



**KINGS WATER
ALLIANCE
MANAGEMENT ZONE**

Early Action Plan
Executive Summary

AUGUST 29, 2022

PREPARED BY:

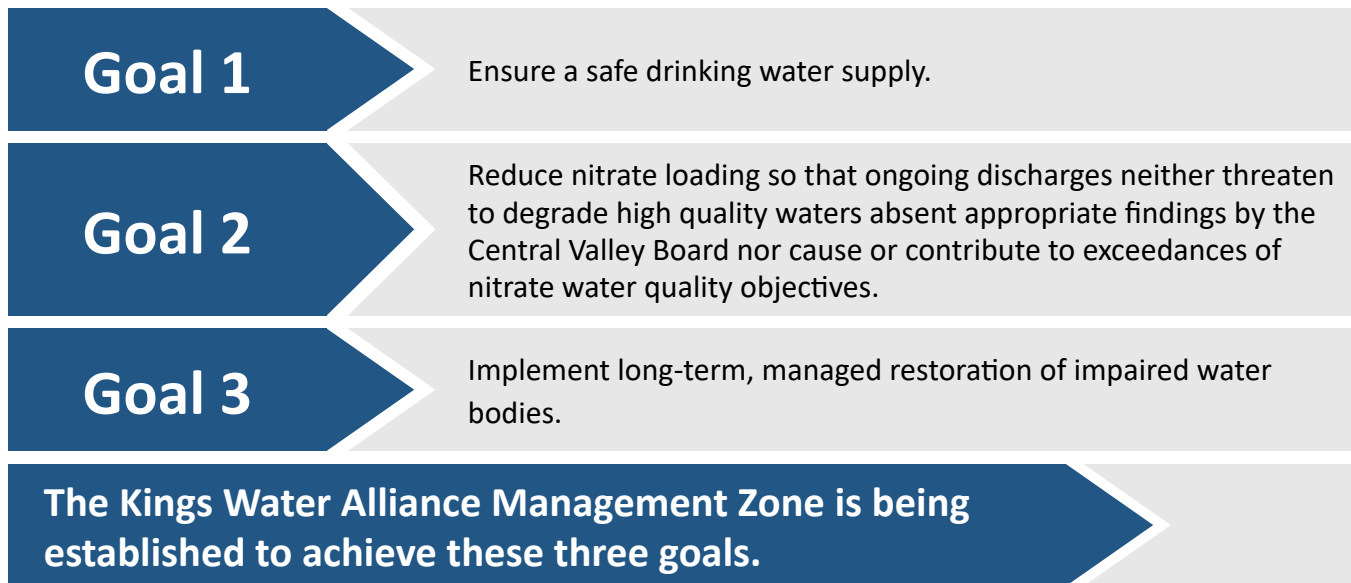


Executive Summary

ES 1. Background

The Central Valley Regional Water Quality Control Board (Central Valley Water Board) has begun implementing a new Nitrate Control Program in the Central Valley that is designed to achieve three nitrate management goals.

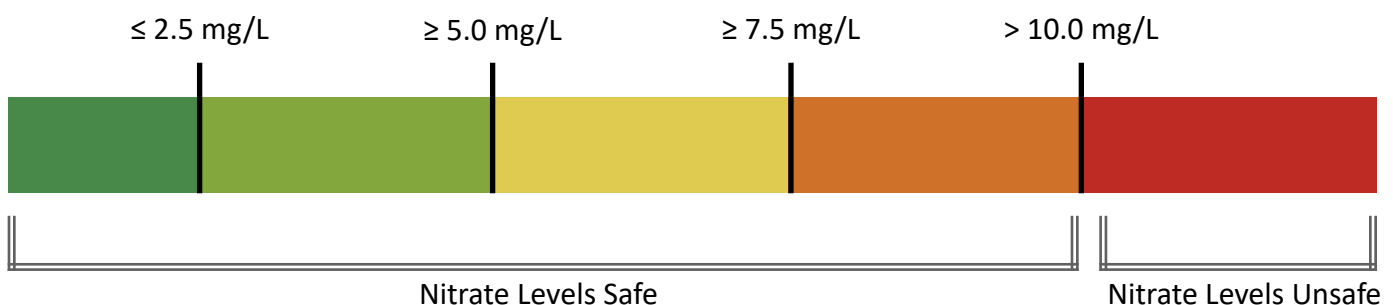
Nitrate Management Goals



The Kings Water Alliance (KWA) Management Zone was established to achieve these three goals. As required by the Nitrate Control Program, the Management Zone prepared this Early Action Plan (EAP), which identifies the initial actions that will be carried out to address drinking water being used by residences in the basin with unsafe nitrate levels (**Figure ES-1**). This EAP is an updated version of the original EAP, which began implementation on May 8, 2021. This updated EAP has been prepared as part the preparation of the Final Management Zone Proposal (FMZP) for the KWA Management Zone.

