

Phase II Conceptual Model – Potential Scope of Work

Phase II Scoping – Background and Process

The purpose of the CV-SALTS Conceptual Model is to provide the technical basis or approach to unify data and modeled information from across the Central Valley into a Geographic Information System (GIS) model framework for both understanding salt and nitrate conditions in the Central Valley and supporting development of a Salt and Nitrate Management Plan (SNMP).

Three phases of Conceptual Model development are planned. The initial phase or Initial Conceptual Model (ICM Study) begun in fall 2012 is nearing completion. The primary goal of the ICM Study was to produce a 30,000 foot level or “concept level” analysis of water balance, and to estimate salt and nitrate load balances for the Central Valley floor in 22 delineated areas, referred to as Initial Analysis Zones (IAZs). In addition, two Central Valley areas were analyzed in more detail to evaluate salt and nitrate conditions using higher resolution modeling tools.

Phase II of Conceptual Model development, the subject of this Scope of Work (SOW), will build upon the ICM Study deliverables by utilizing the data, methods and results from the initial phase to refine understanding of salt and nitrate conditions in the Central Valley, develop additional analysis tools, provide opportunities to implement proof of concept analyses to support policy discussions, and begin development of the primarily technical aspects of the SNMP. Phase III, which is planned for initiation in 2014, will focus on additional required elements of the SNMP including antidegradation analysis, economic analysis and the monitoring/surveillance plan.

Scope of Work Development

The following tasks represent the proposed SOW for Phase II Conceptual Model development. Potentially, not all tasks will be funded as it may be necessary to prioritize work activities to align with available budget. If it becomes necessary to prioritize tasks, the first order of priority will be to ensure that CV-SALTS funds tasks that are necessary or required for SNMP development.

The process or steps for developing a final SOW for CV-SALTS approval and execution will be as follows:

1. Potential SOW, as described below in Tasks 1-7, will be reviewed by the CV-SALTS Technical Advisory Committee (TAC) and participating stakeholders.
2. CV-SALTS will send a letter of interest to approved CV-SALTS Contractors to identify which firms intend to bid on the Phase II SOW.
3. If a Request for Proposal (RFP) is necessary based on the response to the letter of interest, an RFP will be issued to request a formal proposal for all SOW tasks; a CV-SALTS Selection Committee will select a Consultant to complete the work based on the responses to the RFP (Note: If only one firm indicates interest, there are no plans to issue an RFP).
4. Initially, the selected Consultant will be authorized to only complete Task 1 – Workplan Development. In addition, to providing a detailed SOW, budget and schedule, the Consultant will be asked to prioritize tasks/subtasks based on available budget.
5. A draft Workplan will be reviewed by the Project Committee (PC); revised per PC comments and then submitted to the Executive Committee (EC) for approval. It is during this part of the process that final decisions will be made regarding the Phase II tasks that will be funded.

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6. Following EC approval, the Consultant will be authorized to execute the remaining approved tasks.

Potential Phase II Tasks

Tasks 1 through 7 are currently described as “potential” tasks for Phase II implementation. They are considered “potential” because the amount of work described and the budget allocated (\$575,000) to do that work may not be fully aligned. During Workplan Development (Task 1), the final list of Phase II tasks will be scoped and budgeted. Priority tasks for funding will be those tasks that are required for SNMP development. If a task is not required, then its value to the overall mission of CV-SALTS will be used as the basis for determining its priority in Phase II.

Task 1 – Workplan Development

Scope Description: Develop detailed Workplan (including schedule and budget) that describes the approach that will be used to implement the SOW described in Tasks 2 through 7 of this project. This effort will include, at a minimum:

- Activities and procedures for coordinating with CV-SALTS management and other CV-SALTS technical activities relevant to Phase II work;
- Description of data types and sources required for completing tasks and the procedures for obtaining these data, QA/QC'ing the data and addressing any data gaps;
- Specific, detailed technical approach regarding how the deliverables for each task will be developed; and
- Requirements/timing for review and/or decisions from CV-SALTS, including the PC, TAC and EC to facilitate development of task deliverables.

