flow data used for the study</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Presents and references all salt data used for the study</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Presents and references all nitrate data used for the study</td>
<td>●</td>
<td>-- ○</td>
</tr>
<tr>
<td>Evaluates and discusses data sensitivity</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>Identifies and quantifies data limitations, including accessibility and availability in useful format</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td><strong>3 Water Budget(s)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides a conceptual model of the water budget(s)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Identifies and describes the water uses associated with various land uses</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>Defines and discusses an appropriate physical scale based on available data</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Defines and discusses an appropriate temporal scale based on available data</td>
<td>●</td>
<td>-- ○</td>
</tr>
<tr>
<td>Develops water budget(s) for dry, wet, and average conditions</td>
<td>●</td>
<td>-- ○</td>
</tr>
<tr>
<td>Identifies and discusses the applicability of the following factors in the water budget:</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>assumed water usage used for different land use categories</td>
<td>●</td>
<td>-- ○</td>
</tr>
<tr>
<td>hydrology</td>
<td>●</td>
<td>-- ○</td>
</tr>
<tr>
<td>residence time factors</td>
<td>○</td>
<td>-- ○</td>
</tr>
<tr>
<td>regulatory demands</td>
<td>-- ○</td>
<td>-- ○</td>
</tr>
<tr>
<td>habitat considerations</td>
<td>-- ○</td>
<td>-- ○</td>
</tr>
<tr>
<td>flood control</td>
<td>-- ○</td>
<td>-- ○</td>
</tr>
<tr>
<td>water supply variability</td>
<td>●</td>
<td>-- ○</td>
</tr>
<tr>
<td>Identifies and discusses the applicability of the following elements in the water budget(s):</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>imported surface water</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>precipitation</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>land application of wastewater</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>wastewater discharges to surface water</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>residential irrigation</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td><strong>3 Water Budget(s) (continued)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>irrigation subsurface drainage</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>agricultural runoff</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

¹ Pilot Studies
² Turlock Study
## Comparison of Central Valley Salt/Nitrate Balance Studies

### Study Aspects

<table>
<thead>
<tr>
<th>Study Aspects</th>
<th>Pilot Studies¹</th>
<th>Turlock Study²</th>
</tr>
</thead>
<tbody>
<tr>
<td>stormwater runoff</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>groundwater extraction</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>groundwater recharge</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>groundwater seepage to surface water</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>groundwater inflow from outside the Study Area</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>groundwater outflow from the Study Area</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>surface water inflow from outside the Study Area</td>
<td>●</td>
<td>-- ○</td>
</tr>
<tr>
<td>surface water outflow from the Study Area</td>
<td>●</td>
<td>-- ○</td>
</tr>
<tr>
<td>infiltration</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>evaporation</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>evapotranspiration</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Defines terminologies used in the water budget(s)</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>Provides a written explanation of the water budget(s)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Identifies data gaps in the water budget(s) and recommends areas for further study</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Provides a graphical representation of the water budget(s)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>-- Graphic identifies and quantifies all significant sources of inflow to the Study Area</td>
<td>-- ○</td>
<td>●</td>
</tr>
<tr>
<td>-- Graphic identifies and quantifies all water leaving the study area</td>
<td>-- ○</td>
<td>●</td>
</tr>
</tbody>
</table>

### 4 Salt Balance(s)

| Provides a conceptual model of salt movement from sources to sinks in the Study Area | ●              | ●             |
| Develops salt balance(s) for dry, wet, and average conditions                 | ●              | -- ○          |
| Identifies and discusses the applicability of the following sources and sinks in the salt balance(s): |
| imported surface water                                                        | ●              | ●             |
| agricultural runoff                                                           | ●              | ●             |
| irrigation subsurface drainage                                                | ●              | ●             |
| soil amendments                                                               | ●              | ●             |
| fertilizer                                                                    | ●              | -- ○          |
| CAFOs (e.g., dairies)                                                         | ●              | ●             |
| industries (e.g., food processors, wineries)                                 | ●              | ●             |
| food and other products exported from the Study Area                          | ●              | ●             |
| land application of wastewater                                                | ●              | ●             |
| -- CAFOs                                                                      | ●              | ●             |
| -- municipalities                                                             | ●              | ●             |
| -- food processors and other industries                                       | ●              | ●             |
| wastewater discharges to surface water                                        | ●              | ●             |
| -- municipalities                                                             | ●              | ●             |
| -- food processors and other industries                                       | ●              | ●             |
| residential irrigation                                                        | ●              | ●             |
| septic tank systems                                                           | ●              | ●             |
| stormwater runoff                                                             | ●              | ●             |
| water transfers                                                               | ●              | -- ○          |
| groundwater extraction                                                       | ●              | ●             |
| groundwater recharge                                                          | ●              | ●             |
| groundwater seepage to surface water                                          | ●              | ●             |
| groundwater inflow from outside the Study Area                                | ○              | ●             |
| groundwater outflow from the Study Area                                        | ○              | ●             |
| surface water inflow from outside the Study Area                              | ●              | ●             |

### 4 Salt Balance(s) (continued)

| surface water outflow from the Study Area                                     | ●              | ●             |
| mineral dissolution                                                           | ●              | ●             |
| atmospheric deposition and scour                                               | ●              | ●             |
| upwelling of saline groundwater                                               | -- ○          | ●             |
| Defines terminologies used in the salt balance(s)                            | ●              | ●             |
Comparison of Central Valley Salt/Nitrate Balance Studies

<table>
<thead>
<tr>
<th>Study Aspects</th>
<th>Pilot Studies</th>
<th>Turlock Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifies, quantifies, and prioritizes salt sources to groundwater largest to smallest</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Identifies, quantifies, and prioritizes salt sources to surface water largest to smallest</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Provides concentrations and flow rates for each source</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>Provides loading rates for each source</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>lbs</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>tons</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>per day</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>per month</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>per year</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>per acre</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>per Study Area</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Identifies and quantifies salt sinks</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Provides loading rates to each sink</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Provides a written explanation of the salt balance(s)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Provides a graphical representation of the salt balance(s)</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>-- Graphic identifies and quantifies all significant salt sinks out of the Study Area</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Identifies data gaps in the salt balance and recommends areas for further study</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>Quantifies the rate of salt accumulation or reduction in the Study Area assuming current conditions</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Projects salinity concentrations into the future assuming current conditions</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

5 Nitrate Balance(s)

<table>
<thead>
<tr>
<th>Study Aspects</th>
<th>Pilot Studies</th>
<th>Turlock Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides a conceptual model of nitrate movement from sources to sinks in the Study Area</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>Develops nitrate balance(s) for dry, wet, and average conditions</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>Identifies and discusses the applicability of the following sources and sinks in the nitrate balance(s):</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>imported surface water</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>agricultural runoff</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>irrigation subsurface drainage</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>soil amendments</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>fertilizer</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>CAFOs (e.g., dairies)</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>industries (e.g., food processors, wineries)</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>food and other products exported from the Study Area</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>land application of wastewater</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>-- diaries and other CAFOs</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>-- municipalities</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>-- food processors and other industries</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>wastewater discharges to surface water</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>-- municipalities</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>-- food processors and other industries</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>residential irrigation</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>septic tank systems</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>stormwater runoff</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>water transfers</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>groundwater extraction</td>
<td>●</td>
<td>○</td>
</tr>
</tbody>
</table>

