

Final Report Central Valley Salinity Work Group in support of Central Valley Salinity Alternatives for Long Term Sustainability (CV-SALTS) Initiative

Funding Source: Cleanup and Abatement (CAA) Project No. C/A 292, Authorized under Resolution #2009-0023

State Water Resources Control Board Contract No.: 09-076-150 as Amended

*Prepared for State Water Resources Control Board
by San Joaquin Valley Drainage Authority
February 15, 2016*

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III Executive Summary

The Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board), State Water Resource Control Board (State Water Board) and Central Valley Salinity Coalition (CVSC) effort that became known as the Central Valley Salinity Alternatives for Long Term Sustainability (CV-SALTS) is a stakeholder led activity that was developed to address salt accumulation and nitrate impacted areas within the Central Valley Region. This Cleanup & Abatement (CAA) Funded project followed important work done under direction of the Central Valley Water Board related to Planning and Economic Impacts of not managing salinity in the Central Valley region. The State Water Board authorized CAA funds under Resolution #2009-0023 for \$1.2-million to support the first phase of development of a salt and nitrate management plan. This resolution focused on developing the foundation and model from existing reliable data from water bodies in the Central Valley to understand uses and objectives in areas where little data exist.

To administer this project the San Joaquin Valley Drainage Authority (SJVDA) was identified due to the agency's experience with salinity management projects and their participation as a stakeholder in CV-SALTS. The SJVDA administered the contract and followed state subcontracting procedures to enlist qualified firms to accomplish the technical work.

Purpose

This project continued the initial data gathering that had begun through the Central Valley Water Board and CVSC in separate actions. This contract set out to provide the working framework to be used by CV-SALTS to complete technical and stakeholder organizing effort needed to address both policy and technical issues for long term sustainability of salt and nitrate through an approvable Salt and Nitrate Management Plan (SNMP). This project focused on developing the foundation and model from existing reliable data from water bodies in the Central Valley to understand uses and objectives in areas where little data exist. This contract included the work of setting a solid foundation for the initial development of both stakeholder understanding and technical basis for continued work under the future CAA allocations contracted to conduct the majority of technical work.

This contract was the first of three CAA funding allocations for CV-SALTS. The first allocation under State Water Board Resolution 2009-0023 for \$1,200,000 for the multiyear development of a multicomponent basin wide salt and nitrate management plan. This initial planning work supports some of the highest priorities of the Central Valley Water Board and the CVSC. Major elements of this contract are listed below:

- SJVDA Management Services (Contract Administration)
- Technical Projects/Beneficial Use and Objective Study (Task 1)
- Management, Facilitation, and Administration of CV-SALTS (Task 2)
- Technical Project Manager (Task 3)

This contract supported the development of a framework and five year workplan for the CV-SALTS initiative to develop a Salt and Nitrate Management Plan for the Central Valley Region,

including technical work gathering baseline data and mapping as well as program planning to support CV-SALTS efforts and contracting. The \$1,200,000 in CAA Funding was matched with over \$500,000 of CVSC and stakeholder funds for a pilot data collection effort that preceded execution of this contract. This contract was funded with the first of three CAA allocations. The second and third CAA allocations were approved under Resolution 2010-0042 which resulted in contract #11-123-555 that continued the technical work needed to support development of the SNMP which will be reported on separately per the terms of that contract

Rationale and Problem

In January 2006, the Central Valley Water Board and the State Water Board held a joint workshop on salinity in the Central Valley which initiated the beginning of the CV-SALTS initiative. At the workshop State Water Board Chair Tam Doduc requested the Central Valley Water Board to develop recommendations for resolving salt issues. Central Valley Water Board Members formed a committee with several key stakeholder groups and Water Board management and staff. Board Member Longley presented recommendations at the May 2006 State Water Board meeting and received authorization to proceed with the CV-SALTS initiative. Following the May meeting, the Central Valley Salinity Policy Group, which later became the Central Valley Salinity Leadership Group, was developed and held its first meeting in November 2006. The Central Valley Water Board initiated this planning effort with intentions to update Central Valley Basin Plans as a result of the first meeting with the participation of Federal, State and local stakeholders. While this effort required Salt and Nutrient Management Plans it preceded the approval of the Recycled Water Policy and it forms a critical and unprecedented planning effort to manage salt and nitrate in the Central Valley. Nitrate issues with drinking water in many communities were not as acutely understood as they are today, but were determined to require management and improvement in 2006. With approval of Resolutions 2009-0023 and 2010-0042 the State Water Board approved \$5 million in funding to support CV-SALTS in three allocations based on the demonstration of adequate progress. This report is on the work completed under contract 09-076-150 which was funded by Resolution 2009-0023.

