Comment/Response Table - Technical Sections of SNMP

Comment No.	Section No.	Original Section Title	Original Page Number	Commenter	Comment	Response
1	TOC	Table of Contents	General	Jeanne Chilcott	Recommended an alternative structure for the Central Valley SNMP vs. structure originally drafted in 2013.	Central Valley SNMP will be structured as recommended (see current Table of Contents)
2	ES	Executive Summary	General	Jeanne Chilcott	Numerous recommendations made to revise draft text.	Recommendations incorporated into the Executive Summary that was submitted for review at the June 22 public workshop. Executive Summary will be revised as needed as SNMP develops
3	1	Introduction	General	Jeanne Chilcott	Numerous recommendations made to revise draft text.	Recommendations incorporated into revised Introduction section.
4	2	Characterization of the Central Valley	General	Jeanne Chilcott, Debbie Webster	Various recommended text edits.	Text revised as requested
5	2	Characterization of the Central Valley	2-1	Jeanne Chilcott	Add additionanl bullet regarding distinct hydrologic regions to recognize delta; add figure used in presentations showing flow distribution	Text revised as requested
6	2	Characterization of the Central Valley	2-1	Jeanne Chilcott	Added sentence regarding key findings from Howitt Report	Text revised as requested
7	2	Characterization of the Central Valley	2-1	Jeanne Chilcott	Added text in Section 2.2 regarding Bay Delta Plan	Text revised as requested
8	2	Characterization of the Central Valley	2-4	Jeanne Chilcott	In Section 2.2, added text regarding MUN and AGR uses and sensitivity to nitrate and salt and request to cite LSJR work.	Text revised as requested
9	2	Characterization of the Central Valley	2-4	Jeanne Chilcott	Recommended addition of text to explain use of a narrative objective in the Basin Plans to protect AGR use	Text revised as requested
10	2	Characterization of the Central Valley	2-5	Jeanne Chilcott	Recommended addition of text to San Joaquin River Hydrologic Region description (Section 2.3 Physical Description) and additional summary paragraph re existence of highly regulated system.	Text revised as requested
11	2	Characterization of the Central Valley	2-9	Jeanne Chilcott	Clarification edits recommend to first paragraph in Section 2.3.4 (Surface Water, Delivered Water, Imported Water, Recycled Water)	Text revised as requested

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12	2	Characterization of the Central Valley	2-16	Jeanne Chilcott	Table 2-1 - numbers are not maps	The map in Figure 2-3 shows the locations of all basins and subbasins – there are too many numbers to be placed on a Region 5 scale map. Footnote added to refer to DWR website to locate different basins/subbasins if more maps are needed (Additional Comment from Richard Meyerhoff - this map may be supplemented in SNMP with additional maps to show location of basins/subbasins by number - particularly those located in valley floor).
13	2	Characterization of the Central Valley	2-3	Debbie Webster	Recommended edits to last paragraph in Section 2.2 (Beneficial Uses and Water Quality Objectives) to clarify applicable objectives for SMCLs for TDS or EC	Text revised as requested
14	2	Characterization of the Central Valley	2-4	Debbie Webster	Regarding San Joaquin River Hydrologic Region description in Section 2.3 (Physical Description): Mirror the major river description. Will need to handle the direct Delta Tributaries (Consumnes and Mokelume Rivers differently.) suggest a separate bullet just on the Delta.	Each section is primarily focused on the major river descriptions. Additional text added as needed.
15	2	Characterization of the Central Valley	2-4	Debbie Webster	Regarding Tulare Lake Hydrologic Region description: Name major rivers	Comment incorporated
16			2-4	Debbie Webster	Regarding Section 3.3 opening section, after discussion of Tulare Lake Hydrologic Region: Probably should include a paragraph on how the Central Valley water system is highly modified and controlled	Brief paragraph added regarding modified waterbodies.
17	2	Characterization of the Central Valley	2-5	Debbie Webster	Regarding Land Cover and Land Uses Subsection: Try to mirror the information in each section: total area, % irrigation, floor area vs foothill/mountain/private/public, major rivers, major cities and populations.	We agree and this is what we were trying to do while also including region specific information. If there is something in particular that should be added or modified let us know
18	2	Characterization of the Central Valley	2-5	Debbie Webster	Regarding Land Cover and Land Uses Subsection: include walnuts (?) per CA Water Plan	Walnuts included in list of main crops
19	2	Characterization of the Central Valley	2-5	Debbie Webster	Regarding Land Cover and Land Uses Subsection, San Joaquin River Hydrolic Region, last two sentences about land ownership and geographic distribution of acreage: Do you have similar types of information for the Sacramento and Tulare Lake regions?	Unfortunately we do not. If there is other information available it can be included.

