Regional Board Comment	General Response
1. Coordination with CV-SALTS Initial Conceptual Model - Discussion regarding the coordination between the ICM effort and SSSALTS should be expanded to include a description of how the schedules of the two efforts will fit together and which data and information generated by the ICM that will be utilized in the SSSALTS effort .	Agree – However, before incorporating this information we believe it is necessary to have additional discussion regarding what a "Study Area" is since this is the foundation of the SSALTS project. Agreement on the concept will assist in addressing this question as it defines where interaction between SSALTS and the Conceptual Model needs to occur. See Question 4 for more information regarding Study Areas.
2. Capacity of Each Salt Accumulation Study Area The example given in Step 3, page2-6, discussion is based on soil salinity. However, it seems the capacity of the groundwater aquifers will be a primary consideration for each study area. The discussion should make that clear and discuss it in some detail, perhaps including an example	Agree - The existing information was presented as just one example, but agree that that capacity of groundwater aquifers is also an important consideration. We will consider how to best incorporate that information and an example into a revised Workplan. We also note that this is an example of where the ICM and SSALTS will interact given that Task 5 of the ICM addresses the development of water quality analysis methods, especially as related to groundwater. Also see broader discussion of salt capacity in response to EKI Comment 3 (next table).
3. Long-term Sustainability of Salt Accumulation Study Areas The 50-year planning horizon for sustainability, discussed in Task 1.4, page 2-7, should be expanded, likely in 50yr increments to at least 200 years. If a salt accumulation study area is sustainable over a 50-year time period, but not over a 100-year time period, we should know that and begin to develop a plan to address the potential problem that is more than 50 years out. The longer term identification may help justify higher cost solutions that may pay for themselves over the life of the project (e.g. regulated brine line).	We agree that longer time periods than 50-years can be valuable for evaluating the cost-effectiveness of alternatives; however, the farther into the future we project, the greater the level of uncertainty. What is practicable today may be quite different from what is practicable at time scales even less than 50 years especially considering, advances in technology. However, we could potentially develop some rules of thumb or assumptions that can be used to extrapolate in increments of 50 years that provide boundaries around the degree of certainty in the results.
4. Scale of Salt Accumulation Study Areas The discussion of salt accumulation study areas and their relationship to land and water use cover and activities leaves the impression that the scale of the study areas would be somewhat localized, or at most regional. However, the salt accumulation conditions in the Tulare Lake and San Joaquin River Basins are well documented, and some of the SSSALTS effort must focus on addressing those problems. The discussion should be expanded to make it clear that salt accumulation areas will vary in size and should include those major basins.	We agree that the SSALTS Study Areas will vary in size and could be quite large to focus on specific salt disposal scenarios – Tulare Lake is a good example of a large Study Area that focuses on a specific scenario. The nature of the "Study Area" is an important area for additional discussion. During preparation of the Workplan, we were operating under the following general concepts: • Study Areas are representative areas with existing salinity concerns that can be used as prototypes for strategically developing salt disposal alternatives. • Study Areas should include a wide variety of conditions (e.g., areal extent, sources of salt, disposal constraints, surface water vs. groundwater, etc.) in order to be useful for SSALTS. • Study Areas should support evaluation of alternatives to strategically identify the best available or acceptable options to address salt disposal given the set of facts associated with a given Study Area. • Study Areas should provide opportunities to evaluate a variety of disposal alternatives and allow the results to be scalable or extrapolated to other Central Valley areas with similar disposal issues. • Study Areas should consider, but not necessarily be constrained by, regulatory barriers to implementation. In this regard, SSALTS can be used to help inform policy decisions necessary during development of the SNMP and Basin Plan Amendment.
5. Literature Searches The description of the literature review in Task 1.1 discusses CV-SALTS studies and recent relevant studies. It is unclear what the term "recent" means, but we suggest removing it. There was a tremendous amount of research done on salinity problems in the Central Valley in the 80s and 90s and this should not be overlooked. Thorough review of that more historic literature should be the starting point of any literature search. We also suggest putting more emphasis on literature review in the Task 2 discussions regarding identifying in-valley and out-of-valley salt management alternatives. Again, the work done in the 80s and 90s should not be overlooked.	We strongly agree and will make the necessary changes to the Workplan.