As noted above, the potential exists that the Consultant will determine that the level of effort required to complete Tasks 2 through 7 will exceed the CV-SALTS budget allocated for the Phase II Conceptual Model (\$575,000). This budget is the upper limit for this project and a small portion of that budget may need to be set aside for contingencies. Therefore, it is strongly recommended during Workplan development that the Consultant create a reasonable budget reserve.

If the Consultant determines that, per the budget guidance given, that it will be difficult to complete all tasks and subtasks as described below within the available budget, then the Workplan shall include the following information:

- The relative benefit of each task to development of the Central Valley SNMP (i.e., how the technical work can be completed to achieve the best “bang for the buck”, considering the goals of CV-SALTS); and
- A recommended priority for the tasks based on the CV-SALTS benefit assessment. In this regard, the highest priority tasks are those that are required for development of an SNMP.

In addition, during Workplan development the Consultant should consider that Task 3 includes a number of subtasks that are recommendations from the ICM Study Report for refining the Phase I work. Some of these tasks may require too many resources to implement at this stage of SNMP development. Accordingly,

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when preparing a recommended priority for Phase II tasks, it may be necessary to prioritize subtasks within the larger tasks.

The Workplan shall include a detailed schedule that assumes an October 15 start date and June 30 completion date. The schedule should consider the need to interact with the TAC and EC and build in some contingency to allow time to address technical issues that may occur during project execution.

Task Deliverables – Draft Workplan for PC and EC review that includes a detailed budget (including task prioritization if proposed budget exceeds the available budget allocation) and schedule; Final Workplan based on comments received on the Draft Workplan along with a Comment/Response (C/R) table that identifies how each comment was addressed in the Final Workplan.

Task 2 – Management and Coordination Activities

Scope Description: Ensure close coordination with the CV-SALTS management structure and technical projects through completion of the following tasks:

- 2.1 Coordination meetings with the CV-SALTS management structure, in particular:
 - Periodic meetings or presentations with the PC and TAC
 - Periodic meetings with the Technical Project Manager and/or Executive Director
 - Periodic presentations to EC (potential presentations and approximate dates for these presentation should be shown in the Task 1 Workplan)
- 2.2 As needed, coordinate with or provide support/information to other CV-SALTS-related technical projects or analyses, including, but not limited to geodatabase development and database management activities (including Agriculture Zone Map project), Strategic Salt Accumulation Land and Transportation Study (SSALTS), archetype/prototype projects, beneficial use studies, or Lower San Joaquin River study activities.
- 2.3 Maintain relevant project documents, files and data that may become part of the administrative record for a Basin Plan amendment in an appropriate accessible format and location.
- 2.4 Provide monthly written progress reports attached to monthly invoices to document project progress on a task-by-task basis. Each report will include information on (a) work completed during the month completed, (b) work planned for the next month, and (c) any project concerns that may affect the project SOW, deliverable schedule, or project budget.

Example Task Deliverables: Meeting notes, follow-up documentation, presentation materials, project files/data and monthly reports

Task 3 – Data Refinements and Updates to Support Salt, Nitrate and Water Balance Estimates for Incorporation into the SNMP

Scope Description: At a minimum, per the Recycled Water Policy, the SNMP should include “salt and nutrient source identification, basin/sub-basin assimilative capacity and loading estimates, together with

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fate and transport of salts and nutrients”¹. The ICM project provided baseline information regarding salt and nitrate conditions in the Central Valley. The ICM Study Report (Section 10) includes recommendations for making refinements or updates to the existing database used to generate the salt, nitrate and water balances for each IAZ. The purpose of this task is to implement one or more tasks that will increase certainty in the data used to develop ICM Study Report deliverables, resulting in a refined Conceptual Model. It is anticipated that not all of the following tasks will be implemented due to limitations on data availability, as well as budget. During Workplan development (Task 1), the Consultant will evaluate each of the potential data refinements listed under Task 3.1. Only those elements approved for execution in the approved Workplan will be executed. Under Task 3.4, the Consultant will revise/update the ICM Study Report deliverables, but only to the extent required to support development of SNMP sections under Task 7.