5 Nitrate Balance(s) (continued)

<table>
<thead>
<tr>
<th>Study Aspects</th>
<th>Pilot Studies</th>
<th>Turlock Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>groundwater recharge</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>groundwater seepage to surface water</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>groundwater inflow from outside the Study Area</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>groundwater outflow from the Study Area</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>surface water inflow from outside the Study Area</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>surface water outflow from the Study Area</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>atmospheric deposition and scour</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>naturally occuring nitrate in groundwater</td>
<td>●</td>
<td>○</td>
</tr>
</tbody>
</table>
## Comparison of Central Valley Salt/Nitrate Balance Studies

<table>
<thead>
<tr>
<th>Study Aspects</th>
<th>Pilot Studies</th>
<th>Turlock Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>plant uptake and nutrient cycle</td>
<td>✗</td>
<td>○</td>
</tr>
<tr>
<td>reaction decay</td>
<td>✗</td>
<td>○</td>
</tr>
<tr>
<td>gaseous loss, volatilization</td>
<td>✗</td>
<td>○</td>
</tr>
<tr>
<td>Defines terminologies used in the nitrate balance(s)</td>
<td>✗</td>
<td>○</td>
</tr>
<tr>
<td>Identifies transformation of nitrate precursors into nitrates by discharge type</td>
<td>← ○</td>
<td>← ○</td>
</tr>
<tr>
<td>Identifies, quantifies, and prioritizes nitrate sources to groundwater largest to smallest</td>
<td>✗</td>
<td>○</td>
</tr>
<tr>
<td>Identifies, quantifies, and prioritizes nitrate sources to surface water largest to smallest</td>
<td>✗</td>
<td>○</td>
</tr>
<tr>
<td>Provides concentrations and flow rates for each source and pre-cursor</td>
<td>✗</td>
<td>○</td>
</tr>
<tr>
<td>Provides loading rates for each source and pre-cursor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>lbs</th>
<th>tons</th>
<th>per day</th>
<th>per month</th>
<th>per year</th>
<th>per acre</th>
<th>per Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>✗</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>○</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>← ○</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✗</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>○</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Identifies and quantifies nitrate and precursor sinks
- Provides loading rates to each sink
- Includes nitrogen losses in analysis
- Provides a written explanation of the nitrate balance(s)
- Provides a graphical representation of the nitrate balance(s)
- --Graphic identifies and quantifies all significant nitrate sources into the Study Area
- --Graphic identifies and quantifies all significant nitrate sinks out of the Study Area
- Identifies data gaps in the nitrate balance and recommends areas for further study
- Quantifies the rate of nitrate accumulation or reduction in the Study Area assuming current conditions
- Projects nitrate concentrations into the future assuming current conditions

**LEGEND:**
- ✗ Study adequately addresses issue
- ○ Study partially addresses issue
- ← ○ Study does not address issue

CV-SALTS Technical Advisory Committee Meeting

When: Friday, August 26th, 2011 from 9:00 AM to 1:00 PM
Location: SacRegional, 10060 Goethe Road, Sacramento
Conference #: (218) 339-4600 Participant Code: 927571#

Agenda

1. Welcome and Introductions

2. Knowledge Gained Salt/Nitrate Source Identification Framework
   a. Presentation – Michael Steiger

3. Review City of Davis Questions & Workplan

4. South Delta Water Agency Letter
   a. Develop Study to address lack of data in Hoffman Report on leaching in the South Delta

5. Lower San Joaquin Selection Committee Recommendation on Water Quality Criteria Studies
   a. Review recommendation and forward approval to Executive Committee

6. Next Meeting/Call September _____ at ________
CV-SALTS Technical Advisory Committee Meeting

When: Thursday, September 29th, 2011 from 9:00 AM to 12:00 PM
Location: SacRegional, 10060 Goethe Road, Sacramento

Conference #: (218) 339-4600 Participant Code: 927571#

Agenda

1. Welcome and Introductions

2. Interface between Technical Project Manager and Technical Advisory Committee
   a. Discuss and clarify functional and advisory roles
   b. Review project items in development

3. Possible Approach to developing a Central Valley Salt and Nutrient Management Plan
   a. Presentation by Technical Project Manager
   b. Discuss & comment

4. City of Davis Salinity Study Draft Workplan –Recommendation Letter
   a. Review & Approve Recommendation Letter to be forwarded to Executive Committee by October 10th, for inclusion in October 20th Meeting Agenda

5. South Delta Water Agency Letter
   a. Update on Study Development Status

6. Knowledge Gained Subcommittee
   a. Subcommittee chair
   b. Discuss time frame for revising Framework document

7. CDFA FREP Annual Conference, November 16-17, in Tulare
   a. CV-SALTS Participation

8. Next Meeting/Call October _____ at ________
CV-SALTS Technical Advisory Committee Meeting

When: Thursday, November 10th, 2011 from 1:30 PM to 4:30 PM
Location: SacRegional, 10060 Goethe Road, Sacramento
Conference #: (218) 339-4600 Participant Code: 927571#
GoToMeeting Link: link Meeting ID: 842-614-834
https://www2.gotomeeting.com/join/842614834

Agenda

1. Welcome and Introductions

2. **Update from Knowledge Gained Subcommittee** – Tom Grovhoug
   a. Highlights of October 19th call (**See below for a link to more Knowledge Gained documents.)
   b. Consider approval of framework document, evaluation form, and checklist

3. **Approach to Developing Central Valley SNMP**– Michael Steiger
   a. Solicit input and discuss draft memorandum
   b. Consider approval of approach

4. Discuss boundaries of potential Central Valley SNMP Regions – Michael Steiger
   a. Present and discuss potential boundary types using GIS-based system
   b. Discuss pros and cons of different boundaries
   c. Solicit input on process to involve stakeholders on boundaries

5. Next Meeting/Call December _____ at ________

**A package of additional documents from the 10/19 Knowledge Gained call has been posted at the following link:** http://cvsalinity.org/index.php/documents/doc_download/778-knowledge-gained-supporting-docs-for-111011
CV-SALTS Technical Advisory Committee Meeting

When: Friday, December 16th, 2011 from 1:30 PM to 4:30 PM
Location: SacRegional, 10060 Goethe Road, Sacramento
Conference #: (218) 339-4600 Participant Code: 927571#

Agenda

1. Welcome and Introductions

2. Knowledge Gained Subcommittee Final Report Presentation – Tom Grovhoug – 10 minutes

3. Conceptual Model Approach and Questions Discussion – 2-3 Hours

4. Next Meeting/Call January _____ at ________
Agricultural Water Quality Zone Mapping

Concept
The protective level of salinity for Agriculture varies due to many factors within the Central Valley. The determination of the appropriate objective or standard to protect the Agricultural Beneficial Use (AGR) is done by the Regional Board based on many factors often with limited data related to on the ground physical conditions without a site specific objective. To reduce the generality and provide better information for the Regional Board and the Stakeholders to protect, but not over protect a system summarizing the constraints and needs for areas of the Central Valley would be highly useful to the Board and Stakeholders for both planning in CV-SALTS as well as permitting by the Regional Board.