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20	2	Characterization of the Central Valley	2-6	Debbie Webster	Regarding total water supply esimate subbullets: Check, 2013 Water Plan says million.	DWR States 2.7 MAF = 2,700 TAF. This is stated in 2013 Water Plan.
21	2	Characterization of the Central Valley	2-6	Debbie Webster	Regarding total water supply esimate subbullets: Do you want to add about groundwater declines? From 2013 Water Plan: Groundwater levels for much of the region have declined from 2005 to 2010. Groundwater level declines ranging from 20 to 30 feet are seen in the northwestern portion of the Sacramento Valley Groundwater Basin. Declines ranging from to 10 to 20 feet are seen in the northern, the mid- to south-western, and the southeastern portions of the valley. For the rest of the Sacramento Valley Groundwater Basin and the Redding Area Groundwater Basin, groundwater level declines have ranged from zero to 10 feet.	While we agree with the statement, this section is focused on sources and demands rather than groundwater conditions.
22	2	Characterization of the Central Valley	2-8	Debbie Webster	Regarding Tulare Lake Hydrologic Region description within Basins and Sub-Basin Boundaries section: Show on maps. Also, add groundwater info that is not "basins".	Reference to Figure 2-2 added to text.
23	2	Characterization of the Central Valley	2-13	Debbie Webster	General comment posted at end of Section 2.6 (Hydrogeology/Hydrology): Again, you need to describe outside the valley floor.	Agree. Previous paragraph refers to outside the valley floor.
24	2	Characterization of the Central Valley	2-13	Debbie Webster	General comment regarding Section 2.7 (Aquifers): Probably should also descrbe foothill/mountain aquifers too.	Given how many there are, this was not included in this section, which is a broad overview chapter.
25	2	Characterization of the Central Valley	2-13	Debbie Webster	Regarding first sentence in second paragraph, "The aquifers containing groundwater in the Central Valley drain following the patterns of the Sacramento River and the San Joaquin River through the Delta to the Bay and the Pacific Ocean.": Is this true of the Tulare Lake basin too?	Text revised to clarify.
26	2	Characterization of the Central Valley	2-13	Debbie Webster	Regarding third sentence in second paragraph, "The hydrologic budget (inflows and outflows) during pre-development in balance, meaning that there was no change in storage.": I know we can probably assume this, but do we know this?	This is an assumption; text added.

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27	2	Characterization of the Central Valley	2-15	Debbie Webster	Regarding Table 2-1: We should be able to pull a map from DWR with all these basins and subasins, including outside the valley floor.	The map in Figure 2-3 shows the locations of all basins and subbasins – there are too many numbers to be placed on a Region 5 scale map. Footnote added to refer to DWR website to locate different basins/subbasins if more maps are needed.
28	3	Characterization of the Hydrologic Regions	General	Jeanne Chilcott, Debbie Webster	Various recommended edits.	Text revised as requested
29	3	Characterization of the Hydrologic Regions	3-1	Jeanne Chilcott	Recommended text re original use of 20 year travel time approach.	Text revised as requested
30	3	Characterization of the Hydrologic Regions	3-1	Jeanne Chilcott	There is inconsistency in the use/discussion of 20-yr zone and "deeper" zone. Also, the limitations of the data that lead to some of the modeling and potential discrepancies (e.g. the guessing of the depth of some wells based on constructed purpose due to the lack of well construction data) doesn't seem to be identified or is buried.	With the High Resolution work, there will need to be some reworking of this section with respect to the presentation in the Final SNMP, i.e., the info developed as part of the ICM followed by the updated info generated as part of the High Resolution work.
31	3	Characterization of the Hydrologic Regions	3-2	Jeanne Chilcott	Regarding first paragraph in Section 3.1.1 (Central Valley Floor) add recommended text an note that text needs to be clear that we are addressing AGR in this SNMP; not just MUN.	Text revised as requested
32	3	Characterization of the Hydrologic Regions	3-3	Jeanne Chilcott	Recommended text be included to explain use of CVHM and IAZs as a preliminary approach	Text revised as requested
33	3	Characterization of the Hydrologic Regions	3-3	Jeanne Chilcott	Figure 3-3 needs IAZ numbers	Numbers added to figure.
34	3	Characterization of the Hydrologic Regions	3-7	Jeanne Chilcott	For tables 3-1 and following, needs to be a key for all the different shading.	Text added as explanation.