- 3.1 As approved, gather the data and information required to complete each of the following data refinements:
 - 3.1.1 Refine the actual applied water quality estimates (surface and groundwater qualities applied to lands, and the proportions of each source employed for irrigation).
 - 3.1.2 Refine the data used to estimate actual (organic and inorganic) fertilizer and amendments applied to each land cover class.
 - 3.1.3 Refine the nitrogen loading parameters for dairy solids to include forms of nitrogen.
 - 3.1.4 Refine nitrogen estimates through a comparison of modeled plant N uptake with harvest data and harvest N content data.
 - 3.1.5 Refine land cover data, especially for recently converted land cover classes.
 - 3.1.6 Perform sensitivity analyses for soil classes and parameters and refine, if appropriate, using the Soil Survey Geographic Database (SSURGO) mapping and parameters.
- 3.2 Update and document the database information as needed to keep the database developed for the ICM Study current (in particular the databases described in Section 3 of the ICM Study Report).
- 3.3 Revise the database used for the ICM to fully address the Geotracker GAMA data issues described in Section 3 of the ICM Study.
- 3.4 Based on the outcome/deliverables of Tasks 3.1, 3.2, and 3.3, the Consultant will update the IAZ and Subarea results/deliverables contained in the ICM Study Report to the extent required to support SNMP development. It is anticipated that the deliverable of Task 3.4 would be an addendum to the ICM Study Report, but this should be evaluated as part of Workplan development.

Task Deliverables: Revised/updated and documented CV-SALTS database(s), GIS coverages, and potentially addendum to ICM Study Report.

¹ For the purposes of CV-SALTS, nutrients in this context means nitrate.

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Task 4 – Develop Salt and Nitrate Data Analysis Methods to Support Regulatory Decisions

Scope Description: The ICM project developed methods to describe ambient groundwater quality and prepare a preliminary assessment of assimilative capacity. This approach served the purposes of a high level characterization of salt and nitrate concentrations for each of the IAZs and Subareas. However, for the purposes of salt and nitrate management at a more refined scale, e.g., Management Zone or local SNMP, and ultimately to support regulatory decision-making, e.g., conducting an antidegradation evaluation or assessing assimilative capacity, methods for analyzing water quality data require further development. Under this task the Consultant will develop the specific methodology (and associated data needs) that will ultimately provide the basis for antidegradation analyses to support regulatory actions and determine where assimilative capacity for salt or nitrate exists (if at all). At a minimum, the developed methods need to be consistent with State Policy 68-16 as well as legal interpretations of that policy and support local SNMP development, potentially above 10% of assimilative capacity as allowed per the Recycled Water Policy. This task includes the following key subtasks:

- 4.1 Develop a specific detailed methodology² for conducting data analyses to determine for a given groundwater area: (a) Ambient or existing water quality; (b) best water quality attained since 1968; and (c) existing assimilative capacity. At a minimum, the following data or methodology-related elements will be considered as part of methodology development:
 - Data sources, e.g., identification of the minimum or acceptable data sources.
 - Data handling or preparation requirements, including: (a) minimum data requirements for calculating historical or ambient conditions; (b) procedures for handling situations where a lack of data exists; (c) use of statistical analyses to evaluate dataset for outliers that could influence interpretation of ambient water quality; (d) QA/QC procedures to be employed to identify and address apparent anomalies or discrepancies in a dataset; and (e) procedures for use of well construction data to assign a well to a particular depth.
 - Time period for computing water quality characteristics for a defined area, including (a) definitions for the initial period for data analyses to support SNMP, period for calculating historical conditions, and the period for calculating existing or ambient conditions in the future; and (b) how data are handled when data are not evenly distributed temporally (e.g., use of annualized averages or some other means to average the data).
 - Taking into account spatial and temporal variability and single versus multiple groundwater layers within a defined area, methods to estimate (a) volume of groundwater; (b) mass of total dissolved solids (TDS) and nitrates; and (c) volume-weighted historical or ambient water quality.
 - Method for calculating the existing assimilative capacity in a defined area using the methods developed above for calculating ambient water quality at various scales.

The Consultant shall prepare a draft methodology document for review by the PC, TAC and EC. Based on comments received a final draft methodology will be prepared for testing.

² It is recommended that the Consultant consider the methods, experience developed already in technical materials prepared to support adoption of TDS and nitrogen objectives in the region covered by the Santa Ana Water Board.

