



EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIGUEZ
SECRETARY FOR
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Central Valley Regional Water Quality Control Board

16 September 2016

David Guy, President
Northern California Water Association
Sacramento Valley Water Quality Coalition
455 Capitol Mall, Suite 335
Sacramento, CA 95814

CONDITIONAL APPROVAL OF THE SACRAMENTO VALLEY WATER QUALITY COALITION GROUNDWATER QUALITY ASSESSMENT REPORT

Thank you for the 1 February 2016 submittal of the revised Sacramento Valley Water Quality Coalition (Coalition) Groundwater Quality Assessment Report (GAR), as required by Waste Discharge Requirements General Order for Growers in the Sacramento River Watershed that are Members of a Third Party Group (Order R5-2014-0030; General Order). The purpose of the GAR is to provide the foundational information necessary for design of the Groundwater Quality Management Plan(s), Management Practice Evaluation Program, and the Groundwater Quality Trend Monitoring Program.

As outlined in the enclosed staff review, the information provided in the revised GAR only partially addresses the revisions required in my 30 October 2015 letter. The rationale provided does not justify the Coalition's vulnerability designations. Therefore, I am designating the groundwater High Vulnerability Areas (HVAs) as follows: all of the HVAs as classified in the GAR, plus all moderate vulnerability areas that have a High Hydrogeologic Susceptibility Index (the areas were considered similar to other high vulnerability areas in the GAR, but lowered to Moderate based on application of the Nitrate Groundwater Pollution Hazard Index), plus all California Department of Regulation Groundwater Protection Areas. All other Moderate Vulnerability Areas will become Low Vulnerability Areas. The Nitrate Groundwater Pollution Hazard Index may not be used to determine vulnerability because it does not provide a linkage between management practices and groundwater quality; management practices that are protective of groundwater quality will be identified in the Management Practices Evaluation Program. This designation methodology is consistent with what has been required of other coalitions, and information from the Nitrate Groundwater Pollution Hazard Index may be used to prioritize the work within the HVAs.

In order to facilitate implementation of the General Order's post-GAR groundwater requirements, I am conditionally approving the Coalition's GAR upon submittal of a GIS shapefile of the final HVAs as described above. This conditional approval provides a pathway for the Coalition to address issues identified in the staff review through future work plans and the 5-year GAR update while also allowing the Coalition to expeditiously proceed with the important work of the Groundwater Quality Management Plan(s), Management Practice Evaluation Program, and the Groundwater Quality Trend Monitoring Program.

KARL E. LONGLEY SCD, P.E., CHAIR | PAMELA C. CREEDON P.E., BCEE, EXECUTIVE OFFICER

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By **16 November 2016**, you are required to submit the GIS shapefile of the final HVAs as designated above and the Groundwater Quality Management Plan. All other items identified in the GAR staff review need to be addressed in accordance with the schedule in Table 1 - *Summary of Issues to be Addressed in Forthcoming Work Plans* (enclosed). By **18 September 2017**, you must also submit the Groundwater Quality Trend Monitoring Workplan.

If you have any questions, please contact Sue McConnell at 916-464-4798 or by email at Sue.McConnell@waterboards.ca.gov.

Sincerely,



Pamela C. Creedon
Executive Officer

Enclosure: 2 August 2016 Staff Review Memorandum

cc: Bruce Houdesheldt, Northern California Water Association

Table 1 Summary of Issues to be Addressed in Forthcoming Work Plans			
Staff Memorandum Item ¹	Groundwater Quality Trend Monitoring Program Due: 9/18/2017	Groundwater Quality Management Plan(s) Due: 11/16/2016	Groundwater Quality Assessment Report 5 Year Update Due: 9/16/2021
1 - 5	X		
6	X		
8.a	X		
8.b		X	
10.a	X		
11.a - d	X		
12.a - b	X		
16.a - e	X		
10/12.a			X

¹ Please refer to the 21 October 2015 Staff Review Memo sent on 30 October 2015.

Central Valley Regional Water Quality Control Board

TO: Sue McConnell, P.E.
Program Manager
Irrigated Lands Regulatory Program

Adam Laputz, P.E.
Assistant Executive Officer
Central Valley Water Board

FROM: Dana Kulesza
Engineering Geologist
Irrigated Lands Regulatory Program

Glenn Meeks, P.G.
Senior Engineering Geologist
Irrigated Lands Regulatory Program

DATE: 2 August 2016

**SUBJECT: REVIEW OF THE REVISED GROUNDWATER QUALITY ASSESSMENT REPORT
FOR THE SACRAMENTO VALLEY WATER QUALITY COALITION**

On 1 February 2016, the California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) received the revised Sacramento Valley Water Quality Coalition (Coalition) Groundwater Quality Assessment Report (GAR). The revised GAR was prepared to address deficiencies as required by the 30 October 2015 letter from the Executive Officer and accompanying staff review memo. The GAR provides the foundational information necessary for design of the Groundwater Quality Management Plan, the Management Practices Evaluation Program, and the Groundwater Quality Trend Monitoring Program. The revised GAR was reviewed to determine compliance with requirements pursuant to section VIII.D.1 of Waste Discharge Requirements General Order R5-2014-0030 (Order), and section IV.A of Attachment B (Monitoring and Reporting Program) to the Order.