The key element of this EAP, which was developed in collaboration with the community, is the Interim Replacement Water Program. This Program provides immediate alternative sources of drinking water for residences that depend on groundwater that contains unsafe levels of nitrate used for drinking and cooking (water with more than 10 milligrams per liter nitrate as nitrogen (mg/L-N).

Figure ES-1. Scale Showing Nitrate Safe and Unsafe Levels



ES 2. Identification of Nitrate Impacted Areas

As described in more detail within the Final Management Zone Proposal, nitrate groundwater data were requested, downloaded, and compiled using various publicly available sources and complemented by data requested from the Fresno and Tulare County Environmental Health departments¹. These nitrate groundwater data compilations were categorized into depth zones, following previously-developed CV-SALTS best management practices. Wells constructed in the Upper Zone of the groundwater system and with nitrate data since the year 2000 were used to determine recent average ambient nitrate concentrations. The best readily available groundwater nitrate dataset compiled and analyzed included sample results for Upper Zone wells from **January 2000 to August 2020**. These nitrate data were temporally and spatially declustered for use in determining ambient nitrate conditions in the Upper Zone of the groundwater system for the Management Zone.



The Upper Zone average nitrate concentrations were used to produce a map showing the spatial interpolation (kriging using a search radius of 1.5 miles) of ambient nitrate conditions within the Management Zone for conditions between 2000 and 2020. Using this map, it is possible to locate several nitrate-impacted areas that occur within the Management Zone. These areas are defined by average recent nitrate concentrations in the Upper Zone that exceed the drinking water Maximum Contaminant Level (MCL) of 10 mg/L-N. As illustrated in Figure ES-1, the largest nitrate-impacted areas exist in the central and eastern portions of the Management Zone. The Management Zone recognizes that the map of ambient nitrate in the Upper Zone has inherent uncertainty and is **adaptive in nature**. As more Upper Zone nitrate data become available (through EAP implementation of well testing, or other monitoring programs associated with the Irrigated Lands Regulatory Program, Groundwater Sustainability Agencies, or other entities), the ambient nitrate analysis will be repeated, and the ambient map will be updated (and potentially changed) prior to the Management Zone Implementation Plan submittal date. The map of ambient Upper Zone nitrate is not intended to be a substitute for well testing or interim water replacement requirements.

In addition to the map that shows several areas potentially impacted by nitrate in groundwater in the Upper Zone, the groundwater nitrate data compilation also contains all available public water system supply well nitrate sample results. From the available records downloaded from the State Division of Drinking Water², it appears that 158 public supply wells located within the Management Zone have exceeded the nitrate MCL at some time in their record. Only 82 of those wells were considered to have an “active” status, as listed by the Drinking Water Watch³, while the others had a status of “abandoned,” “destroyed,” “pending,” or “inactive.” Delving further into the compliance status of public water systems that have had nitrate exceedances in their raw, untreated well water, yields a total

-
- 1 Kings County was also contacted but did not have readily-available groundwater nitrate data not already contained in the public data-bases utilized.
 - 2 Public Supply Well nitrate data was acquired from the Division of Drinking Water (https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/EDTlibrary.html) accessed December 2020.
 - 3 Public Water System information was acquired from the State’s Safe Drinking Water Information System (SDWIS) Drinking Water Watch online database (<https://sdwis.waterboards.ca.gov/PDWW/>) accessed January 2021.

of eleven (11) public water systems that are currently (as of January 2021) out of compliance due to elevated nitrate conditions (alone – 6 systems, or with a co-contaminant such as 1,2,3 TCP – 5 systems). Using the reported population served data from Drinking Water Watch for these public water systems, this translates to a total of 2,348 people served (due to nitrate alone) and 382 people served (due to nitrate plus a co-contaminant) that may be potentially impacted by elevated nitrate in their drinking water from public water systems in the Management Zone.