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- 4.2 Apply the final draft methodology prepared under Task 4.1 at multiple scales: (a) one or more IAZs; (b) subareas defined in the ICM Study Report; (c) Management Zone archetype (Note that this analysis will need to be closely coordinated with Task 6.6); and (d) other defined area recommended by the Consultant and approved in the Workplan (e.g., it may be appropriate to test the methodology under varying data regimes, i.e., data rich vs. data poor situations). Prepare a Task 4 draft Technical Memorandum (TM) that provides the results of application of the methodology and recommendations for modification. This draft TM will be reviewed and commented on by the PC, TAC and EC.
- 4.3 Based on comments received on the draft Task 4.2 TM, the Consultant will refine the methodology prepared under Task 4.1 and apply it again to the same areas tested under Task 4.2. A final TM will be prepared to illustrate the outcome using the refined methodology.
- 4.4 Based on the work completed under the previous Task 4 subtasks, the Consultant shall prepare a methodology document for potential incorporation into the SNMP that fully describes the final, approved methodologies for analyses described above. This document should not only include calculation methods, but decision trees to support data handling/management decisions. The document may also include example calculations to illustrate any particular methodology.

Task Deliverables: Draft, final draft and final methodology document ready for incorporation into the SNMP; draft and final TM to demonstrate application of proposed methodologies.

Task 5 – Complete Management Zone Archetype(s)

Scope Description: The purpose of this task is to develop an archetype³ for:

- The establishment of a salt and nitrate management area (or zone) consistent with the expected framework for the developing Central Valley SNMP; and
- Test application of selected policies, data analysis methods and salt and nitrate management approaches under consideration by CV-SALTS.

The findings from this effort will be used to inform implementation elements of the Central Valley SNMP and potential amendments to the Central Valley Basin Plans. It is anticipated that the deliverables from this task will at a minimum provide at least a part of the foundation for what could become the local SNMP for the area in which the work is completed; however, it is not the intent of this task to:

- Produce a complete or final local SNMP for Central Valley Water Board adoption;
- Develop a plan that is binding on the stakeholders to implement;
- Complete all potential modeling analyses that could or should be completed to create the most robust analysis for the defined area for the purposes of a final SNMP for the defined area.

³ An archetype is defined as a test case or template for an SNMP process; in this case the emphasis is on developing and testing a template for a Management Zone approach to salt/nitrate management.

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Ultimately, when developing the Workplan for this Task, the Consultant must balance the costs of creating a definitive model with one of the key purposes stated for this task: Test application of selected policies, data analysis methods and salt and nitrate management approaches.

For the purposes of this task, a *Management Zone* is a user-defined geographic area with horizontal and vertical dimensions where salt and nitrate management is carried out in a collaborative and sustainable manner consistent with the goals of the SNMP. All work under this task conducted within a Management Zone archetype will be implemented collaboratively with the identified Stakeholder Lead for the Management Zone. The primary role of the Stakeholder Lead is to:

- Organize and be the primary point of contact for the Consultant and stakeholders⁴ participating in the archetype;
- Affirm the final boundaries for the area to be included in the archetype;
- Lead discussions with stakeholders with regards to salt and nitrate management decisions;
- Obtain stakeholder input on task deliverables; and
- Represent the interests of stakeholders to the EC.

Throughout the execution of Task 5, the Consultant will conduct periodic meetings with stakeholders in person or via teleconference to keep them informed regarding task progress.

Management Zone archetypes and their respective leads include:

- Kings River – Management Zone archetype will be delineated from within the area included in Task 7 of the ICM Study Report; Stakeholder Lead will be David Orth, Kings River Conservation District.
- Second area if identified and funded.

The following subtasks will be completed within each of Management Zones described above:

- 5.1 Working with the Stakeholder Lead, develop (a) draft areal and subsurface boundaries for the Management Zone to be developed in subsequent tasks; and (b) list of stakeholders to participate in the Management Zone archetype.
- 5.2 In coordination with the Stakeholder Lead, conduct a task kickoff meeting with stakeholders identified in Task 5.1 to review the task goals, finalize the Management Zone boundaries, submit data requests (e.g., water quality, GIS data layers, etc.), establish a task communication approach, establish a schedule for review of interim work products (consistent with overall Phase II Workplan) to verify that task-related deliverables completed in subsequent tasks are accurate and representative of the Management Zone; and any other activities included on the kickoff meeting agenda.