Overall, staff finds that four (three in this letter) of the six elements¹ that required GAR revisions before approval can be considered were not adequately addressed to meet the terms and conditions of the Order. However, one element (identification of disadvantaged communities reliant on groundwater that could be impacted by agricultural activities within High Vulnerability Areas) can be addressed in the Groundwater Quality Management Plan. The other two items can be addressed with a revised HVA map. The three items that have not been adequately addressed are discussed below.

Identification of Disadvantaged Communities

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 that lie within or are subject to potential impacts from High Vulnerability Areas (HVA). This criterion should be utilized when prioritizing future trend monitoring, management practice evaluation and groundwater quality management plan work within the Coalition's HVAs. California Water Code Section 79505.5 contains the definition for DACs. The Department of Water Resources web-

¹ Two of the four elements were combined into one in this staff review memo. These were the two elements related to use of the Nitrate Groundwater Pollution Hazard Index (NHI Tool).

based mapping tool may be used to delineate DACs as census designated places:
<https://gis.water.ca.gov/app/dacs/>

Staff Review of the Revised GAR

The GAR was amended to include a section discussing that DACs exist within the Coalition area. Two figures were added; one that maps all DACs within the Coalition, and a second map that shows only the DACs within the SACFEM model area (Sac Valley Floor). The revised GAR does not discuss or map which of the DACs could be impacted by HVAs.

This item could be addressed by adding the HVAs to the maps already created showing the DACs, and then adding a discussion of notable areas in the new section. Staff recommends this new map and information be provided in the Groundwater Quality Management Plan.

Nitrate Groundwater Pollution Hazard Index (NHI) and its use to define Areas with High Hydrogeologic Susceptibility as Moderate and Low Vulnerability

The original GAR included 3 vulnerability designations: high, moderate, and low. The Coalition was required to move all Moderate Vulnerability areas into either HVAs or LVAs to be consistent with the Order.

The revised GAR describes why and how the NHI was used to estimate pollution hazard based on soil type using a square-mile section average hazard index. It also states that sections with high hydrogeologic susceptibility before the NHI factor brought it down to Moderate Vulnerability in the original GAR were changed to Low Vulnerability (with high priority for further studies or monitoring when they address LVAs). No technical justification was provided as to why high hydrogeologic susceptibility areas were classified as Low Vulnerability.

The Coalition's revised GAR Transmittal Letter states that no changes to the HVAs were made because their use of the NHI is consistent with the Order requirements. It cites the following two sentences from the Order (Attachment A, section V) to support their decision: "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."

Staff Review of the Revised GAR

The NHI is a model that estimates the relative threat of nitrate leaching past the root zone, but it is not correlated to actual impacts to groundwater. Without information on the effectiveness of practices and whether the NHI is protective of groundwater, it cannot be used to move any sections of land that were classified high vulnerability in the Hydrogeologic Susceptibility Analysis to low vulnerability.

Staff continues to recommend that the HVAs include all areas with a High Hydrogeologic Susceptibility Index regardless of NHI information because the Coalition has not demonstrated that the NHI model is correlated to the protection of groundwater quality. Areas susceptible to groundwater contamination due to intrinsic hydrogeologic properties should be classified as HVAs.

Reclassification of Moderate Vulnerability Areas that overlap with a DPR Groundwater Protection Area to Low Vulnerability

Any Moderate Vulnerability square-mile section of land that overlaps with a Department of Pesticide Regulation Groundwater Protection Area (GWPA) became an LVA. The justification given is that "protective measures to prevent pesticide leaching are already in place."

Staff Review of the Revised GAR

Staff recommends inclusion of GWPAs as HVAs. These sections were classified by DPR as GWPAs because soil and depth to water conditions suggest a greater potential for contamination. These soil and water conditions cause contamination susceptibility not only from pesticides, but also from additional constituents, such as nitrate. While it is true that management practices to prevent contamination from certain pesticides may be in place within these GWPAs per DPR's guidelines, DPR does not regulate nitrate contamination. There are no protective measures required by DPR to prevent nitrate leaching or runoff within these areas. Therefore, it is inappropriate to assume that groundwater is protected from all potential contaminants simply because DPR has use guidelines for certain pesticides.