EKI Comment	General Response
1. <u>Definition of Study Areas and Coordination with Initial Conceptual Model</u>: Consideration should be given to clearly defining the term "Study Area." Is a Study Area the same as a Salt Management Zone? The Salt Management Zones in the Initial Conceptual Model (ICM) encompass the same geographic regions as the DWR planning areas used in the Central Valley Hydrologic Model (CVHM). Consequently, the screening level analysis of long-term sustainability called for in the SSALTS Work Plan must rely on one of the following approaches: (a) Directly use the salt mass balances derived in the ICM for the Salt Management Zones, which implies the Study Areas must be the same as the Salt Management Zones. (b) Parse and/or combine salt mass balances for various Salt Management Zones to conform to differing Study Area boundaries, which means data compiled as part of the ICM must be sufficiently detailed that the salt mass balances can be scaled. For example, if the ICM uses CVHM then the resulting salt mass balances are likely to represent features accurately at a scale no smaller than approximately 5 mi^2. CVHM relies upon "virtual wells" instead of actual wells, and the lack of individual well pumping information to constrain non-uniform groundwater extraction rates, may affect the accuracy of CVHM on a local basis. (c) Develop salt mass balances independently of the ICM for Study Areas established in conjunction with SSALTS. As the RWQCB indicated in their comments, considerable work on water balances and salinity issues has been performed throughout the Central Valley. The resulting data and findings could be used to establish salt mass balances on a local scale (e.g., WESTSIM and the USGS water budget for the Grasslands Area are examples of two such studies that could be utilized). The need for determining an approach to complete screening level analyses of long-term sustainability underscores the importance of the RWQCB comment that the data to be generated as part of the ICM, and schedule for doing so, must be coordinated with SSALTS.	Agree with the conclusion. See response to Regional Board's comments regarding this issue and intended definition of Study Area. In the end, given the three approaches described in this comment – approach "(c)" is closest to what is intended in the SSALTS (also see response to Regional Board comment 4). Moreover, SSALTS is intended to be a higher level planning study to strategically develop acceptable salt disposal alternatives which then can be evaluated in more detail as part of the SNMP. The acceptability or applicability of an alternative to a given location will be dependent on the set of facts associated with the Study Area. In this regard, the SSALTS is independent of ICM. However, opportunities for linkages exist. For example, the methods of analysis (such as how groundwater quality is determined) and findings of the ICM can be used in SSALTS. In addition, an SSALTS Study Area could be a subset (or a superset) of a management zone. Specifically, the findings from SSALTS can be used as input to subsequent Conceptual Model phases and development of the SNMP, e.g., SSALTS will identify a range of acceptable salt disposal alternatives for consideration in the SNMP. In this regard, SSALTS is not independent of, but instead working in parallel and collaboratively with the ongoing effort to develop the Conceptual Model (that begins with the ICM). The study provides an advance opportunity to strategically think about how to solve salt disposal problems represented by widely varying Management Zones (MZ). As such, we are not trying to fix a specific problem within a specific MZ, e.g., by using models to analyze and resolve a site-specific salt disposal issue. Instead, we are working at a planning level looking at a range of scenarios and coming up with acceptable disposal alternatives given the set of facts. For this effort, we anticipate using the developing ICM model to evaluate what-if scenarios s in a planning context, e.g., Given X and you need Y, and have alternatives A, B, C, and D to work with, which alternative provides the best alternative to get you to Y?
2. <u>Coordination with the Lower San Joaquin River (LSJR) Committee</u>: Besides the salt mass balances that will be performed for the ICM, the LSJR Committee's *Workplan for Development of Water Quality Objectives for Salinity on the Lower San Joaquin River* specifies that a salt mass balance (i.e., Task XIV) for the Lower San Joaquin River will be completed as part of the committee's work. How will the salt mass balance for the Lower San Joaquin River be integrated with SSALTS?	SSALTS is not trying to develop a salt mass balance for the LSJR. Instead, as explained above it is developing acceptable salt disposal alternatives for the Central Valley which includes the LSJR. However, the LSJR Workplan includes "Implementation Planning" (Task XVII) which includes an evaluation of alternatives for achieving compliance with water quality objectives. The information developed and evaluated under SSALTS can be used to inform the work undertaken by the LSJR Committee; conversely, the LSJR or a portion thereof, could be used as one of the Study Areas given that alternatives envisioned for the LSJR, e.g., real time management, will be considered in SSALTS, but at a planning level (i.e., SSALTS is not intended to develop a RTM program specific to the LSJR.)