Purpose and Use
The primary purpose of the AGR Zone Map would be to identify primary constraints such as soils salinity and type groundwater and irrigation supply available. With this base what crops could “reasonably” be grown could be demonstrated and understood. Additionally, improved crop type information from CDFA, DWR, DPR and County Ag Commissioners could be aggregated to show the “actual significant crops grown” (based on % acreage) which could be used to lead to the levels needed to protect those crops rather than the most sensitive crop or the general assumption of 700 EC being protective of all crops in all locations. These two coverages could be further combined and utilized with CV-SALTS Executive Committee “Reasonable Crop Yield Protection” percentages to determine a reasonable water quality objective that is more appropriate. This would not prevent additional information or study providing better data and a Site Specific Objective being performed.

Additionally, because crop yield is an economic issue and crop value is also an economic issue, the committee discussed reviewing these, this platform would allow these analyses to be done. The use of these coverages and date fit well with the existing BUOS framework completed in prior efforts and also would provide information that may be used in the Conceptual Model and CV-SNMP.
GIS Layers and Data Sources

Additional information on the data sources and layers that may be used for this analysis are shown below:

**Existing BUOS Layers/Objectives**

Incorporate the Geodatabase layers developed and reviewed in the Phase 1 BUOS which contains many base layers and beneficial use and objectives from the existing basin plan as well as some information on problem areas.

**Boundaries, political, watershed drainage, groundwater basins or others**

Add to those already completed in the BUOS Phase 1, any political, watershed, irrigation or water district, groundwater, IRWM group or other boundaries which are needed or appropriate for water quality zoning for AGR.

**Natural Surface Water Supply**

What is the surface water supply available to the area? It is critical to have the water that would be available with and without the CVP and SWP or other regional water transfers. These coverages may take some development and may require some assumptions if data is not available. This is looking for high level information, not every farm served by every district.

**Groundwater**

Groundwater quality and quantity available for agriculture in the area summarized to the basin or sub-basin level. If known, long term trends for the groundwater quality for salinity or other limits for ARG use would be helpful. Assumptions may need to be made where data is not available.

**Historical Crop Data**

Historic and recent data on crops grown, production, and yield and crop value would be ideal for the coverages in this section. Assumptions may need to be made where data is not available.

**Suitable Soil Conditions**

Soil type and conditions that would limit the crops that can be grown are needed, sodic soils, soil types and the agronomic soil conditions which naturally limit crop production and yield with normal irrigation and other assumptions as needed.

**Climate Conditions**

Climate conditions are needed including temporal rainfall, temperature and etc. that would indicate the crops that would thrive and as these affect water requirements, salinity sensitivities, etc.

**Efforts Needed**

Because this is a concept description if the Executive Committee believes this is a work product that may be of significant use to CV-SALTS, its stakeholders and the Regional Board detail will need to be developed by those with more detailed information on the GIS and other data sources that would be
useful or needed. This effort to more fully develop the concept and an attendant scope of work will be needed as soon as possible.

Duration and Cost

It is difficult to estimate the timeline needed and costs to assign to this effort, however significant work was achieved in the 6 months and $50,000 that was used for the BUOS Phase 1. With this as a model this could be a reasonable initial estimate for this task.

Committee Review

If there is interest in the study and product, the Executive Committee should recommend the Technical Committee Review and further develop concept and scope. There is considerable overlap with other ongoing efforts such as the conceptual model and Knowledge Gained Subcommittee efforts. These need to be integrated and decisions made as to the most appropriate place to gather and integrate this work. The committee should forward a preliminary scope and information on data availability with an updated cost and schedule to the Executive Committee for approval. Because this effort involves information from CV-SALTS Partners, DWR, Reclamation, CDFA etc., coordination with them should be completed.

Final Scope, Selection and Contracting

After completion of these steps and reviews the Technical Committee should prepare a final scope for use in selecting from among qualified contractors in the existing SOQ or if none, additional solicitation.
Evaluation of MUN Use Archetypes
for POTW Receiving Waters
Minutes from November 16, 2011 1-4pm Meeting

Attendees:

Debbie Webster – Central Valley Clean Water Association
Thomas Grovhoug – Larry Walker and Associates
Theresa Dunham – Somach Simmons & Dunn
Roberta Tassey – United States Bureau of Reclamation
Jeanne Chilcott, Anne Littlejohn, Calvin Yang – CV Regional Water Quality Control Board

Meeting Objectives:

• Understand unique characteristics of four archetype candidates: Colusa; Live Oak, Willows; and Biggs
• Identify pros/cons of pursuing each archetype (e.g. time constraints; work already completed and still needed; ability to apply findings on broader scale; etc.)
• Develop initial strawman scope/workplan for MUN evaluation of receiving waters
• Draft a recommendation to the Executive Committee on which archetypes to evaluate and the scope of CVSalts activities.

Meeting Summary

• Identified policy issues to discuss with regulatory agencies (USEPA, State Board, Regional Board and later with the Corp of Engineers)
• Discussed the POTW archetypes in detail and scope (sub-basin) for each
  o Initial consensus was to set Biggs to the side until we could confirm their interest in collaborating since they are currently pursuing land discharge; there is an advantage to doing all of the remaining three due to their unique drainage patterns so we should aggressively pursue leveraging opportunities
  o If we cannot do all three, we developed criteria to rank the archetypes
  o Drafted tasks and did a preliminary ID of collaboration potential and tasks that could be completed with staff vs. those needing contract dollars
  o Brief review of Regional Board contract laboratory costs and options for potential scans
• Next steps:
  o Fine tune tasks for strawman scope and work plan
  o Consolidate monitoring information and ID gaps and potential partners
  o Start initial monitoring plan and QAPP
  o Next meeting review tasks and workplan w/focus on collaboration potential
    • Expand group to include Sac Valley Coalition (spoke to Bruce yesterday and he’s willing); Rice Commission (either Tim or a rep); Dischargers
  o Set meeting with Regulatory reps

The group also discussed the bigger picture (Jeanne Chilcott’s new task is to identify appropriate beneficial uses for ALL Ag dominated water bodies) and concurred that the best way to move forward was to start with these specific archetypes for MUN and slowly expand the group as we look at the broader issue and other beneficial uses. We will look for opportunities to do needed evaluations for the other beneficial uses as we move forward with these archetypes for time and cost effectiveness.
Background and pros/cons of four potential archetypes:

Maps and fact sheets were reviewed for Colusa, Live Oak, Willows and Biggs Wastewater Treatment Plants. Highlights include:

- **Colusa WWTP** –
  - Most recent permit: **December 2008**
  - BPA Decision Date: **December 2014**
  - Compliance Date: **December 2018**.

  Effluent discharges to an Unnamed tributary built for irrigation and stormwater drainage. This tributary flows to Powell Slough and then into the Non-MUN designated Colusa Basin Drain (ISWP Category C1).

  - **Pros** – The most work on the BPA process has been done to date, relatively short distance to the Colusa Basin Drain via Powell Slough
  - **Cons** – No characterization of Powell Slough or the Unnamed Tributary found in the ISWP (still needs further research). Unsure of how the flow into a natural water body (Powell Slough) may complicate the de-designation process. However, this may in fact be a **Pro** because it could be more reflective of some of the San Joaquin River Basin scenarios.

- **Willows WWTP**
  - Most recent permit: **October 2011**
  - Basin Plan Amendment Decision: **October 2015**
  - Compliance Date: **October 2016**

  Effluent discharges to either Agricultural Drain C (ISWP Category C1) or the Glenn-Colusa Irrigation Drainage Canal 26-2 (ISWP Category C2) and flows to Logan Creek (ISWP Category B1 through nearby wildlife refuge and C3 for 2.5 mile stretch to Colusa Basin Drain).