⁴ Stakeholders may be defined as narrowly or as broadly as needed to accomplish this task; however, at a minimum the stakeholders should include the key entities that could be responsible for implementation of salt/nitrate management activities within the Management Zone area, i.e., those stakeholders that would be directly affected by adoption of the Management Zone as a local SNMP. During Workplan development the Consultant shall work with the Stakeholder Lead to develop a list of key stakeholders to participate in this task.

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5.3 Using data obtained from the ICM Study and stakeholders, complete the following Management Zone characterization activities to the extent practical and where data are available:

- Identify surface water and groundwater characteristics including locations, flow characteristics, sources of imported water, and related information;
- Identify location of all known diversions, permitted discharges (facilities with an active WDR) and agricultural drains;
- Identify the known locations of municipal and domestic water supply wells (Note: When developing the Workplan, the Consultant shall describe how confidentiality issues related to identifying the exact locations of water supply wells will be addressed);
- Identify construction data for CDPH and other monitored wells to improve utility of historical water quality records;
- Identify the locations of known active dairy facilities;
- In cropped areas, identify the typical cropping patterns to identify the most salt-sensitive crops grown throughout the Management Zone (applicable only to a Management Zone archetype where salinity is an important water quality concern);
- Develop data regarding existing land ownership and/or management;
- Refine land cover data;
- Refine applied water quality estimates, especially for areas in the Management Zone not covered by the WARMF model;
- Incorporate soils characteristics and irrigation factors;
- Refine data on actual fertilizer and amendment application, to the extent practical;
- Develop information on potential projects that could be implemented to improve water quality, support use of recycled water; and
- Other data needs as identified during development of the Workplan.

The Consultant will review data submittals and (a) conduct an appropriate level of data QA/QC, (b) identify any significant data gaps and recommendations for how to address these data gaps in a manner that is suitable for the task (however, note that the intent of this task is to rely on existing data to the maximum extent possible), and (c) develop any data-related questions for follow-up. The Consultant will prepare a TM for the Stakeholder Lead to review with the stakeholder team to address as many data-related issues as possible. Based on the outcome of this interaction a Management Zone dataset for use in this task will be finalized.

5.4 Based on the final dataset developed from the information gathered in Task 5.3 (and potentially Task 3 of this overall SOW), the Consultant will update the higher resolution models developed for the area as part of Task 7 of the ICM Study, but only for the area defined as the Management Zone archetype and only to the extent needed to complete Task 5 under this SOW.

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- 5.5 The Consultant will prepare an Interim Technical Report that summarizes the work and outcomes from Tasks 5.1 through 5.4. The purpose of this report is to provide opportunity for technical review of the updated data and related modeling activities. Following review of a Draft Interim Technical Report by the PC, the Consultant will prepare a Final Technical Report.
- 5.6 Using the final data analysis methods and results completed under Task 4 (*Develop Data Analysis Methods to Support Regulatory Decisions, Task*), characterize the historical/ambient groundwater quality of the Management Zone and the assimilative capacity for discussion with stakeholders (Note: this work will need to be closely coordinated with Task 4 in general and Task 4.2 in particular). The deliverable for this analysis will be included in the TM prepared for Task 4.2.
- 5.7 In collaboration with the Stakeholder Lead and stakeholders, develop salt and nitrate management goals for the Management Zone that may include, for example: provide a safe drinking water supply; support Recycled Water Policy stormwater recharge and reuse goals; implement enhanced source control programs; maintain or improve existing water quality; limit future degradation of groundwater quality through implementation of salt and nitrate management alternatives; or other goals. The goals developed under this task are non-binding; they are intended to be used to provide a means to test salt and/or nitrate management options or policies that could be established for the Management Zone.
- 5.8 Based on the findings from previous tasks or other CV-SALTS work, develop short and long-term strategies for improved salt and nitrate management in the Management Zone. Strategy development should include: (a) a reasonable assurance analysis to demonstrate how implementation of the strategies achieves the salt/nitrate management goals⁵ for the zone; (b) identification of the key projects that could be implemented and the associated benefits of each; (c) policy issues that would need to be addressed through the SNMP and associated Basin Plan amendment to provide the necessary regulatory support to implement the strategy; and (d) a potential implementation strategy that demonstrates how the Management Zone could be managed to meet expected groundwater and surface water protection requirements (which could be based on maximum benefit objectives).
- 5.9 Prepare Management Zone Report to document the finding from the execution of the previous tasks that includes at minimum information or recommendations for the following:
- Process/steps for developing a local SNMP;
 - Minimum data and modeling analyses required and options for completing those analyses;
 - Process for developing goals for sustainable salt/nitrate management;
 - Strategies or approaches for managing salt/nitrate given the facts of this archetype;
 - Implementation approach taking into account institutional, regulatory and technical factors;
 - Lessons learned from this archetype that may be cross-applied to future efforts to develop local SNMPS; and