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35	3	Characterization of the Hydrologic Regions	3-16	Jeanne Chilcott	Section 3.2, regarding last sentence in first paragragh, "Although long term increases in salt and nitrate concentrations are a concern for groundwater, salt and nitrate concentrations are not a primary concern for surface water quality throughout the Central Valley.": The Lower SJR is listed as impaired for Salt/boron and we did a special case study on salt management to allow the river to be used to export salt while meeting WQOs. We have surface water dischargers who are being restricted/penalized on their releases due to increasing salt in their discharges from conservations. Ag will not be allowed to discharge if we don't adjust the WQOs for ag drains. How can this section indicate that salt is not an issue in surface water?	Text revised to state that salt concentrations are a growing concent for surface water quality in the Central Valley.
36	3	Characterization of the Hydrologic Regions	3-17	Jeanne Chilcott	Recommended text edits to end of third paragraph in Section 3.2 to add clarification re salt and boron issues in the San Joaquin River.	Text revised as requested
37	3	Characterization of the Hydrologic Regions	3-17	Jeanne Chilcott	Last paragraph re Tulare Lake Hydrologic Region within Section 3.2, regarding, "Where measured, nitrate concentrations in natural source waters are generally between 0.25 – 1.5 mg/L (NO3-N), with the exception of the Kaweah and Tule subbasins where concentrations range between 5.0 – 25.0 mg/L": Source water???	Clarification provided that this is surface water.
38	3	Characterization of the Hydrologic Regions	3-18	Jeanne Chilcott	Section 3.3 (Delivered and Imported Water), regarding second paragraph: "No, no, no. This discussion is missing the Delta so is misleading. The SJR is not providing water imports to the Sac Basin." Same paragraph, question regarding mention of Folsom South Canal in paragraph. Section 3.3, regarding third paragraph, first sentence, "Water primarily exits the San Joaquin River Hydrologic Region to either the northwest or the south. To the northwest, the Contra Costa Canal, Mokelumne Aqueduct, Hetch Hetchy Aqueduct and South Bay Aqueduct delivered 831 TAF to the San Francisco Bay Region, while San Joaquin River flows provided 1,829 TAF to the Sacramento Hydrologic Region (CDWR, 2013B).": Again, without explaining the Delta and flow diversion and recycling, this section does not make sense	Section completely revised to incorporate Delta information.

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39	3	Characterization of the Hydrologic Regions	3-18	Jeanne Chilcott	Last paragraph Section 3.3, regarding, "Water that exits…": odd terminology. Seems more like it was diverted before it could utilized.	Entire section greatly revised; text of concern revised.
40	3	Characterization of the Hydrologic Regions	3-15	Debbie Webster	Section 3.2 (Surface Water Quality) recommends deletion of last sentence in second paragraph in section, "Although salt concentrations are generally low in the Sacramento River, the total salt load exported is of concern due to the limited assimilation capacity in the Central Valley."	Text revised as requested
41	3	Characterization of the Hydrologic Regions	3-16	Debbie Webster	Recommends addtiion of paragraph to describe surface water flows through the Delta	Text revised as requested
42	3	Characterization of the Hydrologic Regions	3-16	Debbie Webster	You really need to decide how you are going to handle the Delta in the section above, if it is included in the Sacramento San Joaquin or on its own.	The Delta was included within the discussion, but is not treated as a separate hydrologic region.
43	3	Characterization of the Hydrologic Regions	3-16	Debbie Webster	Regarding Section 3.3 (Delivered and Imported Water), first paragraph: Please in this next section be clear what regions you are talking about, because of exports it is more than just the 3 subbasins in the Central Valley.	Although we recognize 4 key Basins, this report is focused on the 3 hydrologic regions identified in Section 2. Subheaders added.
44	3	Characterization of the Hydrologic Regions	3-17	Debbie Webster	Regarding Section 3.3 (Delivered and Imported Water), first sentence in second paragraph: This seems backwards on its own.	Text revised to clarify.
45	3	Characterization of the Hydrologic Regions	3-17	Debbie Webster	Regarding Section 3.3 (Delivered and Imported Water), paragraphs re Sacramento River Region (this encompasses several comments regarding this section): Terminology is clunky. You need to tell where the “imports” are coming from and where the “exports are going to, otherwise the terminology just doesn’t make sense both in this section, in the paragraph.This needs to be in plainer language. It seems as if you are mixing regions and descriptions. Keep it consistent.	Text revised to clarify.