Goals

The goals under this contract were to provide a working framework for CV-SALTS to carry out both technical and stakeholder activities needed to address both policy and technical issues related to the management and long term sustainability of salt and nitrate contained in an approvable Salt and Nitrate Management Plan (SNMP). An additional goal of the project was to accelerate the planning as quickly as possible to begin implementation as early as possible. These goals should be completed with the interaction of the stakeholders and match funding from CVSC. This contract had the goal of setting the foundation and initial development of both stakeholder understanding and technical basis for the second contract (11-123-555, C/A 292) that is implementing the majority of technical work to support SNMP development.

Results and Conclusions

Significant development and preparation was accomplished within the contract. Each subcontract was awarded in accordance with a competitive bid process by the SJVDA with coordination from both Central Valley Water Board and Stakeholders in the development of requests for qualifications. Selection Committees made up of stakeholders and Central Valley Water Board staff was formed to conduct reviews of both qualifications and proposals. The Selection Committees made recommendations to the Executive Committee for discussion and

approval for each subcontract. The Executive Committee approved a request to support the development of a Lower San Joaquin River TMDL for salt and Boron. This TMDL was seen by the Regional Water Board and stakeholders as a microcosm of the larger CV-SALTS effort with a primary focus on surface water. Technical work for this TMDL was separately funded by the State Water Board, but did not fund a committee manager for stakeholder interaction. This effort became a surface water prototype or example of decisions and tradeoffs needed in the broader CV-SALTS process. The LSJRC Manager provided overall planning and management of the technical and stakeholder work to develop the management program for the Lower San Joaquin Salt and Boron TMDL effort elements of the plan will be incorporated into the SNMP.

Each of these contract tasks will be further described in the project description and results sections. The contract tasks had specific deliverables and results. In summary, each of the contract tasks was successful in accomplishing the scope and deliverable with the exception of the Technical Project Management (task 3) subcontract undertaken by Erler and Kalinowski Inc. (EKI). This subcontract was terminated prior to completion and funding reallocated to other tasks under contract amendment. Prior to subcontract termination EKI produced several task deliverables but the manager representing EKI had difficulty working in a large stakeholder environment and was replaced by a Technical Project Manager (TPM) from another firm. Uncompleted tasks were transferred to the replacement TPM and completed under contract 11-123-555.

The Management, Facilitation, and Administration of CV-SALTS (Task 2) developed the Framework and 5-year Workplan¹ for CV-SALTS initiative with support from the TPM. Stakeholder meetings were hosted and facilitated moving the CV-SALTS process forward. Approximately 115 CV-SALTS and committee agendas and minutes were prepared and appear on the website in the archive². Each meeting required materials to be prepared, coordination of participants. Regional workshops³ were presented to bring additional stakeholders to CV-SALTS and a new project website⁴ and outreach materials, including a new brochure⁵ expanded the stakeholder group.

Several significant conclusions are also described in more detail in later sections, however they are summarized here. The Beneficial Use and Objective Study (BUOS Task 1) determined that significant information was available but significant additional information and funding would be required to evaluate the beneficial uses in any given area. CV-SALTS determined that an archetype method should be used to develop proof of concept projects to determine appropriate beneficial uses. The BUOS work also was used by the State Water Board and numerous others for California wide and more localized beneficial use mapping.