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3. Characterizing the Salt Capacity of Study Areas: Consideration should be given to clearly defining the term "Salt Capacity". The details of how this definition will be established and coordinated with the ICM and LSJR Committee, and ongoing policy efforts of the CV-SALTS Executive Committee, needs to be considered under Step 3 of Task 1.3. The following questions may help clarify some of the issues that might have to be addressed in establishing the definition of salt capacity: (a) Does salt capacity mean the total amount of salt that can accumulate in the groundwater basin and still meet water quality objectives (regardless of the current levels of salt), or does it mean the incremental amount of salt above the quantity that has already accumulated in the Study Area? Will the salt capacity take into account interrelationships of neighboring groundwater basins and surface water flows so portions of the assimilative capacities of such water bodies are reserved for "downstream" users? (b) Will the salt capacity of a Study Area be calculated as an "average" for the Study Area, regardless if localized conditions exist where salt concentrations are close to or greater than water quality objectives (i.e., hot spots), or will the Study Area be separated into smaller zones in recognition of such hot spots? How will the salt capacity be determined for a hot spot where salt concentrations are greater than water quality objectives, yet additional salt can be stored in the hot spot because it is physically isolated (Tulare Lake Bed serves as a possible example) from surrounding water resources? (c) Will salt capacity be determined on the basis of total dissolved solids or will it take into account the potential effects that different salt compositions may have on beneficial uses? The effects of salt accumulation and, presumably the salt capacity, depend on the character of the salt, (e.g., chloride dominated vs. calcium dominated). For instance, as a general rule, field crops will do better and appear 10 to 20% more tolerant of salinity on soils that are dominated by calcium and sulfate salts (i.e., gypsiferous) as opposed to sodium and chloride (i.e., sodic). The SSALTS Work Plan specifies each Study Area will be characterized to identify the primary "sinks" for salt in the selected areas. The work plan states the sinks will comprise the same categories as those used in the CV-SALTS Pilot Study. Do separate salt capacities need to be calculated for (i) Surface Waters and Land Surfaces, (ii) Near Surface Groundwater, and (iii) Deep Groundwater, which are the categories of sinks specified in the SSALTS Work Plan?	We agree with the general comment that "salt capacity" needs to be clearly defined. We believe the best way to do this will be to include this as a Workplan task since it will be helpful to look at defining this term in the context of the selected Study Areas and the work of the ICM and LSJR Committee. The various scenarios/options described in 3(a) through 3(c) may all be relevant considerations. However, conceptualizing them will be easier once each Study Area is characterized. These considerations may include: (a) By definition, salt capacity should include the incremental amount of salt that may be allowable within a Study Area. To facilitate extrapolation to other similar areas, it will be useful to understand the total amount of salt accumulation as well. Salt capacity should take into account, to the extent possible, other salt sources (e.g., neighboring groundwater basins); however, system-wide analysis of tradeoffs whereby assimilative capacity is reserved for downstream users is not anticipated under SSALTS. (b) Limited data will necessitate the use of averaging; however conservative assumptions can be made to account for potential "hot spots". These areas may be identified as constraints to certain SSALTS alternatives. We do not regard the Tulare Lake Bed as a "hot spot" in this context as the outcome from the current MUN delisting process could allow it to be used for salt disposal. There may be other similar Study Areas where a regulatory approach may be an appropriate alternative to consider. (c) We would note that: (i) the definition of salt capacity should take into account the direction of the Executive Committee with regards to salinity water quality objectives. If it is EC or TDS, then salt capacity should be evaluated in the context of one or both of these parameters. (ii) It is also important to keep in mind that SSALTS is a planning study. In that regard, evaluating the effect of varying salt composition on the salt capacity of a specific site would certainly be an interesting analysis at a local level, but would be too detailed for the level of analysis anticipated for SSALTS. Generally, salt capacities should be estimated for the various sinks considered under the Pilot Study or, more importantly, the ICM.