  - **Pros** – The water bodies have been identified in ISWP, includes the aspect of groundwater recharge in the area, economies of scale by combining this candidate with Colusa
  - **Cons** – There is a longer pathway to the discharge point at the Colusa Basin Drain, it is much further up the watershed, there are potentially more complications with Logan Creek flowing through at nature preserve

- **City of Live Oak WWTP**
  - Most recent permit: **June 2011**
  - Compliance Date: **June 2016**.

  Effluent discharges to District 777 Lateral Drain No. 1 (ISWP Category C1) and flows directly to East Interceptor Canal and Wadsworth Canal (both ISWP Category C1) before reaching the Non-MUN designated Sutter Bypass (ISWP Category C3).

  - **Pros** – The water body types are all the same (C1) for the flow into the Sutter Bypass (no natural water bodies), POTW is a willing participant
  - **Cons** – Its relatively straightforward flow pattern may make de-designation simpler, this model may not be as reflective of the majority of other scenarios, especially in the SJR basin.
• City of Biggs WWTP – Most recent permit: May 2007. Compliance Date – none. Effluent discharges to a constructed agricultural drain, Lateral K and flows through a series of canals before reaching the Non-MUN designated Butte Creek (ISWP Category B1) and the Non-MUN designated Sutter Bypass (ISWP Category C3). The discharger has not followed through with the 2007 permit requirement for a beneficial use designation study and has not submitted any decision to pursue the BPA process. Conversations with CV Water Board staff indicate that they may be pursuing a land-discharge permit in the future.

  o Pros – ?
  o Cons – least information available of the hydrologic pattern, interest of the POTW is questionable since they are considering land-discharge

General Information Needs:

• Hydrologic Pattern, Field Surveys
• Confirmation of waterbody types moving downstream
• Flow measurements
• Water quality information
• Water of the Nation determination

Criteria for Candidate selection

After reviewing all four candidates, the overall consensus of the planning group was a preference to pursue three out of the four candidates (Colusa, Live Oak and Willows). The City of Biggs was given the lowest priority, but they will be contacted to gauge their interest in the BPA process before being removed from consideration.

If resources and time are prohibitive to address all three, the candidate selection criteria are:

• Work accomplished to date (ease of completion)
  o History (basin, water body)
  o Hydrology, flow characterization
  o Water quality information (effluent and receiving water)
  o Water rights
  o Field surveys (e.g. intakes)
• Ability to apply findings on a broader scale (e.g. San Joaquin River Basin Ag. Drains)
  o Complexity of drainage pattern (e.g. flow through wildlife refuge)
  o Support ag concerns in addition to POTW issues
  o Ephemeral receiving water bodies
• Willingness of POTW to partner
• Ability to leverage other resources
• Permit timing – Compliance date
• Economy of scale

Strawman Scope/Major Tasks

• Planning
  o Coordination with SWRCB/USEPA and later COE
  o Strategic Compliance
    ▪ Identify what it takes to be in compliance (POTW and ILRP)
- Evaluate type of Basin Plan action or other alternative (UAA/SSO)
  - Where would be the decision point for pursuing “incidental use” and/or site specific objectives
- Lessons learned from Vacaville – incidental or seasonal use?
- Consider 10-g factors as developing effort and gathering data

- Identify contributors/task leads
  - Funding/leveraging of resources
- Water of the US determination (top priority for CV Salts)
- Identify Constituents of Concern
- Data compilation/assessment (e.g. history, hydrology, field surveys)
- Additional water quality/flow monitoring assessment
  - Table of Lab Analysis Costs provided for constituents of concern identified to date
- Use assessment (MUN for this specific effort)
- UAA or scientific analysis
- CEQA scoping
- Economic Analysis
- Staff Report/CEQA equivalent
- Peer Review
- Circulate staff report

**Next Steps**

- Send out meeting notes (Reg. Bd staff)
- Updated strawman scope via email (all)
- Develop evaluation work sheet (initial draft Reg. Bd staff)
- Complete evaluation using identified criteria (all)
- Consolidate monitoring and ID gaps (initial work Reg Bd. Staff)
- Draft monitoring plan and QAPP (initial draft Reg. Bd. Staff)
- Focus next subgroup meeting on confirming workplan and collaboration
- Schedule Meetings
  - Internal Staff Meeting: staff from ILRP, SWAMP, and NPDES (permit writers) to discuss current monitoring, flexibility of permits (can requirements be changed, can regional monitoring replace existing monitoring?), and leveraging resources. Tentative date: mid December 2011
  - Regulatory Meeting with staff from State Board, EPA to discuss regulatory issues relating to BPA process. Tentative date: January 2012
  - Regulatory and Stakeholder Joint Meeting: POTWs, ILRP Coalitions (Sac Valley/Rice Commission) and NPDES (permit writers) to gauge interest and participation, discuss leveraging opportunities. Tentative date: ?
November 20, 2011 DRAFT

Re: Salt and Nutrient Management Projects and Coordination for State Water Quality Control Board Recycled Water Policy

Dear «Salutation» «Last_»,

Last year we provided information on CV-SALTS to all Regional Water Management Group Members for each of the IRWM Planning Region’s within the Regional Water Quality Control Board, Central Valley Region. Under the State Water Quality Control Board Recycled Water Policy all regions are required to complete a Salt and Nutrient Management Plan. Within the Central Valley, CV-SALTS is the coordinated planning effort being utilized to comply with the Recycled Water Policy and develop a Salt and Nutrient Management Plan for the Central Valley Region.

We understand that many of the IRWM Groups are currently receiving planning awards from the Department of Water Resources and we wanted to contact you again to ensure you were aware the CV-SALTS Initiative, brochure attached. It is critical that there is coordination between IRWM regions and CV-SALTS to enhance consistent planning, demonstrate interregional coordination, and be sure that your IRWMP’s efforts on salt and nutrients are a part of the Central Valley Salt and Nutrient Management Plan.

Many IRWM regions are currently or will soon be identifying water related projects for your IRWM plans. In order to develop a comprehensive list of salinity and nutrient management projects for surface or groundwater within the Central Valley Region we are requesting the attached information sheet be completed and returned. But you can also submit similar information in any format you use for your IRWM projects. This will allow CV-SALTS to include these projects in their planning for the region. Projects in these areas will be incorporated into the program CV-SALTS works to identify for funding. We hope to identify projects in many IRWM regions. CV-SALTS will also be compiling project information from other groups and interests; if we become aware of projects in your IRWM region we will forward these projects and contacts to you.
The Central Valley Regional Water Quality Control Board will be expecting your IRWM plans to incorporate efforts related to salt and nutrient management. The Department of Water Resources Final IRWM Plan Guidelines require all Resource Management Strategies be considered in your IRWM Planning, which includes salinity management. CV-SALTS is currently drafting guidelines for prioritizing areas and data needs for regional salt and nitrate evaluations that is anticipated in early 2012. We encourage you to participate in the development of these guidelines and use them during your IRWM planning.

If you would like CV-SALTS to meet with your IRWM group, need assistance in incorporating salt and nutrient management planning into your IRWM Plan or wish to participate more closely with CV-SALTS do not hesitate to contact Daniel Cozad (888) 826-3635.

Thank you for your efforts to integrate your region’s water related needs and we look forward to working with you in the future.

