



January 26, 2016

Pamela Creedon, Executive Director
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive
Rancho Cordova, CA 95670-6114

RE: Groundwater Quality Assessment Report Revision

Dear Ms. Creedon:

As requested in your October 30, 2015 letter identifying revisions the Central Valley Regional Water Quality Control Board (Regional Water Board) would like the Sacramento Valley Water Quality Coalition (SVWQC) to make to the Groundwater Quality Assessment Report (GAR) submitted on September 18, 2014, attached is the revised GAR. A matrix of the revisions is also attached.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel or represented Members properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information, including the possibility of fine and imprisonment for violations.

Should you have questions regarding this submittal please contact me or Bruce Houdesheldt, Director Regulatory Affairs, at (916) 442-8333.

Sincerely,

David J. Guy, President
Northern California Water Association

Cc: Sue McConnell
Glenn Meeks
Dana Kulesza
Lisa Porta
Bruce Houdesheldt

Response to Regional Board Review of Sacramento Valley GAR – Revisions Made, January 2016.

Items to be Revised for Approval of the 2015 GAR

Regional Board Comment	Response	GAR Revisions
Item 8. Identification of Disadvantaged Communities		
<p>The GAR must identify areas contributing recharge to urban and rural communities where groundwater serves as a significant supply. The GAR must also identify Disadvantaged Communities (DACs) reliant on groundwater as a significant source of drinking water and lie within or are subject to potential impacts from High Vulnerability Areas (HVA).</p>	<p>Information included.</p>	<ul style="list-style-type: none"> • Added Section 2.7 for description of location and groundwater use by DACs. • Added Figures 2-12 and 2-13
Items 10/12. Existing Water Quality Impacts and Vulnerable Conditions		
<p>a. Consideration of Pesticide Data Pesticide data must be included in the vulnerability analysis.</p>	<p>Information included.</p>	<ul style="list-style-type: none"> • Included USGS GAMA monitoring results in Section 2.1.4 • Added USGS pesticide maps to Appendix E • Revised vulnerability methodology description

Regional Board Comment	Response	GAR Revisions
<p>b. Land Use Information and Vulnerability</p> <p>The Sacramento Valley floor area covered by the SACFEM groundwater vulnerability model must include all areas that could have irrigated agriculture for the GAR.</p>	<p>Discussions at the 11/24/2015 meeting established that the valley floor was adequately covered, and the irrigated and potentially irrigated areas were included with the most recent available land use data.</p> <ul style="list-style-type: none"> • Orchard locations from 2013 used; extents vetted with local Subwatershed groups. • The five year update of the GAR is the logical point to evaluate irrigated land use changes. • Trying to determine which areas will become irrigated agriculture is very speculative. • The SGMA requirements will have some, as of yet to be known, greater regulatory construct over the use of groundwater. 	<p>No change.</p>
<p>Items 14 and 16. Groundwater Vulnerability Designations and Prioritization</p>		
<p>a. Use of Moderate Vulnerability</p> <p>Moderate vulnerability areas must be appropriately classified as high or low vulnerability areas, based on the initial groundwater susceptibility results.</p>	<p>The moderate vulnerability areas were re-classified based on comments by Regional Board staff on the use of other data, such as pesticides and TDS, in addition to our current datasets, for the designation of high and low vulnerability areas. In addition, a low vulnerability/high priority classification was included, per RB staff suggestions.</p>	<p>Methodology was revised, as shown in Section 4.2.9.</p> <p>Conclusions were revised in Section 18, with revised figures 18-1 and 18-2 and corresponding Subwatershed specific figures.</p>

Regional Board Comment	Response	GAR Revisions
<p>b. Nitrogen Groundwater Pollution Hazard Index</p> <p>Regional Board staff does not accept the use of NHI and management practices to classify areas as Low Vulnerability.</p>	<p>Per the WDR, Attachment A, Section V.:</p> <p>“Vulnerability may be based on, but is not limited to, the physical conditions of the area (soil type, depth to groundwater, beneficial uses, etc.), water quality monitoring data, and the practices used in irrigated agriculture (pesticide permit and use conditions, label requirements, application method, etc.). Additional information such as models, studies, and information collected may also be considered in designating vulnerability areas.”</p> <p>The GAR follows these instructions.</p>	<p>No change to methodology concerning NHI – however, the new low vulnerability/high priority category includes additional studies/monitoring for some areas affected by NHI low concern areas.</p>
<p>c. Ranking of High Vulnerability Areas</p> <p>Prepare a ranking of high vulnerability areas to provide a basis for prioritization of work plan activities.</p>	<p>Ranking provided.</p>	<ul style="list-style-type: none"> • Included a new Section 18.2.4 for the ranking of high vulnerability areas. • Included a new Figure 18-3 for the location of rankings.
<p>Item 17. Compliance with Sections 6735(a) and 7835 of the California Business and Professions Code</p>		
<p>Although not specified as a requirement in the Order, the GAR contains information that is consistent with the requirement of the aforementioned sections of the California Business and Professions Code, and, therefore, the appropriate signature or stamp needs to be included.</p>	<p>Appropriate licensing stamp will be added for the Final GAR.</p>	

Items to be addressed in the Groundwater Quality Trend Monitoring Program

Regional Board Comment	Response	GAR Revisions
<p>Items 1 Through 5. GAR Objectives</p>		
<p>The GAR needs to establish priorities for implementation of monitoring and studies within high vulnerability areas.</p>	<p>Information included.</p>	<ul style="list-style-type: none"> • See Section 18.2.4.
<p>Item 6. Land Use Information</p>		