¹ CV-SALTS Workplan accessed at <http://www.cvsalinity.org/index.php/docs/documents-and-presentations/salt-and-nutrient-management-planning/1092-cv-salts-approved-workplan-final.html>

² CV-SALTS Document Archive accessed at <http://www.cvsalinity.org/index.php/docs/archive.html>

³ Workshop Notice accessed at <http://www.cvsalinity.org/index.php/docs/documents-and-presentations/358-outreach-workshop-notice/file.html>

⁴ CV-SALTS Website www.cvsalinity.org

⁵ CV-SALTS Salt Story, Brochure accessed at http://www.waterboards.ca.gov/centralvalley/water_issues/salinity/salt_management_efforts/cvsalts_2012may30_salt_story.pdf

IV Problem Statement & Relevant Issues

The Central Valley is one of the most rapidly growing areas in the nation. Population in the Valley is anticipated to increase by 39% by the year 2020. Industry and urbanization are taking place at an increasing pace, although agriculture is still a dominant economic force here, accounting for 57% of the \$6.5 billion in sales of all agricultural products in California in 2002. The Central Valley is also home to wildlife and includes the largest contiguous wetlands area remaining in California. The warm, dry, Mediterranean climate and fertile soils have drawn agricultural users for over a century. The presence of transportation corridors and ready access to workers has enticed industry to move in, and the relatively cheap price of land has encouraged urban development. The open areas and wetlands provide vital habitat for many species, particularly migratory birds along the Pacific Flyway. But the very features that make the Central Valley desirable for wildlife, farmers, developers, industry and the general population also contribute to salinity problems.

When water is used, salts are left behind. Every time a farmer irrigates a field, every time a managed wetland is flooded, every time an industrial facility conducts some water-requiring process, and every time you or I take a shower, we contribute to the salinity problem because the water we use and release has a higher salinity concentration than we started with. Sometimes this is because we add salt intentionally (home water softeners, plant fertilizers), but even when no salts are added to the system, evaporation and consumptive use act to concentrate unused salts. Additionally, salts move with water so salts originating in one basin will turn up in another. This is a significant problem when the receiving basin has no reliable way of disposing salt, as is the case in the Tulare Lake Basin; or has only limited capacity to discharge salt, which is the case in the San Joaquin River Basin.

Over the years, the Central Valley Regional Water Quality Control Board has been aware of the growing problem of increasing salinity in the Central Valley, but many of the key decisions that must be made in order to control Valley salinity are outside of this Board's jurisdiction. This report is a first step in opening a dialogue between the stakeholders and decision makers that will need to be involved in a comprehensive, sustainable, salinity management program for the Central Valley and for the State of California.

V Project Goals

General Goals

The goals under this contract were to provide a working framework for CV-SALTS to carry out both technical and stakeholder activities needed to address both policy and technical issues related to the management and long term sustainability of salt and nitrate contained in an approvable Salt and Nitrate Management Plan (SNMP). This contract had the overall goal of setting the foundation and initial development of both stakeholder understanding and technical basis for the second contract (11-123-555, C/A 292) that has the majority of technical work.

Allocation and Subcontract Goals

The project goals are shown by allocation of funding or subcontract below:

- a) SJVDA Management Services

- Contract administration for CV-SALTS
- b) Beneficial Use and Objectives Study Phase I
 - Develop Initial GIS Information as a basis for future Beneficial Use efforts
 - Provide experience in Region wide data collection and management
- c) Program Management Development and Facilitation
 - Continue development of CV-SALTS Framework
 - Develop CV-SALTS workplan and budget with Executive Committee input
 - Complete successful facilitation and management of meetings and policy discussions to assist stakeholders in understanding and funding of plan work
 - Successfully expand outreach with new website, brochure, stakeholder workshops
- d) Technical Project Management
 - Assist with the scope and development of Technical Projects
 - Provide detailed information on the management and cost for the CV-SALTS Workplan and conceptual model approach
 - Provide guidance and assessment of salt sources
- e) Long Term LSJR Committee Manager
 - Successfully guide stakeholders and manage LSJR Committee

These project goals were met with only a few exceptions and changes described below in the Project Description and following sections.

VI Project Description

Project Type

CV-SALTS initiative is a multiyear regulatory and planning effort to coordinate salt and nitrate management for the development of a region wide Salt and Nitrate Management Plan. This contract is the first of two contracts supporting CV-SALTS through CAA funding. The \$1,200,000 in CAA funding authorized under Resolution #2009-0023 has Stakeholder provided matching funds for efforts that were contemporaneous with this project and efforts that followed and expanded the funding from this project.

Project Cost and Matching Funding

As the first component of \$5,000,000 total funded from CAA sources with additional stakeholder matching funds, this project prepared the path for the technical and policy studies which followed. The final contract cost is \$1,199,983.10.