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46	3	Characterization of the Hydrologic Regions	3-17	Debbie Webster	Regarding Section 3.3, second paragraph reference to imports in the Sacramento River Hydrologic Region: where are the imports coming from and to where are they going? This comment applies to several references to the movement of water. Clarification re exported water vs. instream flows. Other various recommended deletions and insertions to paragraph.	Section largely rewritten/revised to address a number of comments.
47	3	Characterization of the Hydrologic Regions	3-17	Debbie Webster	Regarding Section 3.3, third paragraph, third sentence, "Most flows from the upper San Joaquin River and its headwaters are diverted to irrigate crops outside the region and have been replaced with higher salinity water that is imported from the Delta.": You may just be able to remove this.	Text revised but generally retained.
48	3	Characterization of the Hydrologic Regions	3-18	Debbie Webster	End of Section 3.3: So overall what is the water balance?	Text revised to address comment.
49	3	Characterization of the Hydrologic Regions	3-20	Debbie Webster	Regarding fifth paragraph, second sentence in Section 2.4 (Recycled Water): Although the math can be done this way, Central Valley water will typically get reused again, whether it is counted as recycled or not. This is different than coastal communities with ocean discharges. Central Valley recyclers typically face water right and stream flow hurdles that are not as problematic than in other regions and can limit the ability to use recycled water. I really would like to think more about this before we set these as either goals or projections.	Sentence deleted.
50	4	Basin Evaluation - Water Balance	General	Debbie Webster	Overall in this chapter I am finding a lot of places where the same information is repeated several times. I think some reorganization of information needs to happen. Also, in the end, I really couldn't tell which where the basins where groundwater is being depleted, This should be more clear.	The water balance subregions have more detailed information in Appendix F – this chapter provides information on water budget components for as much of Region 5 as we have information
51	4	Basin Evaluation - Water Balance	General	Debbie Webster	Various editorial suggestions	Text revised as requested
52	4	Basin Evaluation - Water Balance	4-1	Debbie Webster	First paragraph, third sentence, references to "groundwater sources": Is this only groundwater? If so, reflect in the title.	Surface water is included in this water balance. Text revised.

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53	4	Basin Evaluation - Water Balance	4-1	Debbie Webster	Section 4.1, fourth sentence, reference to the "movement of water": Ground, surface or both?	Both, hence not specifying
54	4	Basin Evaluation - Water Balance	4-1	Debbie Webster	Somewhere, probably in this section, we need to describe why we focused on the Valley Floor instead of the whole Central Valley. Some of the justification I recall was: - The valley floor was the area of most concern - Largest sources of salt and nitrate resided there and therefore where RWB efforts in control would make the most sense. - Existing models - More data We also should say that where data was available, we have gathered it outside the valley floor and that there are few areas of known salt/nitrate issues and for the most part these are very localized.	Text revised to address comment.
55	4	Basin Evaluation - Water Balance	4-2	Debbie Webster	So did we purposely not use the last decade of data, if so why? Or was all the analysis based on stuff we did at the very beginning of CV-SALTS so 2003 was the most complete recent data set? With our updated data, saying that we used this older data based on the 2015-16 SNMP development is surprising.	The groundwater flow model (CVHM), which was the basis of the water budget, has a time period from 1961-2003. The most recent 20-years of the simulation was used, as that was the most recently available water budget information.
56	4	Basin Evaluation - Water Balance	4-6	Debbie Webster	I think it would really help if you matched this and the previous paragraph descriptions to table 4.2, identifying what each means and what a + or – means. I saw you tried to do so in the table – see note there too.	Negative signs added to the table to reflect, and text adjusted in the table's footnote. Comment incorporated
57	4	Basin Evaluation - Water Balance	4-9	Debbie Webster	Table 4-2, table note 4-1: Then what about groundwater pumping, ET and surface water deliveries, why are these positive?	Negative signs added to water components that mean water is leaving the groundwater body – this includes ET and gw pumping.
58	4	Basin Evaluation - Water Balance	4-11	Debbie Webster	Figure 4-3: Some inflows, especially the large one above the feather river doesn't make sense as there is doesn't appear to be a river source identified.	This is taken from CVHM, and is not new information developed for the SNMP (Approval was received from the author to incorporate).
59	4	Basin Evaluation - Water Balance	4-12	Debbie Webster	Section 4.3 (Water Movement Within the Central Valley Basin), last paragraph regarding Southern Central Valley: Need to address the Tulare Basin.	The Tulare Lake Subbasin is a subbasin of the San Joaquin Valley, and is included in the Southern Central Valley. Text added to reflect this distinction