Regional Board Comment	Response	GAR Revisions
<p>The Coalition needs to provide justification why the land use information used in the GAR is more appropriate (than using CropScape).</p>	<p>Item was discussed at the 11/24/2015 meeting and resolved.</p>	<ul style="list-style-type: none"> • Text slightly revised for description of land use information used. • Appendix B was revised as well; it includes detailed land use information sources and justification for use of the current datasets in the GAR.
<p>Item 8. Groundwater Recharge Information</p>		
<p>The GAR should include subwatershed specific groundwater recharge information.</p>	<p>A description of relevant recharge information is provided in the GAR, citing existing studies and relevant literature. In addition, recharge data from the SACFEM model are directly used in the valley floor vulnerability analysis.</p>	<p>No changes; may consider for Trend Monitoring Workplan, if needed.</p>
<p>Item 10. Shallow Groundwater Constituent Concentrations from Existing Monitoring Networks</p>		
<p>Review of additional available data (Luhdorff & Scalmanini, 2004) indicates that an additional area of shallow groundwater nitrate has been identified in the region north and east of Esparto, California (see Figure 5.16). This information should be evaluated and if deemed appropriate, described and added to the high vulnerability areas.</p>	<p>The GAR incorporates the most recent available groundwater quality datasets, including data from several wells in the Esparto area of Yolo County (see Figure 11-2). Figure 11-6 also indicates high vulnerability sections to the north and east of Esparto.</p>	<p>No change.</p>
<p>Item 11. Existing Groundwater Quality Data Collection and Analysis Efforts</p>		
<p>Table 1-1 in section 3.2.4 should be amended (under the dataset "Groundwater well databases and projects") to include DPR and county data that was utilized in the GAR.</p>	<p>Information added.</p>	<p>Table 1-1 was amended as suggested, for completeness of data reviewed.</p>
<p>Section 3.2.1 summarizes the existing groundwater datasets utilized in the GAR, with a separate subsection for each dataset. Figures showing the well locations for some of the datasets are included (DPH and GAMA); please include figures for the remainder of the datasets (DWR, USGS, DPR, and the county datasets).</p>	<p>All relevant and most complete well datasets were included in Section 3.2.1 with relevant maps to show their locations. GeoTracker had some data issues that are described in the GAR (missing DWR and USGS data) and therefore for some of the sub-datasets the appropriate agencies datasets were used instead.</p>	<p>Section 3 slightly revised for approach clarification.</p>

Regional Board Comment	Response	GAR Revisions
<p>The GAR should include specific information when results were above thresholds, where these results were measured, and when. This should be presented in narrative and tabular format, and could be summarized by geographic region, dataset, or other unit</p>	<p>This information is provided throughout the GAR analysis, starting in Section 4, and in all subsequent Subwatershed sections. Section 3 only describes the datasets used for the analysis and provides general quality of data. Section 18 provides the overall Valley Floor groundwater quality data statistics.</p>	<p>No change.</p>
<p>Section 3.2.2.3 states that 398 domestic wells were sampled in El Dorado County, and refers to Table 3-3. However, the wells listed in this table total 589.</p>	<p>This information was incorrectly transcribed from the reference document.</p>	<p>Table and text were reconciled.</p>
<p>Item 12. Existing Water Quality Impacts and Vulnerable Conditions</p>		
<p>It is unclear if the GAR preparers verified that every data point used is NO₃ data, or if this was assumed based on the statement "Most readily available datasets report nitrate as NO₃."</p>	<p>The correct MCL was used for this analysis.</p>	<p>No change.</p>
<p>If there is any readily available nitrite data, this should also be evaluated. The nitrite MCL is 1 mg/1.</p>	<p>Nitrite data are not often provided in the readily available datasets; and when they exist, they usually are shown in conjunction with nitrate, which is the preferred constituent of analysis.</p>	<p>No change.</p>
<p>Item 16. Groundwater Vulnerability Designations</p>		
<p>Section 4.2.5 (Assumptions and Limitations) briefly describes some of the GAR data limitations: Limitations are mentioned throughout the GAR that should be incorporated into this section.</p>	<p>This section provides general limitations of the datasets and methods used. The detailed analysis limitations are best provided in the Subwatershed sections in which the limitation was found.</p>	<p>No change.</p>
<p>Please provide information describing how the cutoff values in the Susceptibility Ranking Scheme (Table 4-8) and the Initial Vulnerability Rankings (Table 4-9) were derived.</p>	<p>Information added.</p>	<p>Additional information was provided for these tables.</p>

Regional Board Comment	Response	GAR Revisions
<p>Section 6.3 mentions areas exhibiting high salinity in Colusa County, but it is not clear if these areas are included in the HVAs. If salinity shows increasing trends in this area, it should also be included in the HVAs.</p>	<p>The majority of salinity issues in the Sacramento Valley are due to natural conditions such as upwelling of saline water from underlying marine sediments and mineral springs in the western areas and therefore should not be considered as HVAs.</p>	<p>High salinity sections are included in the revised vulnerability designation methodology as low vulnerability/high priority for further studies.</p>
<p>A column should be added to Table 18-1 for the number of data gap sections per subwatershed.</p>	<p>The data gaps category was removed and all data gaps on the Valley Floor are now classified as low vulnerability/high priority for further studies.</p>	<p>Table 18-1 was updated with the new vulnerability results.</p>
<p>Section 18.2.1 states "Agronomic practices are protective of groundwater quality" in the proposed low vulnerability areas (LV As). One of the purposes of the GAR is to help direct the management practice evaluation program (MPEP) work, which will evaluate which agricultural practices are protective of groundwater quality. It is premature to conclude that all management practices in LV As are protective before the MPEP has been implemented.</p>	<p>Comment noted.</p>	<p>Sentence was revised and more clarifying text added.</p>