Several CVSC and stakeholder efforts matched the funding provided by the State Water Board. Initially the CVSC funded a Salt & Nitrate Sources Pilot Implementation Study⁶ which ultimately cost CVSC and consultants \$494,712 preceded this effort as funded matching work. Additionally, CV-SALTS management - Facilitation and Technical Project Management have

⁶ Salt & Nitrate Sources Pilot Implementation Study Work Plan and Final Report accessed at <http://www.cvsalinity.org/index.php/committees/technical-advisory/conceptual-model-developments/101-salt-and-nitrate-sources-pilot-implementation-study.html>

been continued to support the logistical, policy and technical study requirements of completing the SNMP.

Cleanup & Abatement Priorities Met

This project is specifically in support of priority 8, “Completion of a study/plan and/or monitoring addressing significant statewide water quality problems”.

Project Methodology

This project used a distributed methodology, the SJVDA, with experience in administering salt management projects and as a member of CV-SALTS was able to serve as contract manager and to facilitate procurement of separate Subcontracts for specialized and technical services while providing oversight of the total project.

Task 1 Technical Projects/Beneficial Use and Objectives Study Phase I - SJVDA Subcontract # I-1, executed April 29, 2010

The BUOS phase 1 study was the first effort to develop initial GIS information as a basis for future evaluation and beneficial use work. This project by Kennedy Jenks Consultants produced a BUOS Study report, as well as, GIS coverages, and an online Geodatabase. Deliverables are summarized in Appendix A-1 on CD ROM. The resulting work from this task provided experience in Region wide data collection and management that was summarized in the Knowledge Gained Report. The TPM (task 2) assisted in the drafting of the Knowledge Gained report. This task had a budget of \$49,982, and was completed on budget but after the original timeline. Several project difficulties stemmed from the consultant’s management of stakeholder interaction and changes in Kennedy Jenks project managers. All project objectives were met. There were no next steps for this subcontract.

Task 2 Management, Facilitation, and Administration of CV-SALTS - - SJVDA Subcontract # I-2, executed February 11, 2011

Prior to this project the State Water Board had contracted with Integrated Planning and Management for the development of a Strategies Plan for CV-SALTS. The efforts under this task continued development of the CV-SALTS – Strategy and Framework document that was approved by the Executive Committee. The subcontract also developed the CV-SALTS workplan and budget incorporating many versions of technical review and Executive Committee policy feedback. IPM successfully completed facilitation and logistical management of Executive, Technical, and many subcommittee meetings as well as the primary policy meetings with State, Central Valley Water Board, and stakeholders to assist all to understand issues and develop funding for the plan work over the term of the subcontract. Also funded under this subcontract was a successful outreach effort that provided a new website, brochure materials, and stakeholder workshops that assisted stakeholder engagement, these links are in footnotes above in the executive summary. Project deliverables are extensive and were submitted in 2012 and summarized in the Annual Reports to the State Water Board. Many of them are available in the website archive⁷. These documents are also available in Appendix A-2 on CD-ROM or from the SJVDA or the Central Valley Water Board Contract Manager. The two years of efforts funded under this contract totaled \$742,756. IPM facilitation and management services have

⁷ CV-SALTS Document Archive accessed at <http://www.cvsalinity.org/index.php/docs/archive.html>

continued to be funded through the CVSC. IPM work beyond the 6/31/14 subcontract end date included:

- Implementing the CV-SALTS Workplan
- Continued outreach and program management
- Program development and implementation planning

Task 3 Technical Project Management - SJVDA Subcontract # II-3, executed September 6, 2011

EKI was selected based on a procurement process to identify a Technical Project Manager (TPM) for CV-SALTS. The TPM was to 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. EKI performed a number of functions. They provided detailed information on the management and cost for the CV-SALTS workplan elements and timeline. They also provided feedback and support for the conceptual model approach that was used in the CV-SALTS Initial Conceptual Model funded under Contract #11-123-555 (C/A 292). They provided guidance and assessment of salt sources in an area of the Central Valley. However, the Technical Project Manager was not highly experienced at working with large stakeholder group situations and had difficulty meeting expectations of the Stakeholders without controversy. Deliverables produced under this task are referenced in Table 1 and briefly described in the following paragraph. The subcontract for EKI was originally authorized at \$400,000., however, ultimately the final cost was \$111,915. There are no next steps for this subcontract.

