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## Central Valley Regional Water Quality Control Board

17 December 2024

David Guy, President  
Northern California Water Association  
455 Capitol Mall, Suite 703  
Sacramento, CA 95814

### **APPROVAL OF SACRAMENTO VALLEY WATER QUALITY COALITION'S 2023 HIGH VULNERABILITY AREA UPDATE**

Thank you for submitting the 23 October 2023 Sacramento Valley Water Quality Coalition 2023 High Vulnerability Area Update (2023 HVA Update). The 2023 HVA Update was submitted to meet the requirements of *Waste Discharge Requirements General Order for Growers in the Sacramento River Watershed that are Members of a Third-Party Group*, Order R5-2014-0030-11 (Order).

Central Valley Regional Water Quality Control Board (Central Valley Water Board) staff requested a revision to the 2023 HVA Update in correspondence dated 5 April 2024. The final revised 2023 HVA Update GIS file and the technical memorandum detailing the revisions were received 22 November 2024.

Staff review finds that the 2023 HVA Update meets Order requirements; therefore, the 2023 HVA Update is approved.

If you have any questions, please contact Olivia Mathews by e-mail at [Olivia.Mathews@waterboards.ca.gov](mailto:Olivia.Mathews@waterboards.ca.gov).

Sincerely,

Adam Laputz  Digitally signed by Adam Laputz  
Date: 2024.12.17 13:24:10 -08'00'

Patrick Pulupa  
Executive Officer

Enclosure: Staff Review Memorandum

Cc: Bruce Houdesheldt, Northern California Water Association

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## Central Valley Regional Water Quality Control Board

**TO:** Petra Lee  
Senior Environmental Scientist  
Irrigated Lands Regulatory Program

**FROM:** Olivia Mathews  
Environmental Scientist  
Irrigated Lands Regulatory Program

**DATE:** 2 December 2024

**SUBJECT:** **REVIEW OF SACRAMENTO VALLEY WATER QUALITY  
COALITION'S 2023 HIGH VULNERABILITY AREA UPDATE**

On 23 October 2023, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) received the Sacramento Valley Water Quality Coalition 2023 High Vulnerability Area Update (2023 HVA Update). The 2023 HVA Update was submitted to meet the requirements of *Waste Discharge Requirements General Order for Growers in the Sacramento River Watershed that are Members of a Third-Party Group*, Order R5-2014-0030-11 (Order).

Central Valley Regional Water Quality Control Board (Central Valley Water Board) staff requested a revision to the 2023 HVA Update GIS file in correspondence dated 5 April 2024. The final revised 2023 HVA Update GIS file and the technical memorandum detailing the revisions were received 22 November 2024.

This review memorandum provides a summary of the 2023 HVA Update, including information provided in both the 23 October 2023 and the 22 November 2024 submittals, followed by staff recommendations.

## Background

The Groundwater Quality Assessment Report (GAR) requirements are described in Order provision VIII.F.3, as well as Order Attachment B, Monitoring and Reporting Program (MRP) section IV.B. The Order requires that the groundwater (GW) high vulnerability area (HVA) designation be updated every five years in the GAR (5-Year GAR Update). HVA designation is significant because some ILRP requirements are different for members within a designated HVA, such as certification of Irrigation and Nitrogen Management Plans (INMPs). Members in the HVA are also responsible for

implementing the Groundwater Quality Management Plan (GQMP) and reporting progress annually in the Management Practice Implementation Report (MPIR). It is essential that the Coalition knows which member parcels are in the GW HVA so they can notify members of specific requirements for timely compliance with the Order by both members and the Coalition.

The most recent 5-Year GAR Update for the Sacramento Valley Floor Area is dated 27 September 2022. The 2022 5-Year GAR Update stated that the required 5-Year GAR Update will be completed for the Upper Watershed Areas in 2023. It also stated that as land comes into and out of active irrigated agricultural production, the HVA will be revised to reflect these changes; new cropland and/or new membership land that overlies the Hydrogeologically Sensitive Area (HSA) will be designated HVA and reported to the Central Valley Water Board. Additionally, where nitrate Maximum Contaminant Level (MCL) exceedances are measured in the Irrigated Lands Regulatory Program (ILRP) Drinking Water Well Monitoring Program (DWWMP), the HVA will be expanded to include those areas. The 2023 HVA Update was submitted to update the HVA based on these criteria.

## **Summary of the 2023 HVA Update Within the Sacramento Valley Floor Area**

Newly enrolled irrigated lands that overlie the HSA were added to the HVA. The locations of wells with nitrate MCL exceedances sampled as part of the ILRP DWWMP were also reviewed to ensure the HVA encompasses wells with nitrate exceedances that likely resulted from the influence of nearby irrigated agriculture. This aligns with the process identified in the 2022 5-Year GAR Update. Overall, 21,786 acres of irrigated lands were added to the HVA within the Sacramento Valley Floor Area. Below are summaries of the acreage added based on newly enrolled irrigated lands and ILRP DWWMP nitrate exceedance wells.

### **HVA Updates to Include Newly Enrolled Irrigated Lands**

Using the most recently available GIS layer of parcels enrolled in the Coalition from 2022, newly enrolled irrigated lands that overlie the HSA were added to the HVA. No areas previously included in the HVA were removed in the update, even if some previously enrolled irrigated lands were no longer enrolled in the Coalition. In total, 2,182 acres of newly enrolled irrigated lands were added to the HVA within the Sacramento Valley Floor Area.

