

**Comment/Response Table - Region 5: Updated Groundwater Quality Analysis and High Resolution Mapping for Central Valley Salt and Nitrate Management Plan**

Comment No.	Commenter	Comment	Response
1	Thomas Harter	Page 3 last bullet: Is there a difference between "upper part" and "Upper Zone" and between "lower part" and "Lower Zone". If not, for consistency and clarity only use one or the other for terminology, consistent with the definitions on page 5. Use of references, where appropriate (such as done in Section 3.2.2.) would be helpful.	Text edited to clarify and added a footnote.
2	Thomas Harter	Page 7, Table 1: Add a paragraph or two that describes the mathematical modeling (kriging, interpolation, etc.) and states the mathematical equations, including the weighting algorithm used for the spatial estimation of the top and bottom of each zone from the point information outlined in Table 1. This is a critical part of the methods protocol. Full documentation is necessary for technical transparency and ensures that local SNMPs and their consultants can replicate the approach with new data as needed.	Natural Neighbor interpolation was used. Text added with footnote to additional information.
3	Thomas Harter	Page 8, last bullet before Section 3.1.1 "Depth to groundwater at time of construction of well"	Added text as suggested.
4	Thomas Harter	In the Figure caption (list of Figures): For Figures 67-72 and 73-78, for clarification, identify the analysis as grid-scale analysis OVERLAID with the sub-basin boundaries / IAZs (I read the current captions in the list of figures as meaning aggregated analysis to the sub-basin/IAZ).	Good suggestion. Added caption text.
5	Thomas Harter	Figure 95 and following: use smaller dots to make this a higher resolution map (even though the detailed maps are provided in the appendix).	Smaller dots in figures now
6	Thomas Harter	Consider adding maps of the aggregated assimilative capacity at the IAZ and sub-basin level (not just the tables).	Acknowledged. Although not in scope, the maps have been provided. Aggregate results are shown in 24 new maps at the end of the figures.
7	Tim Moore	It would be helpful to add a bit more detail to the headers and legends of various tables. For example, yesterday there was some confusion as to whether the TDS units were in EC or mg/L or µg/L. The mg vs. µg issue arose because some of the reported values are so high (100,000+) that it caused some people to wonder if these might not be in µg/L.	Tables were reviewed and additional details have been added.
8	Tim Moore	When a column is labeled "average" we presume you intend this to represent the arithmetic "mean." This is easier to deduce when the adjacent column is labeled "median" but when not so clear otherwise.	Changed to Mean
9	Tim Moore	The question arose as to whether the "average" was the mean of all wells or the volume-weighted mean of water quality calculated from well data. Examining the whole report, it is clear that you use the term "volume-weighted" in the title when a mean is being reported as a volume-weighted value. But, unless someone looks at the entire report and thinks about it as a whole, they may miss this point. Each table should stand on its own.	Changed titles to "Well Concentration Statistics"  Columns changed to read "mean"

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10	Tim Moore	The first volume would benefit from having a map (or several maps) that identify the DWR Basins and Sub-Basins by Name and by Numeric Designation. I found such a map for the IAZs but not for the DWR basins. And, in the same vein, in Table 7, it would help to have the common name for each Bulletin 118 Basin/Sub-basin appear directly beneath the DWR numeric designation in the far left column.	Names and numbers have been added to the location map (Figure 2) for DWR basins/subbasins.
11	Glenn Meeks	Figure 3: Need to show the basin numbers on the figures.	The names and numbers have been added to Figure 1. Adding this detail to Figure 3 is anticipated to be confusing/too much detail for Figure 3.
12	Glenn Meeks	Need figure numbers.	This comment was on a preliminary set of figures rather than the figures contained in the Draft TM. The figures in the draft TM were numbered.
13	Debbie Webster	Regarding the maps – I really appreciate them. I believe they can tell the story well. What I am mainly concerned about is the data quality. Based on your sheets, there are maps generated based on nitrate levels exceeding 1000 mg/L. I don't think this is possible. Literature review shows levels in the 300s but I seriously question those with higher levels. Additionally, there are locations where the salt levels are above ocean levels – is this true? What process are we implementing to adjust if errors are found? There certainly should be the ability to relook at data that just doesn't seem right and retest, if appropriate in these circumstances.	Acknowledged. It is outside the scope of this work to QA/QC individual results from the datasets maintained by others for public acquisition. As indicated in the TM (Section 1): "The updated groundwater quality analyses and mapping in this Technical Memorandum provide preliminary local-scale information, which can be refined by local and/or regional entities as needed."  Regarding the comments concerning very high well concentrations in the database, we have checked many of the high values, and they are in the correct units. These high values are almost exclusively associated with monitoring well networks at regulated facility sites.
14	Debbie Webster	Page 1, Paragraph 4: Suggest inserting "and adapted for CV-SALTS"; suggest this language since these are not directly out of the policy.	Text added.
15	Debbie Webster	Page 2, Paragraph 4: It seems as if there are still data in the data set that are still questionable. For example, the data reflects nitrate levels over 1000? Is this possible. Most literature that I reviewed talked about nitrate as high the 300's range. Some of the dairy data showed levels in the 200-to maybe as high as the 400's in the lagoons. It seems unrealistic that levels can be much higher. We may need to do a quick recheck on some data, but also need a process to correct data in the future.	Acknowledged. It is outside the scope of this work to QA/QC individual results from the datasets maintained by others for public acquisition. As indicated in the TM (Section 1): "The updated groundwater quality analyses and mapping in this Technical Memorandum provide preliminary local-scale information, which can be refined by local and/or regional entities as needed."
16	Debbie Webster	Page 9, Section 3.2.3: We need to figure out with salts a way to move forward that is not so absolute based on the TDS of 1000.	Acknowledged. This is a CV-SALTS policy question/discussion.
17	Debbie Webster	Table 2, Wells Without Construction Information Column Heading; This (no construction information) is where we need a process to address when/if new data becomes available.	Acknowledged. See also response to Comment No. 15.

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18	Debbie Webster	Table 6: Highlighting on examples of data that should be checked	Acknowledged. It is outside the scope of this work to QA/QC individual results from the datasets maintained by others for public acquisition. Regarding the comments concerning very high well concentrations in the database, we have checked many of the high values, and they are in the correct units. These high values are almost exclusively associated with monitoring well networks at regulated facility sites.
19	Debbie Webster	Table 6: Another area that we might want to look more closely at the data is where the maximum is so much different than the median.	See response to comment No. 18.
20	Debbie Webster	Table 7: Comment related to Table 6 -- highlighting where data could be checked	See response to comment No. 18.
21	Debbie Webster	Table 8: Comment related to Table 6 -- highlighting where data could be checked	See response to comment No. 18.
22	Debbie Webster	Table 9: Comment related to Table 6 -- highlighting where data could be checked	See response to comment No. 18.
23	Debbie Webster	Table 13 (Aggregate Volume-Weighted Assimilative Capacity): It is hard to tell with a pdf version if these zero levels could have been due to an extremely high well.	See response to comment No. 18.