At the direction of the Executive Committee several specific deliverables to support the development, planning, and technical work were needed to prepare the SNMP. The first items requested were materials to support the Conceptual Model discussions with the Technical Advisory Committee and a scope and archetypes for Nitrate issues. The Executive Committee directed the preparation of a letter to City of Davis⁸ related to the TAC review of their WDR required Draft Salt and Nutrient Management Plan in October 2011. The Technical Project Manager prepared a Gantt chart to identify critical tasks for the CV-SALTS Strategy and Workplan⁹ and prepared a memo summarizing performance goals and questions for the Conceptual Model, General Approach for SNMP¹⁰ in November 2011.

Task 3.6 Long Term LSJR Committee Manager - SJVDA Subcontract # II-4, executed April 2, 2013

The Lower San Joaquin River Committee was formed under the CV-SALTS umbrella to identify appropriate salt and boron water quality objectives and a method of implementation to protect the most sensitive beneficial uses of AGR and MUN for the San Joaquin River. Dennis Westcot

⁸ TAC Agenda including Workplan letter to the City of Davis <http://www.cvsalinity.org/~cvsalt321/index.php/docs/committee-document/executive-committee-docs/1239-addendum-1-to-october-20th-agenda-city-of-davispdf/file.html>

⁹ CV-SALTS Workplan and related framework documents <http://www.cvsalinity.org/index.php/docs/documents-and-presentations/salt-and-nutrient-management-planning/1092-cv-salts-approved-workplan-final/file.html>

¹⁰ Revised Framework for Source Identification in SNMP <http://www.cvsalinity.org/index.php/docs/agendas-notes-and-materials/meeting-materials/829-revised-framework-for-saltnitrate-source-identification-and-app-a-b-c/file.html>

served as an interim committee manager and developed a workplan for the technical work necessary. Mr. Westcot was serving as a volunteer/interim committee manager but due to the amount of work it was determined that a long term committee manager was needed and he advised that he did not have adequate time to continue in this role and a procurement process was undertaken eventually selecting Michael L. Johnson LLC (MLJ). MLJ was tasked with implementing the scope of work developed by the interim committee manager, as well as, performing many roles as LSJR Committee Manager, such as scheduling meetings, arranging agendas and related efforts. A summary of deliverables and accomplishments is referenced in Table 1. These efforts successfully guided stakeholders and managed LSJR Committee to successfully complete technical and policy work to develop information needed to support development of the Salt and Boron TMDL. A detailed final report provided by MLJ is presented in Appendix B. The total cost for MLJ work supporting the committee was \$213,081.80. MLJ has been subcontracted effective February 1, 2016 to continue as LSJR Committee Manager under CVSC contracting authority. Next Steps include:

- Continued committee management
- Facilitating LSJR Committee stakeholder involvement in the Basin Plan amendment and implementation planning being developed by Central Valley Water Board Staff utilizing technical work produced by the LSJR Committee and their contactors.

VII Public Outreach

Public Outreach was a significant part of the subcontracted efforts under Task 2 Management, Facilitation, and Administration of CV-SALTS. The subcontractor worked with the CV-SALTS outreach and communications subcommittee to develop a brochure, new website, and stakeholder workshops held to expand stakeholder participation and project communications, links to these are shown as footnotes in the executive summary. This website continues to be the location of program records and a central hub for stakeholders for project information.

VIII Results and Conclusions

Results of the Project

Significant development and preparation was accomplished within the efforts provided through this contract. Each subcontract was awarded in accordance with a competitive bid process, procurement efforts were implemented by SJVDA in coordination with the Central Valley Water Board staff and Stakeholders in the development of requests for qualifications, and review of qualifications and proposals. Selection Committees were formed for each procurement process and made recommendations to the Executive Committee for discussion and approval. The primary result of the project was to advance the efforts of CV-SALTS toward the development of a complete SNMP for the Central Valley. The project was implemented in the following allocations:

a. SJVDA Management Services	\$82,257.84
b. Beneficial Use and Objectives Study Phase I	\$49,981.95
Initial GIS Information supported future assessment	
c. Program Management Development and Facilitation	\$742,746.98