### **HVA Updates to Include ILRP DWWMP Nitrate MCL Exceedances**

Coalition members were required to begin testing active drinking water wells on irrigated parcels in 2022. At the time of the 2022 5-Year GAR Update, ILRP DWWMP data were only available for the beginning of 2022. Updated ILRP DWWMP data were acquired in March 2023 for evaluation of nitrate exceedances in relation to the HVA.

Of the 1,317 wells sampled within the Coalition area, 213 had nitrate levels exceeding the nitrate MCL of 10 mg/L as nitrogen. All but two (2) of these nitrate exceedance wells are located within the Sacramento Valley Area. Of the 211 exceedance wells located within the Sacramento Valley Area, 67 wells were already included in the HVA definition developed in 2022, leaving 144 exceedance wells in the Sacramento Valley Area that were not included within the previously defined HVA.

The land uses were analyzed in the vicinity of the 144 ILRP DWWMP nitrate exceedance wells not already included in the HVA. Four (4) ILRP DWWMP exceedance wells are on confined animal feeding operation properties and were excluded from HVA delineation.

Additional HVA was delineated to an 1,870-foot buffer around each of the 140 ILRP DWWMP nitrate exceedance wells within the Sacramento Valley Floor Area. The process of delineating additional HVA in the vicinity of nitrate exceedance wells within the Sacramento Valley Floor Area added 19,630 acres to the HVA, 26 acres of which were already delineated in the newly enrolled irrigated lands process.

## **Summary of the 2023 HVA Update Within the Upper Watershed Area**

The Coalition's Upper Watershed Area is located outside of the Sacramento Valley Floor and includes the Pit River, El Dorado, and Lake subwatersheds, and portions of the Napa, Shasta-Tehama, Butte-Yuba-Sutter (BYS), Placer Nevada-South Sutter-North Sacramento (PNSSNS), Sacramento-Amador, Solano, Yolo, and Colusa-Glenn subwatersheds. The hydrogeology and land use composition of the Upper Watershed Area differs from the Sacramento Valley Floor Area. Therefore, the model used to assess hydrogeologic sensitivity within the Sacramento Valley Floor Area is not appropriate for use in this area; in other words, no HSA is designated in the Upper Watershed Area. In the Upper Watershed Area, the vulnerability assessment consisted of reviewing publicly available and ILRP DWWMP data for nitrate exceedance wells, determining which of the nitrate exceedance wells showed 20% or more irrigated agriculture within 1,870 feet of the well, then examining the subwatershed and well vicinity in more detail.

Of the total 61 historical nitrate exceedance wells observed in publicly available data for the Upper Watershed Area, only 15 wells have greater than 20% irrigated lands within 1,870 feet of the well. These 15 nitrate exceedance wells are located in the Pit River and Lake subwatersheds. Upon further examination of the well locations, the Coalition determined that irrigated lands were not the likely source of the nitrate exceedances.

Review of the available ILRP DWWMP data showed only two (2) wells in the Upper Watershed Area had nitrate exceedances. One well is located in the Pit River subwatershed and the other is located in the PNSSNS subwatershed. The Coalition determined that irrigated lands were not the likely source of the nitrate exceedances.

Based on consideration of the ILRP DWWMP results for the Lake subwatershed, the Coalition determined that the preliminary HVA previously identified in the 2022 5-Year GAR Update in the Lake subwatershed does not warrant delineation as HVA.

The Colusa-Glenn, Napa, Sac-Amador, Solano, and Yolo subwatersheds have no historical nitrate exceedances outside the Sacramento Valley Floor. The combination of cropping and hydrogeologic conditions in these areas has resulted in no notable areas of high nitrate concentrations in groundwater, which suggests there is little vulnerability of groundwater to irrigated agricultural land uses in these areas. The remaining area and associated nitrate data was reviewed by the Coalition and no HVA was proposed in these areas.

Based on the combination of crop composition in the Upper Watershed Area and associated typical crop management practices, including little or no applied nitrogen fertilizer, together with the hydrogeologic setting and only two (2) ILRP DWWMP wells with nitrate exceedances, neither of which are likely to be associated with irrigated agriculture, the Coalition suggests that the Upper Watershed Area is not especially hydrogeologically vulnerable to influences from irrigated agricultural practices. Overall, the vulnerability assessment resulted in no proposed HVA in the Upper Watershed Area.

## **Updated HVA**

With the addition of 21,786 acres of land based on the newly enrolled irrigated lands overlying the HSA and consideration of irrigated lands near ILRP DWWMP exceedance wells in the Sacramento Valley Floor Area, and no additional HVA proposed in the Upper Watershed Area, the total area of the 2023 HVA is 641,307 acres.

## **Future HVA Updates**

The HVA will be updated annually to include newly enrolled irrigated lands which overlie the HSA and submitted to Central Valley Water Board staff as part of the Annual Monitoring Report (AMR), submitted on May 1.

Additionally, ILRP DWWMP data will be reviewed during the 5-Year GAR Update to expand the HVA where nitrate MCL exceedances are measured within the Sacramento Valley Floor Area. The Coalition will periodically conduct vulnerability assessments of the Lake subwatershed in future 5-Year GAR Updates using publicly available data.

## **Staff Review and Recommendations**

Staff recommends approval of the 2023 HVA Update.