Parry Klassen
Chair
CV-SALTS Executive Committee

Pamela C. Creedon
Executive Officer
Central Valley Regional Water Quality Control Board
Strategic Salt Accumulation Land and Transportation Study (SSALTS)

Within the Central Valley there are currently areas where salts are intentionally accumulated for storage and disposal or later recovery. Evaporation basins, deep well injection and landfill locations are the most obvious of these, however there are other areas that are accumulating salts in the soil or vadose zone, more or less intentionally. Without outlets salts will accumulate in intentional or unintentional locations. In preparation for Implementation Plan formulation several early phases of work could be accomplished in advance. Without alternatives to current systems no workable implementation plan can be developed. These initial efforts can provide a basis for the implementation plan.

**Phase One** of the SSALTS study is to identify the current locations where salt is accumulating intentionally; by policy, by industrial or community process, or by natural process. For each location, identify the capacity, cost, area served etc. and determine if these can be increased to provide long term storage options to reach manageable salt levels in critical and important areas. Based on information determined in this assessment, forecast the sustainable operation of these locations over the next 50 years.

**Phase Two** will determine if there are sinks, drains, processes or areas where salt can safely be accumulated for long term storage to fit the same uses. Such storage locations or areas would have characteristics that would be determined for screening based on the first task. From the second phase the relative cost and benefit of the existing/expanded or new storage areas would be compared as well as regulatory or institutional barriers to their implementation.

**Phase Three** would focus on the existing and potential near term export or transport mechanisms, facilities or other methods to remove salts from storage or from the basins on a permanent basis. The costs and benefits of such methods would be compared as well as regulatory or institutional barriers to their implementation. Added work could look at technology which may make Phase 2 or 3 more effective.

Each phase would be done in cooperation with the CV-SALTS committees and would be in cooperation with the Conceptual Plan for CV-SALTS. The output product would be technical memoranda and GIS layers consistent with the conceptual plan and BUOS Phase 1 and Phase 2. This will allow the effort to be developed and usable for implementation planning.

**Cost**

Phase 1 - $50,000  
Phase 2 - $75,000  
Phase 3 - $125,000

**Schedule**

Phase 1 – 6-9 months  
Phase 2 – 9-12 months  
Phase 3 – 12-14 months
Additional Implementation Program Efforts

Program Funding for SSALTS Efforts

Funding for implementation is significant and will initially build on existing programs and efforts. Ultimately the funding for implementation will likely be major projects that will require significant and long term finding approaches. Funding approaches will be based on nature of the implementation projects and the benefits of the projects.

Program Monitoring needs

Like programing funding monitoring needs are partly depending on the implementation projects and programs. These will not be able to be determined until the projects and programs are completed. However, some monitoring will be needed independent of the actual implementation plan. This monitoring will likely be best defined as the Conceptual Model is determined and the CV-SALTS planning regions are defined in the Salt and Nutrient Management Plan. Based on the information developed in this process a baseline can be
October 4, 2011

Diana Messina  
NPDES Program Manager  
Central Valley Regional Water Quality Control Board  
11020 Sun Center Drive, Ste. 200  
Rancho Cordova, CA  95670

CENTRAL VALLEY SALINITY ALTERNATIVES FOR LONG-TERM SUSTAINABILITY (CV-SALTS)  
technical advisory committee recommendations regarding city of davis  
salinity study draft workplan

On 26 August 2011, the CV-SALTS Technical Advisory Committee reviewed and discussed the City of Davis Draft EC, Boron, Sodium and Chloride Workplan (City of Davis Workplan) to conduct a salinity study in order to determine appropriate salinity water quality objectives to protect agricultural supply water. The committee focused on the applicability of data collected as part of an earlier Woodland study to the current effort; use of the Hoffman model as a check on the Grattan model; appropriateness of using either model to evaluate boron, chloride or sodium; means of determining a leaching fraction; and other issues raised by committee members. Discussion points, findings and recommendations for the above issues have been documented in Attachment 1 (CV-SALTS Technical Advisory Committee City of Davis Draft EC, Boron, Sodium and Chloride Study Workplan Recommendations, September 2011).

In addition to discussing the technical issues related to the City of Davis Workplan, the committee also briefly examined some over-arching policy issues such as the determination of the most sensitive crop to be protected in a given sub-area, the concept of a “reasonable level of protection” (i.e., acceptable range of relative crop yield), and determining appropriate adjustments for drought years. While the committee recognizes the policy discussions will continue at the Executive Committee, some factors they agree need to be considered include:

- Evaluating seasonality of cropping and irrigation when reviewing water quality objectives to protect agricultural supply. Literature numbers typically provide a margin of safety for stress during different seasonal conditions (e.g., although winter grown crops may be more salt sensitive, they are also being grown in less stressful environment).
- Identifying whether economic viability, as opposed to the presence of a crop in the area, is a better consideration to determine the crops to be protected. Both the percentage of acreage devoted to a particular crop in a region and the economic return of those crops should be considered in establishing the crops that must be protected from salinity impacts.
- Providing adjustments to account for drought situations (e.g., most growers prefer, and can manage, sufficient quantities of poorer quality water as opposed to restrictions on the quantities of water provided to them).

The Executive Committee will consider these factors and provide recommendations in a future letter. We appreciate the opportunity to comment on the City of Davis Workplan and anticipate that our recommendations will be incorporated into the final study.

Nigel Quinn  
Chair, CV-SALTS Technical Advisory Committee

Parry Klassen  
Chair, CV-SALTS Executive Committee

cc:  Stan Grczko City of Davis  
Pamela Creedon, Executive Officer, Central Valley Regional Water Quality Control Board
Attachment 1. CV-SALTS Technical Advisory Committee  
City of Davis Draft EC, Boron, Sodium and Chloride Study Workplan Recommendations  
September 2011

1) Applicability of Woodland data to the City of Davis study.
The cropping pattern identified in the City of Woodland study\(^1\) is likely similar to the City of Davis case since the majority of agricultural use for both studies is within the Yolo Bypass. The Technical Advisory Committee concurred with initial Central Valley Regional Water Quality Control Board (CVRWQCB) staff comments that the City of Davis must clearly delineate the areas that utilize the downstream receiving waters as agricultural supply, confirm the types of crops grown in these areas, investigate cropping patterns and growth cycles of crops, and identify the most salt sensitive crop(s) to be protected.

**Finding:** The draft City of Davis Workplan appears to adequately address the above needs.

2) Use of the Hoffman model to evaluate the results from the Grattan model.
The committee expressed concern with using a steady state model (Hoffman) to evaluate a transient model (Grattan) and noted that according to Letey et al. (2011) steady state models are more conservative than transient models.\(^2\) Thus, the committee recognized that judgment needs to be exercised when comparing model results.

The finding that a steady state model provides more conservative results than a transient model appears to be based upon the results obtained with the steady state model developed by Ayers and Westcot.\(^3\) The CVRWQCB has traditionally used the Ayers and Westcot model to assist staff in establishing NPDES permit effluent limits.

The Ayers and Westcot model assumes a plant water use pattern of 40-30-20-10, which means the plant gets 40 percent of its evapotranspiration demand from the upper quarter of the root zone, 30 percent from the next quarter, 20 percent from the next, and 10 percent from the lowest quarter. The soil-water salinity is calculated as the linear average of these four zones. This is a primary criticism of the model. According to Letey et al. (2011), the assumption that plants respond to linear average soil-water salinity is not supported by experimental evidence.\(^2\) Rather, most water is extracted from the upper parts of the root zone where the salt concentration is not very sensitive to the leaching fraction.