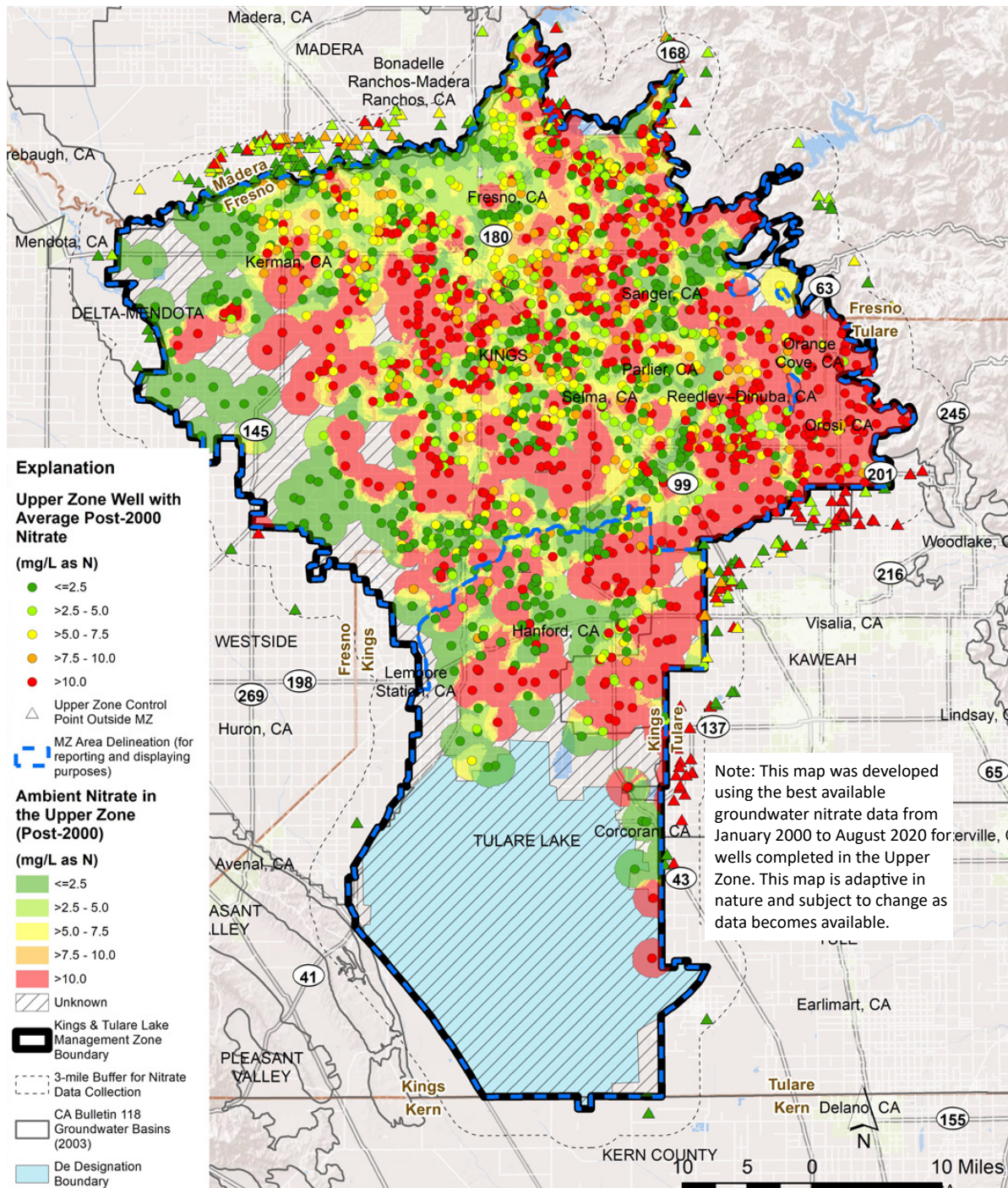


Figure ES 2. Ambient Nitrate Conditions in the Upper Zone since 2000

Continuing with this effort to identify nitrate-impacted areas, the spatial interpolation map of ambient nitrate conditions in the Upper Zone was overlain by known public water system boundaries and approximate domestic well locations. Only 14 domestic wells are plotted within known public water system boundaries. An estimate of over 6,400 domestic wells located outside of known public water system boundaries are located within mapped areas with estimated Upper Zone ambient nitrate above the safe drinking water standard (of 10 mg/L-N). Using census block data from the 2010 U.S. Census, the estimated population of residents living outside known public water system boundaries and within mapped areas with potentially unsafe drinking water (estimated Upper Zone ambient nitrate above the MCL) is over 47,600.

ES 3. Identification of Potentially Affected Areas

A key component of the EAP is identification of residents or other entities in the Management Zone that may be obtaining their drinking water from a well impacted by nitrate levels that exceed 10 mg/L-N. While the Management Zone is conducting outreach to the entire Management Zone, it is also targeting some of its outreach efforts specifically to those areas identified as being most likely impacted by elevated nitrate (nitrate levels > 7.5 mg/L-N). This targeted outreach will occur at the same time the Management Zone is implementing general community outreach activities to the entire Management Zone. The process to identify residents or other entities in potentially affected areas began immediately upon EAP implementation using the steps described. This effort will include collaborating with public water systems in the area that are not in compliance with nitrate drinking water standards.