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60	4	Basin Evaluation - Water Balance	4-16	Debbie Webster	Section 4.5 (Recharge Mechanisms), second sentence in first paragraph, "Climate variability affects the amount and spatial distribution of recharge in the Central Valley, as well as delivery of surface water for irrigation combined with pumping for irrigation and public supply.": This sentence needs to be relooked at. I think the subject needs to be recharge, not climate variability. Recommend relooking at the paragraph as a whole and see if it can be conveyed more clearly.	Text revised as requested
61	4	Basin Evaluation - Water Balance	4-16	Debbie Webster	Section 4.5, second paragraph: a number of recommended edits.	Text generally revised as requested.
62	4	Basin Evaluation - Water Balance	4-16	Debbie Webster	Section 4.5, second paragraph, last sentence: Not sure if this is an important fact since this is the drain both from groundwater and surface water	We would still like to include this information about the role of the Delta.
63	4	Basin Evaluation - Water Balance	4-16	Debbie Webster	Section 4.6: Look at section 4.3 and combine/move information so not repetitive and it improves understanding.	Section 4.3 provides a brief summary and some more details are in Section 4.6
64	4	Basin Evaluation - Water Balance	4-17	Debbie Webster	Section 4.6, first paragraph after Figure 4-6, first sentence, "The summaries below provide tables and figures that detail water balance information for IAZs in the three areas of the Central Valley (Northern, Middle, and Southern) during the ICM study period (1983-2003) with depths according to their 20-year travel zone.": Don't we have the information to be able to provide more up to data information than this?	Not on the Central Valley scale.
65	4	Basin Evaluation - Water Balance	4-18	Debbie Webster	Section 4.6.1, first paragraph: This all said, IAZ 6 also seems as if it has unique features.	Comment noted.
66	4	Basin Evaluation - Water Balance	4-19	Debbie Webster	Figure 4-7: It seems as if you have this graph information in the next table, not sure what it is adding and it is getting in the way of your text.	The figure helps illustrate what the differences are between IAZs and is used for context to support the tables and future salt/nitrate balance sections.
67	4	Basin Evaluation - Water Balance	4-20	Debbie Webster	TAble 4-4: Having an area size (in thousand square acres) for each IAZ in this table would be helpful. I am not sure if the differences area size or something else. Using that convention would also help determine other dimensions easily. Do for all three areas.	Good suggestion - text added to all three areas (Tables 4-4, 4-5 and 4-6).

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68	Appx C	Methodology for Determining Existing Water Quality, Best Water Quality Attained Since 1968, and Assimilative Capacity ("Methodologies")	General	General	Regarding Shallow and Upper Zones	The ICM used a 20-year travel distance to define what was referred to as "shallow" groundwater for that work. The 20-year travel distance was exclusively used only in the ICM work, and was not used after that report was finished. The AID work utilizes an Upper Zone and a Lower Zone. A single depth of 200ft was used to distinguish between the zones, based on available well construction information at the time, including USGS wells and public supply wells (DDW). For the latest high resolution mapping that was complete almost a year after the AID work started, additional updated data became available from DDW including detailed well construction characteristics such as perforated intervals and seal depth. Additionally, the texture database from CVHM2 was made available to us. For the high resolution work, the Upper and Lower Zones over the entirety of the Central Valley Floor were based on domestic, public supply, irrigation, and rural supply wells. Unlike the AID report which used a single depth to distinguish between the Upper and Lower Zones in this local area, a single depth was considered less useful to define the Upper and Lower Zones throughout the Central Valley Floor due to vastly different hydrogeologic conditions over this large region. For this reason, Upper and Lower Zones vary in thickness and depth throughout the Central Valley.
69	Appx C	Methodogies	C-2	Glenn Meeks	Table C-1: Assumes use of MCL, what if something else is utilized (e.g. 80% of MCL) – Policy decision needed on Assimilative Capacity versus Available Assimilative Capacity (Buffer)	The MCL for nitrate was used as an example as no other threshold was provided to be used as a basis for calculating assimilative capacity. Text updated on page C-25 under Section C.3.2 Assimilative Capacity Computation that explains that other thresholds may need to be used based on policy decisions.
70	Appx C	Methodogies	C-4	Glenn Meeks	What do we do with outliers? And what constitutes an outlier? + or – 1, 2 or 3 std. deviations? Who determines what's an outlier? The local agency? the RB? What if an outlier is indicative of actual gw conditions for a large area?	While there are statistical methods for determining outliers in large datasets, it is often the case that groundwater quality databases are highly variable and standard deviations very high within the data. Even if a well is a statistical outlier, more work needs to be done to justify its exclusion, as it may actually represent groundwater quality at that location. Text was added to the paragraph.