Strategy/Framework/Workplan approved Feb 2012	
Facilitation of meetings and policy discussions	
Outreach development (website, brochure, workshops)	
d. Technical Project Management	\$111,914.53
Conceptual model approach, Salt source guidance	
e. Long Term LSJR Committee Manager	<u>\$213,081.80</u>
Support and manage LSJR Committee	
Total	\$1,199,983.10

Each of these allocations was described in the project description section. In summary, each of the major tasks listed above were successful in accomplishing the scope of work and submitting deliverables listed in the Section 5 Deliverables table with the exception of the Technical Project Management subcontract undertaken by EKI. This subcontract was terminated prior to completion and funding reallocated to other tasks through an approved contract/budget amendment. Uncompleted tasks were transferred to a replacement Technical Project Manager (TPM) that was funded under a separate contract (11-123-555, C/A #292)

The Program Management Development and Facilitation task with support from the TPM developed the Strategy and Framework for CV-SALTS that included a scope of work and budget. The Management, Facilitation, and Administration of CV-SALTS (Task 2) developed the Framework and 5-year Workplan¹¹ for CV-SALTS initiative with support from the TPM. Stakeholder meetings were hosted and facilitated moving the CV-SALTS process forward. Approximately 115 CV-SALTS and committee agendas and minutes were prepared and appear on the website in the archive¹². Each meeting required materials to be prepared, coordination of participants. Regional workshops¹³ were presented to bring additional stakeholders to CV-SALTS and a new project website¹⁴ and outreach materials, including a new brochure¹⁵ expanded the stakeholder group. Tim Moore, Principal at Risk Sciences provided policy development facilitation with stakeholders and Central Valley Water Board. The LSJRC Manager provided overall planning and management of the technical and stakeholder work to develop work needed to develop a staff report for the management program for the Lower San Joaquin Salt and Boron TMDL effort.

Conclusions

Several significant conclusions are summarized here. The BUOS determined that significant information was available but significant additional information and funding would be required to evaluate the beneficial uses in any given area. CV-SALTS determined that an archetype or proof of concept method should be used to develop example beneficial use changes. Stakeholder

¹¹ CV-SALTS Workplan accessed at <http://www.cvsalinity.org/index.php/docs/documents-and-presentations/salt-and-nutrient-management-planning/1092-cv-salts-approved-workplan-final.html>

¹² CV-SALTS Document Archive accessed at <http://www.cvsalinity.org/index.php/docs/archive.html>

¹³ Workshop Notice accessed at <http://www.cvsalinity.org/index.php/docs/documents-and-presentations/358-outreach-workshop-notice/file.html>

¹⁴ CV-SALTS Website www.cvsalinity.org

¹⁵ CV-SALTS Salt Story, Brochure accessed at http://www.waterboards.ca.gov/centralvalley/water_issues/salinity/salt_management_efforts/cvsalts_2012may30_salt_story.pdf

meetings helped to identify areas where beneficial uses needed to be evaluated and the technical work needed to prepare a SNMP. Stakeholders through discussion and technical work also evaluated archetypes as small scale demonstrations that provide templates for beneficial use evaluations and salinity management on a larger scale. The BUOS work also was used by the State Water Board and numerous others for California wide and more localized beneficial use mapping. The Program Management Development and Facilitation efforts were effective in increasing types of stakeholders greatly expanding the number of stakeholders involved from about 60 to well over 200. By engaging the right stakeholders in facilitated discussions and decisions and with the commitment of the Central Valley Water Board, the CV-SALTS program reached a critical mass of industry and community leadership which will support the continuing work towards development of a stakeholder supported SNMP.