⁵ It is assumed that the “goals” as referred to here will be related to ensuring no further degradation of water quality (as determined in Task 5.6)

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- Identification of expected remaining steps to take the work done for this archetype to complete a local SNMP for submittal to the Central Valley Water Board for consideration and adoption.

When developing the Management Zone Report, the Consultant should prepare it in a manner and format so that it may be used or easily modified so that it can be incorporated, as appropriate, into the Central Valley SNMP as a template or as guidance for preparation for a local SNMP.

- 5.10 As needed, make modifications or refinements to ICM Study Report work products or supporting documentation/databases, e.g., Task 7 deliverables, to incorporate updated information into the Conceptual Model for the area included in the Management Zone. The output from this task is not intended to be a substantial work product; it is intended to ensure that the work completed in the Management Zone is incorporated into the Conceptual Model.

Task Deliverables: Draft and Final Interim Technical Reports, Draft and Final Management Zone Report; demonstration that task outputs have been incorporated into the Conceptual Model; at least one interim presentation to the EC, potentially more, if warranted based on the Workplan.

Task 6 – Complete Subarea Analyses

Scope Description: The purpose of this task is to complete additional high resolution modeling analyses⁶ for subareas identified in this SOW. At this time, none have been identified for completion under Phase II. If this remains the case during Workplan development, this task need not be addressed in the Workplan. However, if a subarea is identified prior to Workplan development, then the Workplan should be developed based on the SOW that follows.

As with previous subarea analyses completed for CV-SALTS, the purpose of this effort to characterize salt and nitrate at a scale that could potentially be used to manage salt and nitrate regionally. The primary outcomes of this task will be (a) a finer resolution salt/nitrate model for the defined area; and (b) characterization of water quality within the selected subareas, which provides a foundation for the future development of a local SNMP. Consistent with the methods or techniques developed and implemented under the ICM Study, the Consultant will implement the following subtasks developed in coordination with the Stakeholders of the Subarea:

- 6.1 Delineate recommended geographical boundaries within which subsequent Task 6 subtasks will be completed.
- 6.2 Evaluate data availability/needs for the Subarea and develop a data request to supplement existing CV-SALTS databases, as needed.
- 6.3 Conduct a task kickoff meeting with a representative(s) of the Subarea to review the task goals, finalize the subarea boundaries developed in Task 6.1, submit data requests developed under Task 6.2 (e.g., water quality, GIS data layers, etc.), establish a task communication approach, and establish a schedule for review of interim work products, if needed.

⁶ Existing high resolution analyses for the Central Valley include the Merced/Stanslaus and Kings River areas – see Task 7 of the CV-SALTS ICM Study Workplan or Section 9 of the ICM Study Report.

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- 6.4 Characterize each subarea, including, at a minimum, surface and groundwater hydrology, hydrogeology, land use, primary agricultural activities, location of POTWs and agricultural drains, and municipal water sources (surface water intakes or wells).
- 6.5 Identify the major sources of water, salt, and nitrate into and out of each subarea.
- 6.6 Using techniques developed for the ICM Study but supplemented as appropriate from the deliverables from Task 3 and 4 of this SOW, identify zones within each subarea that have (a) high quality groundwater, i.e., salt and nitrate concentrations are relatively low; (b) low quality groundwater and serve as sinks for salt and or nitrate accumulation; and (c) moderate salt and nitrate concentrations generally between the identified high and low quality areas.
- 6.7 Establish the water, salt, and nitrate transport pattern within each subarea. Determine the rate of transport and, to the extent practicable, determine the degree to which the zones identified in Task 6.6 are stable or changing (getting larger or smaller).
- 6.8 As needed, make modifications or refinements to ICM Study Report work products or supporting documentation/databases, to incorporate updated information into the Conceptual Model for the area included in the Management Zone. The output from this task is not intended to be a substantial work product; it is intended to ensure that the work completed in the Subarea is incorporated into the Conceptual Model as a whole. An example deliverable could be an addendum to the ICM Study Report.