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71	Appx C	Methodogies	C-5	Glenn Meeks	Who would be responsible for the additional sampling? Where in the SNMP is responsibility discussed?	This would be included within the monitoring & surveillance or implementation sections. However, these are two portions of the SNMP that are not included within our scope of work.
72	Appx C	Methodogies	C-9	Glenn Meeks	Figure C-3: This needs to change to reflect either a localized confining layer or not showing the lower zone beneath the confining layer (e.g. the Corcoran Clay presence methodology where the Lower Zone doesn't go below the Corcoran Clay.	Agreed. Figure updated.
73	Appx C	Methodogies	C-11	Glenn Meeks	the second paragraph – "one wells is sampled annually (blue dots)," – one well.	Comment addressed.
74	Appx C	Methodogies	C-32	Glenn Meeks	Top paragraph, regarding last sentence, "Figure C-29 shows the predicted changes in groundwater quality over a 10-year period within an example project area.": I think the recycled water policy wants a 20 year prediction.	10 years was used as an example. Text modified to say that the same methodology can be used to predict changes over other time periods depending on the policy or objective.
75	Att. A-C	Methodology Examples for Four Management Zones (Attachment to Appx C)	General	Glenn Meeks	This appendix basically is just recommendations for calculating ambient groundwater conditions and assimilative capacity on 4 different scales. Is that its intended purpose? If so the title needs to be changed to "Methodology Examples for Determining Ambient Water Quality and Assimilative Capacity for Four Management Zones".	There are several more methodology examples that are included (data adequacy, parametric and nonparametric trends, aggregate results) that prohibit listing them all out in the title. The title does mention that the examples are for four management zones.
76	Att. A-C	Methodology Examples	General	Glenn Meeks	The examples don't discuss who or what agencies will oversee the management zone ((e.g. agencies with land use authority). The examples don't show how the management zone ties into a long-term restoration project for each scale or ties into the short-term providing of safe drinking water to an impacted DAC? Where in the SNMP are these priority measures discussed?	That is beyond the scope of the methodologies attachment. The SNMP will discuss the noted elements (management zones, resotration, providing safe drinking water, priorities) in the implementation section.
77	Att. A-C	Methodology Examples	General	Glenn Meeks	Assimilative capacity is based on use of MCL and doesn't discuss potential use of a buffer (e.g. 80% of the MCL) – Policy Decision (Assimilative Capacity versus Available Assimilative Capacity)	Text included in the Methodology appendix that addresses other possible thresholds. Text updated on page C-25 under Section C.3.2 Assimilative Capacity Computation that explains that other thresholds may need to be used based on policy decisions.

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78	Att. A-C	Methodology Examples	CA-3	Glenn Meeks	Key Findings – Needs to also discuss what's important to look for (or look out for) when doing analyses at different scales. We need an overall findings section. What did all this work tell us? Larger or smaller scale gives us better info? Larger scale gives us more or less data? What about data bias? Does tailoring the scale to a project work? Does it make sense to scale the project? If you choose too small of a scale, do you lose data? How do the results differ from just averaging the data from all wells regardless of depth?	Section C6 of Appendix C provides a summary of 'Additional Data Analysis Considerations'. Also, Attachment CA provides a summary of Key Findings of the analyses conducted at the four different Management Zone scales.Analyses were done at four different scales to show the different results that can be obtained by changing the size of the study area. There is no one-size-fits-all recommendation that will work for every situation. Permissible levels of data bias affecting the results, and which scale is appropriate for planning, are largely policy decisions and not the scope of the Methodology Section.
79	Att. A-C	Methodology Examples	CA-3	Glenn Meeks	Alta Irrigation and AID Model Bullets - Analysis indicates little assimilative capacity is available for nitrate in Alta Irrigation District, limited TDS assimilative capacity in the eastern portion of Alta Irrigation District. What about trends? Need to discuss if it's going up or going down.	The last bullet point states: "Trends indicate the majority of wells with significant trends in the AID Model Area have increasing nitrate and TDS concentrations; however, analyses in a small number of wells throughout area suggest improving conditions."
80	Att. A-C	Methodology Examples	NA	Glenn Meeks	Table C-A1, Aggregate Scale Ambient and Assimilative Capacity for AID Model Area: Are these values based on the average of the means for each well? And do the calculated values account for groundwater flux from the adjoining areas outside of the AID Model area?	The aggregate numbers are not a simple average of the well data. Please refer to Section C.2.4 regarding how volume weighting and aggregate values are calculated over a region using interpolation and volume weighting. Calculated values do not account for groundwater fluxes in or out of the basin in the Methodology Appendix. Please refer to the detailed AID archetype report (SNMP appendix) where modeling, groundwater fluxes, and transient contaminant transport are incorporated into ambient condition and assimilative capacity calculations for the region.
81	Att. A-C	Methodology Examples	NA	Glenn Meeks	Table C-A1: The table indicates a 500 ft depth production zone. I thought our bottom was 400ft. Where did the 500ft come from?	It has always been 500 ft. The AID report goes into much greater detail regarding how the Upper and Lower Zones were delineated for the archetype analysis. Appendix C Table C-4 has been updated to indicate the production zone is 500 ft. From the AID report: "the production zone was defined (for the purpose of production zone calculations) as extending to 500 ft."