The Ayers and Westcot model also does not consider the dilution effects of rainfall. This omission is cited as another reason why the model provides conservative results. The transient model for the City of Woodland study was specifically developed by Grattan to address the fact that rainfall is not taken into account in the Ayers and Westcot model.\(^1\) Grattan (2006) states on page 12: “The main goal of our model is to determine the extent by which rainfall will reduce the seasonal average root zone salinity, allowing the use of higher salinity water.”

The Hoffman steady state model recognizes water uptake by plants does not necessarily correspond to a linear average of soil-water salinity within the root zone.\(^4\) Consequently, the Hoffman model incorporates an exponential soil-water uptake factor. The Hoffman model also accounts for rainfall. Therefore, as noted on page 122 of Hoffman (2010), results obtained by the Hoffman model may not differ appreciably

---


from a transient model, such as the one developed by Grattan, particularly if the leaching fraction is greater than 15 percent, and cropping patterns and irrigation water quality are relatively stable.

Transient models have shortcomings as well. On page 122, Hoffman (2010) states:

The steady state model appears to be very reasonable at leaching fractions above 0.15. At least two groups of scientists and engineers are currently working on comparing the transient models described here and several others and attempting to resolve which model(s) should be used. One must keep in mind that transient models require a large amount of input data which are not always available. It is hoped that within a few years transient models will have been developed and field tested so that they may be used with confidence.

The City of Davis Workplan indicates the crop tolerance model for electrical conductivity (EC) will be determined in consultation with the CVRWQCB. 5

The preference from the committee is to shift to the use of a transient model, but the group did not recommend defaulting to the Grattan model until peer review was completed through field testing. The group also noted that building in water management (e.g. method of application and seasonality of use) may alleviate some salinity concerns.

Recommendation: Use of the Hoffman model as an initial check on Grattan model results can be tried as long as some of the basic differences between the models are understood. If the two model results are "considerably" different (e.g., greater than 100 mg/L TDS difference), conduct further review to determine why.

The Hoffman and Grattan models will provide estimates of soil salinity that will result from the conditions simulated by the models. The modeled soil salinity will be compared to a response curve that relates the relative yield of a particular crop to soil salinity. 6 If this comparison indicates the modeled soil salinity will not result in an unacceptable crop yield then the agricultural (AGR) beneficial use of waters from the Willow Slough Bypass, Conaway Ranch Toe Drain, and/or Yolo Bypass, which receive treated effluent from the City of Davis, has been protected.

The available response curves for many crops are based on data obtained from experiments that were conducted 20 to 30 years ago. The salt tolerances of these crops may be higher today than when the experiments were performed because new and improved varieties are now probably being grown. For this reason, Hoffman (2010) on page 102 recommended that a field experiment be conducted to ensure the salt tolerance of beans is established for local conditions before setting the salinity water quality standard for the South Delta. Consideration should be given to performing similar field experiments if available response curves do not pertain to the crop varieties being grown in the City of Davis study area.

3) Is it appropriate to run the Grattan or other model to evaluate boron, chloride and/or sodium water quality objectives?

No known models were identified for sodium or chloride. Grattan tried to adapt his model to account for the behavior of boron in soil. However, after consulting with soil chemists at the U.S. Salinity Laboratory, Grattan (2006) states on page iv that boron “adsorption/desorption processes are highly dependent upon soil mineralogy, clay content, surface area, organic matter content and pH.” On page 31, Grattan (2006) concluded that his model is “not appropriate to predict soil boron behavior nor could it be readily adapted

---


6 According to University of California, Davis, University of California Irrigation Program publication titled Agricultural Salinity and Drainage, revised 2006, the most common method of experimentally determining soil salinity is to measure the EC of the solution extracted from a saturated soil paste sample. This measurement is frequently called the salinity of the saturation extract (ECe).
to account for complex soil boron chemistry." There was some speculation that the UC Salinity Laboratory may have a boron model, but that the model would be calibrated for boron concentrations at a much higher level than those seen in the City of Davis treated effluent.

**Recommendations:** Rather than attempting to model boron, chloride, or sodium, the Committee recommends reviewing literature values to identify any potential concerns and to follow up on those concerns by reviewing current management practices. In particular, chloride impairment can be related to how the water is applied (sprinkler vs. furrow) and infiltration issues associated with sodium (dispersion of surface soils in the presence of higher sodium concentration water) may be offset by higher overall salinity concentrations. The Committee also recommended evaluating current sodium concentrations in groundwater and current management practices utilized by growers irrigating with groundwater to determine whether current practices already account for and mitigate elevated sodium concentrations.

4) Leaching fractions

Both steady state and transient models rely upon water and salt mass balances. According to Letey and Feng, steady state models require the constant flow of water.\(^7\) Under these conditions, the mass balance dictates the salinity of the drainage water leaving the root zone (EC\(_{dw}\)) is equal to the irrigation water salinity (EC\(_w\)) divided by the leaching fraction (LF). The salinity of the drainage water is given by the following equation under steady state conditions:

\[
EC_{dw} = \frac{EC_w}{LF}
\]

In contrast, transient models use the Darcy-Richards equation to estimate water flow and the advection-dispersion equation for a non-reactive, non-interacting solute to estimate salt transport. Information on soil properties is needed for a transient model. Besides soil properties, transient models are required to account for all of the time dependent variables encountered in the field. Letey and Feng (2007) indicate these variables include "switching crops with different salinity tolerance, variable irrigation water salinity including rainfall that is pure, timing and amount of irrigation, initial soil salinity conditions, etc."

The Hoffman model (steady state) has typically utilized 15 to 20 percent as the leaching fraction. This fraction has been calculated in the San Joaquin Valley through a mass balance approach using tile drainage and applied water data. While the methodology is adequate, the same data set is not currently available for the Yolo Bypass. The Grattan model utilizes the Darcy-Richards and advection-dispersion equations rather than the assumption of a specific leaching fraction input. In other words, the Grattan model simulates leaching rather than assuming a fixed leaching fraction value.

**Recommendation:** For the Hoffman model, utilize a range of 15 to 20 percent for the leaching fraction input to represent conditions in the Yolo Bypass. If utilizing rice as the most limiting crop, recognize that the current management practice of ponding irrigation water alleviates some salt impact since salt does not accumulate in the soil profile during the growing season.

---

5) Other technical considerations
The Committee discussed in detail the importance of irrigation water management in mitigating anticipated impacts from suboptimal water quality and provided two additional recommendations.

**Recommendation:** Initial study results should be discussed with the local agricultural commissioner, UC Cooperative Extension, and local growers to determine if the actual users of the water have any specific concerns with the study assumptions, findings, or the numbers being developed.