The contract work summarized in this report is the first phase of a multiyear project. The work that has been completed under this contract provided the framework for the implementation of technical work required to vet alternatives and conduct thorough environmental and economic reviews for the development of a scientifically defensible SNMP and Basin Plan Amendment. Technical projects have been on going under contract 11-123-555. Annual Progress Reports on the work completed with the CAA funding have been provided to the State Water Board and are available for review at:

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

IX Appendices

List of Items for Submittal

Table 1 is the deliverables table from Contract No. 09-076-150. Web links are provided to the deliverables and copies are included in the attached CDs as follows:

Appendix A-1: Task 1 deliverables

Appendix A-2: Task 2.1 deliverables from IPM (Cozad)

Appendix A-3: Additional Task 2 deliverables

Appendix B - Long Term LSJR Committee Manager Final Report

Appendix C – Footnotes from this final report

Appendix D – Subcontracts

Appendix E – Contract Invoices

List of Subcontractors

Subcontracted work provided by the following subcontractors:

- a) Beneficial Use and Objectives Study Phase I – Kennedy Jenks Consultants, 303 Second Street, Suite 300 South San Francisco, CA 94107
- b) Program Management Development and Facilitation – Integrated Planning and Management Inc. 360 Lakeside Ave. Redlands CA 92373
- c) Technical Project Management – Erler and Kalinowski, 1870 Ogden Drive Burlingame, CA 94010

- d) Long Term LSJR Committee Manager, Michael L. Johnson LLP. 1480 Drew Ave, Suite 130, Davis, CA 95618

Copies of Subcontracts

Copies of all subcontracts are attached as Appendix D.

X Acknowledgements

The CV-SALTS Team would like to acknowledge the contributions of:

Central Valley Water Board Staff

- Contract Manager, Pam Buford who worked tirelessly to make sure everyone stayed on track
- CV-SALTS lead, Jeanne Chilcott, provide direction and help when difficult issues arose
- Pamela Creedon and Karl Longley, who never gave up the vision of a Sustainable Central Valley

SJVDA

- Contract Manager, Joe McGahan, implementation to make all the contracts possible.

Subcontractors

- Each of them brought their best to CV-SALTS to help the region move forward and address difficult issues with integrity.

Procurement/Selection/Project Committee members

- All members volunteered their time to review statements of qualification and proposals, keeping the highest standards for selection.

Table 1		
Task #	Deliverable	Due Date
	Summaries describing work completed during invoice period and invoices – Included with invoices	Monthly
1.1	Technical Memo on the identification of Beneficial Uses – A Geodatabase	1 October 2010
1.2	Technical Memo Basin Plans Data Compilation	1 October 2010
1.3	Technical Memo Salt and Nutrient Water Quality Criteria Review	1 October 2010
2.1	Copies of CV-SALTS Agendas and Meeting Notes Posted on CV-SALTS website and included in CD in Annual Accomplishments Report	1 April 2012, 2013
2.1	Annual Written Accomplishments Report Jan-Jun '11, Jul-Dec '11 - Jan-Jun '12, Jul-Dec '12	1 April 2012, 2013
2.2	Copies of Policy Meeting Discussion Materials included in Annual Written Accomplishments Report and posted on CV-SALTS website	1 April 2012, 2013
2.3	CV-SALTS Website – provide documentation of functioning website in Annual Written Accomplishment Report	1 April 2012, 2013
2.3	Five PowerPoint Presentations focused on Example membership recruitment and informational/professional conferences	1 April 2014
2.3	CV-SALTS Brochure	1 July 2014
2.4	Support Letters for Funding – Example copies to be provided in Annual Written Accomplishments Report CURES CDEFA Example Support letter	1 April 2012, 2014
2.5	Minimum of Two Request for Proposals Procurement Examples include TPM RFQ , July 2011, Lower SJR Committee Manager July 2012	1 July 2013
2.6	Approved CV-SALTS Strategy Framework and Workplan	1 April 2012
2.7	Development of Scope of Work Document for Agriculture Zone Mapping and Salt and Nitrate Management Plan Phases	1 October 2012
3.1	Draft Workplan Elements, See Task 2.6	1 December 2011

Table 1		
Task #	Deliverable	Due Date
3.2-3.5	Monthly Reports Summarizing Work included with EKI invoice	Monthly for term of subcontract
3.6	Quarterly written updates from Lower San Joaquin River Committee Manager - monthly invoices included written summaries of work	30 days following calendar quarter for term of subcontract
	Final individual project reports – see task 2.1 for link to annual project reports, Long Term LSJR Committee Manager Final Report	As approved by Contract Manager but no later than 15 February 2016
	Draft overall final report	As approved by Contract Manager but no later than 15 February 2016
	Final report and final invoice CV-SALTS Contract Final Report 4-25-16	1 May 2016