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82	Att. A-C	Methodology Examples	NA	Glenn Meeks	Table C-A1: Is the production zone nitrate value a volume-weighted average of the upper and the lower zone based on saturated thickness or were different effective porosities used? Also this doesn't seem to coincide with what we're talking about doing with the high resolution analysis where the production zone accounts for 90% of the wells being utilized.	Production Zone concentrations are calculated using volume weighting of the thicknesses of the Upper and Lower Zones (See Section C.2.4 of Appendix C). Porosities were assumed to be the same in the upper and lower aquifers as the uncertainties in the input data (well depth, well location, etc) likely outweigh any differences in porosities that may exist between the two zones.
83	Att. A-C	Methodology Examples	NA	Glenn Meeks	Table C-A2, AID Groundwater Quality Statistics for Hydrologic Zones: It would be nice to also show the average for each zone and the number of data points used to calculate the average and the trend.	Tables have been updated to include the number of wells used in the analysis. Average concentrations are not provided here because this table summarizes regional trends. Average well concentrations are captured in the Ambient Conditions figures.
84	Att. A-C	Methodology Examples	NA	Glenn Meeks	Table C-A3, Aggregate Scale Ambient and Assimilative Capacity for Alta Irrigation District: Is there a confining layer between the upper and the lower zone? These types of details need to be documented. Shallow (<200ft- Based on the 20-year travel time?) and Deep (>200ft) - Again, this doesn't align with the proposed upper and lower zones currently being presented by L & S.	See explanation in the beginning of this document as a general response to the distinctions between shallow groundwater (ICM work), the Upper Zone as defined in the AID work, and the Upper Zone as defined by the high resolution work (which started months after completing the AID work).
85	Att. A-C	Methodology Examples	NA	Glenn Meeks	Table C-A5, Aggregate Scale Ambient and Assimilative Capacity for WWTP 4-mile Vicinity: Same comments as on Table C-A3.	See explanation in the beginning of this document as a general response to the distinctions between shallow groundwater (ICM work), the Upper Zone as defined in the AID work, and the Upper Zone as defined by the high resolution work (which started months after completing the AID work).
86	Att. A-C	Methodology Examples	NA	Glenn Meeks	Table C-A7, Aggregate Scale Ambient and Assimilative Capacity Water Treatment Plant: Again, if this is based on the 20-year travel time, it doesn't align with the proposed upper and lower zones currently being presented by L & S.	Only shallow monitoring wells were available for the water treatment plant. See explanation in the beginning of this document as a general response to the distinctions between shallow groundwater (ICM work), the Upper Zone as defined in the AID work, and the Upper Zone as defined by the high resolution work (which started months after completing the AID work).
87	Att. A-C	Methodology Examples	NA	Glenn Meeks	Figure C-A5, Ambient Groundwater Quality for Lower Zone: Is the Corcoran Clay or a similar confining layer present in this area? And is the better quality in the Lower Zone reflecting this regardless if there is any connection to the Upper Zone?	The Corcoran clay only exists in a very small portion of the southern corner of the model domain. It is unlikely a significant factor in the differences in Upper and Lower Zone water quality throughout the rest of the model domain.