**Recommendation:** Should consider the potential to have different objectives during different growing seasons (e.g. winter cropping).
Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) Annual Report
CV-SALTS

- Collaborative Basin Planning Effort
- Utilizing Stakeholder Process to Develop Salinity and Nitrate Management Program
Cleanup and Abatement (CAA) Funds Provided Seed Money

- $1.2-million (Res. #2009-0023)
- $3.8-million (Res. #2010-0042)
  - $2.0-million initially
  - $1.8-million after demonstration of progress to/approval by State Board
Additional Res. #2010-0042
Requirements:

– Annual Report at Public Hearing
  ➢ Expenditures to Date
  ➢ Services Provided
  ➢ Contribution from Stakeholders
  ➢ Accomplishments
  ➢ Timeline to Complete Work
## Expenditures for Services and Stakeholder Contributions

<table>
<thead>
<tr>
<th></th>
<th>Since July 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAA Resolution #2009-0023</td>
<td>$249,889</td>
</tr>
<tr>
<td>CAA Resolution #2010-0042</td>
<td>$0</td>
</tr>
<tr>
<td>Central Valley Salinity Coalition (CVSC)</td>
<td>$1,011,249</td>
</tr>
<tr>
<td>Additional Stakeholder Contributions</td>
<td>$4,308,364</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>$5,559,502</strong>*</td>
</tr>
</tbody>
</table>

*Does not include in-kind service participating on committee(s)*
Contract Services Provided

- Administrative, Technical & Facilitation Support
- Salt Source Identification Studies
- Animal Drinking Water Criteria Study
- Treatment/Containment Feasibility and Pilot Studies
- GIS Database for Central Valley Beneficial Uses and Objectives (Phase I)
Figure 1: Cumulative Funding and Expenditures

Stakeholders have provided 96% of expended funding to date.

- CVSC Funds
- Other Stakeholder
- CAA Committed to Contracts
- CAA Uncontracted
- Expended

2009: $0
2010: $2
2011: $4
2012: $6
2013: $8
2014: $10

Millions
Stakeholder Driven

- CVSC provides funding
- Organization of Stakeholders
- Supports direct and indirect salinity and nitrate efforts
- Examples
Pilot Salt Source ID Studies

Legend
- Pilot Areas
- WARMF Domain
- Expanded or New WARMF Domain

West Side SJ
Tulare

Yolo County-Two Subbasins

State Board Mtg
6 December 2011
CV-SALTS Annual Report
Slide 9
Guidance Documents

- Knowledge Gained Committee
  - Future Salinity/Nitrate Source Studies

- Management Practices Committee
  - Guidance to Develop Salt/Nitrate BMP Toolbox

- Technical Committee
  - Recommendations regarding use of modeling tools to develop site specific salinity objectives
  - Water Quality Criteria Memo
Management and Treatment Studies for Salt Disposal
(Sponsored by Tulare Lake Drainage District)
Evaporation Basins

- Feasible
- Disposal in isolated basins
- Productivity preserved
Advanced Alternative Studies

- Distillation RO and Chemical
- Enhanced evaporation
- Agri-forestry wetlands
Other

- Leadership Group Meeting held in February 2011
- Animal Drinking Water Criteria Evaluation
- Revision of Salt and Salinity Management Chapter--CA Water Plan
  - Interim & Subsequent Funding Plan
CAA Supported Accomplishments

- Improve functionality of CV-SALT website
  - http://cvsalinity.org

- Scoped Salinity/nitrate Aquatic Life Criteria Review

- Beneficial Use/Object Study
Beneficial Use Objective Study

- GIS database with beneficial use maps for the Central Valley
  - Facilitate review of current uses and objectives and recommendations for refinements
  - Basis for future review and management areas, etc.
## Timeline for Completion of Work

<table>
<thead>
<tr>
<th>Activity</th>
<th>FY 11/12</th>
<th>FY 12/13</th>
<th>FY 13/14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finalize Workplan for agreed tasks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Policy for BUs and WQOs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salt/Nitrate Conceptual Model</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Archetype Technical Studies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upgrade BUOS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify/Evaluate Initial Mgt. Alt.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refine Management Alternatives</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economic Review</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEQA Equivalent Documentation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop Central Valley SNMP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Meetings</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Package Page 172
Work Items Linked to Statewide Issues

- Policy Discussions on Beneficial Uses and WQO’s
  - MUN “incidental”; Site Specific Objs.
  - AGR “limited”; Site specific Objs
    - % crop yield protection
    - Most limiting/sensitive crop in basin
Archetype Studies in Scoping

- Constructed Ag Drains
  - POTW receiving water
- Lower San Joaquin River
- Tulare Lake Groundwater Basins
- Disadvantaged Communities
Funding

- CVSC Funding Subcommittee
  - Draft Outreach Document
    - Continued Member Support for 2012
    - Interim Funding Existing programs
    - Federal and State approach leads
    - Long Term Implementation Funding
    - Project Support and DAC efforts
Outreach

- **IRWMPs**
  - Communication on process
  - Project Coordination and support

- **DACs**
  - Nitrate efforts technical support
  - Potential project funding
Questions?
CV-SALTS Conceptual Model
Summary Description

Conceptual Model for Understanding Salts and Nitrates in the Central Valley

1. CV-SALTS has proposed a Conceptual Model

This conceptual model would use existing Geographic Information System data layers, model outputs, and existing salt source information. The concept is to summarize and aggregate water, salt, nutrients and other relevant information to a very high level through GIS to allow a common level of representation and integration. By doing this in phases the Model would serve to drive discussion and decisions at an appropriately high level. This level, shown by the largest puzzle pieces in Figure 1, would be used to discuss the Central Valley wide discussions and decisions and policy issues.

When a high level is completed it is expected that additional detail will be needed for Salt and Nutrient Management Planning (SNMP) which may be developed and summarized to fit this lower higher detailed level, shown by the smaller puzzle pieces in Figure 1. In summary provide information for each audience and set of decisions as shown below:

- Drive simple large scale understanding at high level - Large puzzle pieces (35Kft)
- Provide clear understanding for SNMP at more detailed level smaller puzzle pieces (10Kft)
- Integrate available data and be defendable at lowest level (ground floor)

This approach would address the following goals:

- Has credible water balance
- Uses the best existing available data
- Will shows/explains
  - Where salt is accumulating
  - Relative magnitude of accumulation and where
  - Interaction between regions water and salt
  - Where there are short term/long term problems
  - Facilitates cooperating groups to provide better information
- Works with existing data sets and accommodates future boundaries
- Approximates salt/nitrate balance adequately for high level decisions and will contain adequate detail

This approach is also consistent with work being done by many other studies including those on the West Side of the San Joaquin by the Bureau

---

1 Conceptual Model, as used here is intended to be a GIS based decision support tool used to summarize and illustrate the salt and nitrate status and assist in understanding of the water and salt sources in large areas of the Central Valley. Similar to a physical model of a building in design by an architect it represents the structure and appearance (data based information) but is simplified to an appropriate level for discussion and decisions.
of Reclamation, CV-SALTS Pilot Study, and work being done for the Drinking Water Policy and Irrigated Lands efforts. The Model should clearly state what is capable of providing at each level of detail and what is not to be provided.

2. Technical Committee Considerations and Recommendations
The Technical Committee at a meeting on December 16, 2011, reviewed the concept and discussed it in the detail described herein. Several suggestions and recommendations were made that improve the concept toward implementation. These consensus recommendations are incorporated throughout this description and outlined in the sections below.

Utilize CVHM\(^2\) for water balance in the Central Valley, this existing geodatabase has peer reviewed and validated flow and used 8500 drillers logs to develop subsurface characteristics for the model. More information on the model is shown in Attachment A and at the link in the footnote.

Use Land Use Based Estimation for primary salt sources as was done in the pilot program, and is done in most other models for source information. DWR and others provide information that can be augmented and verified.