**Targeted Outreach
will occur to identify
residents who may be
impacted by elevated
nitrate levels**

ES 4. Community Outreach Program

The Management Zone has and will continue to engage the community on the EAP including the Interim Replacement Water Program with the overall objective to create a level of engagement and awareness with community residents and stakeholders that establishes trust and provides robust participation. The stated goals of the community outreach program are to: 1) identify and cultivate relationships with key influential individuals and organizations in the communities to amplify information from the Management Zone, 2) provide channels for input and participation that connect with residents in a way that is effective and accessible, and 3) provide accurate, easy-to-understand, timely information on the Early Action Plan development and implementation.

The goals of the community outreach program were the guide for outreach tactics during the development of the EAP. The Management Zone conducted a series of community outreach events beginning in November 2020 to obtain input on the development of this EAP. Webinars included opportunity to ask questions and provide comments to directly engage Management Zone staff. Webinar polling was conducted to solicit input on demographics, communications preferences, and drinking water solutions. Virtual office hours were open to the public to solicit input and answer questions on EAP development. Events were promoted using varying communications methods including community flyers at key locations, community organization distribution, email, and direct mail. A survey in both English and Spanish to solicit feedback on preferred drinking water solutions was conducted and distributed via email, website, and community organization outreach using digital platforms.

The stated goals of the community outreach program are to:

Goal 1

Identify and cultivate relationships with key influential individuals and organizations in the communities to amplify information from the Management Zone.

Goal 2

Provide channels for input and participation that connect with residents in a way that is effective and accessible.

Goal 3

Provide accurate, easy-to-understand, timely information on the Early Action Plan development and implementation.

The EAP submitted with the Preliminary Management Zone Proposal in March 2021 reflected the input received from the public. General community outreach has continued during EAP implementation through a variety of communications mediums including virtual and in-person community meetings, sharing information through the Management Zone's website, sharing regular updates via email to the interested persons email list, direct mail pieces, and distributing through entities that are locally collaborating with the Management Zone's efforts to provide safe drinking water. In addition to ongoing broad community outreach, the EAP includes a program to outreach directly to residences in areas most likely to have domestic wells contaminated by nitrate. A community survey to potentially impacted residents was conducted to obtain input. The KWA also presented at the AGUA meeting (February 8, 2021) on the subject of the Management Zone to an audience containing various community leaders. Since the implementation of the EAP began in March 2021, KWA has carried out a number of outreach activities including those listed above as well as attending local food banks and distributing flyers, increasing their social media presence (via Facebook and Instagram), radio spots, and in-person canvassing.

ES 5. Interim Replacement Water

The [Interim Replacement Water Program](#) provides an immediate solution for those currently experiencing unsafe levels of nitrate in their drinking water source in Priority 1 areas. However, these solutions are only temporary and will eventually be replaced by long-term, permanent solutions.

There are three key options to obtain safe water now at no cost to a resident of the Management Zone:

Option 1

Delivered or non-delivered home bottled water

Option 2

Installation of a Point-of-Use (POU) treatment system in your home

Option 3

Utilizing a water fill stations strategically located within the Management Zone

Regarding the first two options, a residence may receive these alternative water options if the resident can answer yes to the following three statements:

Statement 1

My home is in the Kings Water Alliance Management Zone.

Statement 2

I am willing to sign an agreement with the Management Zone's service provider.

Statement 3

My well has unsafe nitrate levels (> 10 mg/L-N) (see **Figure ES-1**) as determined by a water quality analysis conducted by a certified laboratory.

If you do not know if your well water has unsafe nitrate levels, you may contact the Management Zone (<http://kingswateralliance.org>) to request that your well be sampled at no cost to you. Results from the nitrate test, which will be provided to you will be used to determine the next steps. Most importantly, if your nitrate levels are unsafe the Management Zone will work with you immediately to obtain a safe source of drinking water. If nitrate levels are high (> 7.5 mg/L-N) but safe the Management Zone will offer the opportunity to have your well tested again at no cost to you in the future.

Finally, the Management Zone may also install additional water fill stations in the Management Zone. Three are currently operational in the Dinuba, Kerman, and Hanford areas; all fill stations use a certified source of safe and free drinking water and are available to the entire community at no cost. Based on the needs of the community, additional fill station locations may be developed through the implementation of this EAP. Through this program, the community will be made aware of the existing fill stations and the availability of additional stations, if developed.

ES 6. Early Action Plan Implementation

The Management Zone will begin implementation of the EAP by May 7, 2021. A community outreach meeting will be held in May 2021 to kick-off the implementation of the program and inform residents regarding how to participate in the Interim Replacement Water Program. The Management Zone will also continue in its outreach to the community regarding the need and/or approach for developing additional water fill stations.



The Well Testing Program provides free well testing and immediate drinking water solutions if well water is unsafe to drink due to nitrate.