Comment No.	Section No.	Original Section Title	Original Page Number	Commenter	Comment	Response
88	Att. A-C	Methodology Examples	NA	Glenn Meeks	Figures C-A40, Ambient Groundwater Quality for Upper Zone and Figure c-A43, Assimilative Capacity: Basically no data. Figure titles need to indicate the figures are for the WWTP 4-mile vicinity area. It would be nice to discuss in a findings section how limited data can skew the analysis and what to do when you don't have a lot of data for a particular zone.	The index at the beginning of the attachment indicates which Management Zone the figure pertains to. The legend also indicates which boundaries we are showing. The text of the Methodology Appendix addresses limited data. Unfortunately, there isn't much one can do when there is a lack of data, other than attempt to collect more data from known sources (farmers, local entities, etc), or directly collect more data.
89	Att. A-C	Methodology Examples	NA	Glenn Meeks	Figure C-A58, TDS Data West of River Within Vicinity of WWTP: This data looks skewed by the early data. It is an increasing trend when using only recent (1980's data on-roughly the last 20-30 years).	That is likely true. Interestingly, the nonparametric test for trend results in a upward trend as it is less affected by data biases. Table C-A6 captures the different results for the parametric and nonparametric results for the reader to see.
90	Att. A-C	Methodology Examples	NA	Glenn Meeks	Figure C-A59, Upper TDS Data East of River Within Vicinity of WWTP: This is only two samplings within 9 months and is not really representative of a long-term trend. There should probably be some discussion of the potential bias of the data or the uncertainty of the data.	You are correct about the limited data in this region. The Methodology Section discusses data adequacy in Section C.1.2.
91	Att. A-C	Methodology Examples	NA	Glenn Meeks	Figure C-A63 and C-A65, Groundwater Quality Trends for Upper Zone: Basically no data for the upper zone. It would be beneficial for these figures to include groundwater gradient and flow direction, so an agency looking at setting up a management zone could look at the data with some relation to the groundwater flow direction and gradient. This could also be discussed in a findings section.	Yes, there is very little nitrate data in the Upper Zone in this region. Flow directions and transport for the AID region are covered in the AID archetype report (SNMP Appendix).
92	Att. A-C	Methodology Examples	NA	Glenn Meeks	Figure C-A64, Groundwater Quality Trends for Lower Zone: Groundwater gradient and flow direction would be beneficial on these figures. What trend analysis was used in this figure. What does the figure indicate? Are the differing trends the result of hydrogeology? What would we say about the assimilative capacity of this area as a whole? Answers to these questions could be presented in a Findings Section.	Spearman's Rank non-parametric test (mentioned on page CA-2) was used to test for trends. There is a brief discussion of overall results for each Management Zone in the text in "Key Findings" on page CA-3. Flow directions and transport for the AID region are covered in the AID archetype report (SNMP appendix).
93	Att. A-C	Methodology Examples	NA	Glenn Meeks	Figures C-A68, C-A70, C-A71, C-A102 and C-A103: Groundwater gradient and flow direction again would be beneficial on these figures to gove them some context to groundwater flow direction.	Flow directions and transport for the AID region are covered in the AID archetype report (SNMP appendix).

Comment No.	Section No.	Original Section Title	Original Page Number	Commenter	Comment	Response
94	Att. A-C	Methodology Examples	NA	Glenn Meeks	Figure C-A103: May want to change blue color of boundary. It looks like a surface water body.	That is supposed to be the Kings River. Maps are now labeled accordingly.
95	Appx F	Basin Evaluation - Water Balances for IAZs	General	Glenn Meeks	Water balances are supposed to balance typically using storage as a catchall. Why don't the IAZ water balances = 0? Is this to show the net volume going into or out of storage each year over the 20 year travel time? Also this doesn't tie into the B-118 basins/subbasins work we are proposing to do.	The IAZ water balances equal the change in storage (Sum of GW Pumping, Stream Leakage, GW Recharge, Vertical, and Horizontal Flow Equals Change in Storage). We agree that this work does not tie into the B-118 work, but this work was scoped and approved long before the B-118 work was contemplated.
96	Appx G	Basin Evaluation - Mass Balances for IAZs	G-2	Glenn Meeks	Figure G-1: Isn't this figure missing a concentration component? Volume X Concentration = mass? Also this doesn't tie into the B118 basins/subbassins work as we are proposing to do.	This section is all about mass, and not concentration. This figure is discussing the mass balance components. Regarding B118 basins/subbasins work, see previous response.