Task Deliverables: Draft and Final Task 6 Reports for each Subarea; as needed, addendum to the ICM Study Report.

Task 7 – Prepare Preliminary Draft SNMP

Scope Description: The purpose of this task is to compile existing information, in particular information developed to date through CV-SALTS, to compile a Preliminary Draft SNMP. As part of Workplan development under Task 1, the Consultant shall develop a proposed SNMP document structure, which at a minimum, should be presented in the form of an annotated Table of Contents (TOC). The annotated TOC should describe the primary or expected source(s) of information for each section identified in the TOC. During development of a proposed SNMP document structure, the Consultant shall consider the following:

- Information developed to date through CV-SALTS (e.g., ICM Study and SSALTS) will provide the primary basis for document content. Supplemental information may be included, but only from existing works, i.e., no new original research or studies will be conducted as part of this task.
- The document will be written at a balanced level, i.e., enough information is to be incorporated to provide understanding regarding how salt and nitrate will be managed in the Central Valley with sufficient information included to understand the basis for this approach. Detailed, supporting information will be referenced.
- The Preliminary Draft SNMP is not intended to be a complete draft of an SNMP for the Central Valley Water Board; this Preliminary Draft will be supplemented as additional work is completed by CV-SALTS.

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- While the final structure and content of the SNMP is not fully known at this time, it can be assumed for now that the following sections or subsections will be largely developed as part of the Preliminary Draft prepared under this task:
 - Background section that identifies/describes the purpose and regulatory framework for the SNMP; summarizes the process and sources for its development; and in general how it is to be implemented (regionally and locally).
 - Central Valley description section that provides the geographic framework where the SNMP will be implemented.
 - Groundwater Basin description section that identifies/defines the basic units for which groundwater quality will be managed and characteristics of each of the defined units.
 - Groundwater water, salt and nitrate balance section that describes, to the extent known at this time, the baseline water, salt and nitrate conditions and the projected water quality conditions expected in the future for which the SNMP is expected to mitigate through its implementation.
 - Salt & Nitrate Management Goals and Strategies section that (a) incorporates the principles/policies that will govern salt and nitrate management in the future through the implementation of the SNMP; and (b) the implementation strategies that will support efforts to meet these goals. This information will be developed based on EC input to the extent known at the time of Task 7 implementation (it is likely this section may contain a number of placeholders for future development).
 - Salt & Nitrate Management Implementation Measures section that incorporates the SSALTS findings and as well as other input obtained through the EC or other approved sources to the extent known at the time of Task 7 implementation.
 - Appendices will be identified to the extent known; any materials that will comprise a particular appendix will be separate deliverables and not developed as part of Task 7. For example, the Task 4 deliverable from this SOW may become an appendix to the SNMP but will be developed separately under that task. If through execution of this project an appendix is recommended for which the information has not yet been developed, the Consultant should only make the recommendation. This SOW does not include development of the recommended appendix.

Given the considerations above, development of the Preliminary Draft SNMP will include the following key subtasks, all of which will be closely coordinated with the CV-SALTS EC (coordination with the PC or TAC may also may be necessary for specific elements):

- 7.1 Prior to initiating Task 7.2, the Consultant shall review the annotated TOC developed and approved as part of the Workplan to identify any recommended changes to the structure and content of the SNMP based on the outcome of any of the above Phase II tasks or other CV-SALTS work that has occurred since adoption of the Workplan. If any changes are recommended, these shall be submitted to the EC for review and approval.
- 7.2 Prepare a draft Preliminary Draft SNMP for review, based on the final approved TOC (either as approved in the Workplan or as revised and approved under Task 7.1).

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- 7.3 Prepare a final Preliminary Draft SNMP for EC review based on comments received on the draft. The Consultant shall provide a C/R summary table that describes how comments on the draft document were addressed.

Task Deliverables: Revised annotated TOC (if needed); draft and final Preliminary Draft SNMPS; C/R summary.

DRAFT