Utilize Region Wide Databases especially GIS databases for water quality and other data. Geodatabases discussed include:

Drinking Water Policy Technical Working Group – Groundwater and water supply data derivable from models run for this group.

DWR Applied Water Data for Irrigate Agriculture – DWR applied water values are available and have been demonstrated to provide a preferred assumed water usage for agricultural water use compared to evapotranspiration.

SB X2 1 Nitrate Project – Study directed by Thomas Harter’s recently published reports on water quality modeled in the Tulare Lake Basin.

Pilot Study Data Sources – Use the consistent data from the West Side Reclamation Study and the CV-SALTS Salt and Nutrient Source Pilot Study Areas.

Dairy General Order Representative Groundwater Monitoring Results Report\(^3\) - Includes data developed in response to the Regional Board Dairy General Order for dairy monitoring of groundwater. This dataset covers the entire Central Valley and contains GIS layer information for several relevant

\(^2\) Central Valley Hydrologic Model developed by the USGS [http://pubs.usgs.gov/fs/2009/3057/](http://pubs.usgs.gov/fs/2009/3057/) provides hydrologic water balance for surface and groundwater waters for the Central Valley; additional information is available in Attachment A. CV2SIM is an alternative model with differing assumptions and therefore differing water balance.

\(^3\) Dairy General Order Representative Groundwater Monitoring Results Report was developed for the Dairy General Order monitoring program and provides data in GIS format for the assessment of monitoring groundwater for Dairy CARES. Additional information is available in Attachment B.
needs. While this data was developed to determine priority groundwater monitoring areas its water quality data and other physical parameters may be used for CV-SALTS. Layers include average depth to groundwater, average recharge, average soil permeability and water quality data from 1960 to 2000 for nitrate and chloride. Additional information on this dataset is available in Attachment B.

**Validate Salt and Nitrate Sources Data** – Several major sources of salt can be augmented or validated in the land use models with specific information such as:

- Irrigation District Records
- Fertilizer and pesticide use from State databases to validate land and crop information
- Sales Records of Gypsum use by County Ag Commission
- Animal Waste values from County Ag Commission
- Dairy and other significant permitted sources from Regional Board
- Wastewater treatment and permitted treatment plants from Regional Board
- Irrigated Lands monitoring data and modeling

**Stated Assumptions and Default Values** – Where information is lacking or data gaps are known utilize default values and clearly stated assumptions. This will allow these assumptions to be replaced with actual data and information layers but will not impede the assessment of the area if not all data is available.

**Stakeholders Coordination is Key** – The Committee stressed that engaging and having a method to engage the stakeholders who have data and management capability. This conceptual model approach would encourage participants who may want to provide data in the initial or after the initial work to provide additional or separate information. It must engage them and allow them to get something in return.

### 3. Questions Answered

The committee also discussed some of the questions that were posed, from the level of information provided were able to respond:

- The approach can accommodate the level of spatial and temporal aggregation/disaggregation is needed for CV-SNMP?
- The GIS database can be used to stitch these data sources together when aggregated
- This system can be compatible with the level needed for local SNMP or project assessment?
- Site Specific Objective work we integrated if this approach?
- Approach would be compatible with the assessment needed for alternative or archetype evaluation

**Regional Board Questions** - Several questions were posed by the Regional Board for discussion and were addressed by the Committee and the following answered and modified. They are here to be sure they are incorporated into the standards for questions the model should be able to answer. This approach to modeling provides much of needed support as shown in the * notes below in italic (this section may need further development):

1) Which areas/regions/subareas are achieving water, salt, and/or nitrate balances?
2) Which areas/regions/subareas are accumulating water, salt, and/or nitrate? For each of these:
- Where are water, salt, and/or nitrate accumulating? And * Yes it would show imbalance
- What is the rate of accumulation? * Yes depending on the available data, forecasting limited

3) In which areas are water, salt, and/or nitrate being depleted? For each of these:
- Where is water, salt, and/or nitrate being depleted? And * Yes
- What is the rate of depletion? * Yes depending on the available data, forecasting limited

4) What are the sources of water, salt, and nitrate into the Central Valley? 
- Where are these sources entering the Central Valley? * Yes
- What is the rate at which they are entering the Central Valley? * Yes

5) Where are water, salt, and nitrate moving within and out of the Central Valley, and what is the rate of that movement? * Yes

6) Which areas require additional study (i.e. high priority areas)? * Yes – it would provide the data for the Executive committee to identify priority criteria/areas

7) What major data gaps have been identified? * Not yet but will become obvious in the analysis.

8) What are the primary drivers * Yes and how do they drive different management practices? * Maybe but this question will need further development.

9) What is the Rate of Change of the concentrations in Groundwater and vadose zone?

4. Additional Development and Questions
Several questions the Committee was not able to address in the meeting and should be addressed in future meetings are shown below:

- What level of spatial and temporal aggregation is needed for the highest level assessment to be able to communicate the big picture?
- Are there incompatibilities in the models assumptions that make them incompatible at the level of data to be used?
- How should areas where there is little data be handled?
- What are the areas of significant assumptions in the data and models?
- What are the most likely gaps that have a long lead time?
- What limitations are likely other than data and assumptions?
- What has worked to encourage sharing of Models and Data?
- What process for outreach should be taken for the initial high level step
- What process should be used for subsequent rounds of inquiry in the SNMP steps
5. Scoping and Procurement Steps

This initial Conceptual Plan Description will be reviewed by those participating in the last Technical Committee meeting and feedback incorporated and presented to the full Technical Committee and Executive Committee for Concurrence. If acceptable a scope of work should be prepared for procurement. Likely the project would have several phases; a very rough cut at the phases for discussion is shown below:

**Initial Phase**
- Develop Work Plan, assumptions, methodology, and data sources for Conceptual Model
- Upon Approval implement work plan and construct model geodatabase consistent with existing BUOS Phase I
- Data acquisition, formatting and GIS development to provide Conceptual Model
- Provide information, briefings and outreach for understanding
- Develop needs for SNMP Data beyond existing Conceptual Model
- Schedule 6-8 months
- Budget $200,000

**Phase 2**
- Develop Work Plan, modifications and additional data sources for second level of detail
- Upon Approval implement work plan, aggregate analyze additional data and develop additional model components such as temporal capacity forecasting etc.
- Data acquisition, formatting and GIS development to provide SNMP Level Model
- Provide information, briefings and outreach for understanding
- Develop needs for SNMP Data beyond existing SNMP Level Conceptual Model, testing implementation etc.
- Schedule 10-12 months
- Budget $400,000

**Final Phase**
- Assessment and support for the SNMP, Implementation Plan and Documentation
- Incorporating Data from Regional SNMP
- Other Tasks
- Schedule 12 months
- Budget $100,000

**Questions for the Committee and Executive Committee and the Regional Board:**
- What other scope elements are needed to procure these services?
- Can we utilize the TMP SOQ for procuring these services?
- Different consultants have access to different data, how can we be sure we can demonstrate competitive process?
- What roles should the TPM and Basin Planning Manager in review of the scope and the project?
- Which steps would require approval of the Technical Committee or Executive Committee?
6. Acknowledgements
This document includes significant contributions from the consultants working for and with CVSC Members and others participating with CV-SALTS as well as work from EKI as Technical Project Manager. Assistance and feedback from the Regional Board Staff and from the Committee Chair Nigel Quinn provided significant clarifications to the work and the concept.
Figure 1 Conceptual Model Diagram