



**KINGS WATER
ALLIANCE**

KINGS WATER ALLIANCE

Nitrates in Groundwater: The Basics

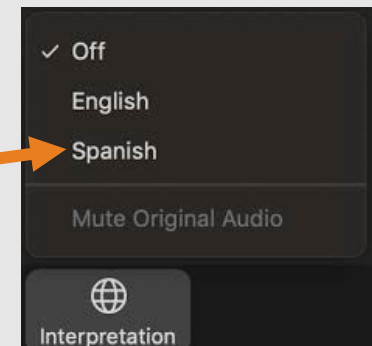
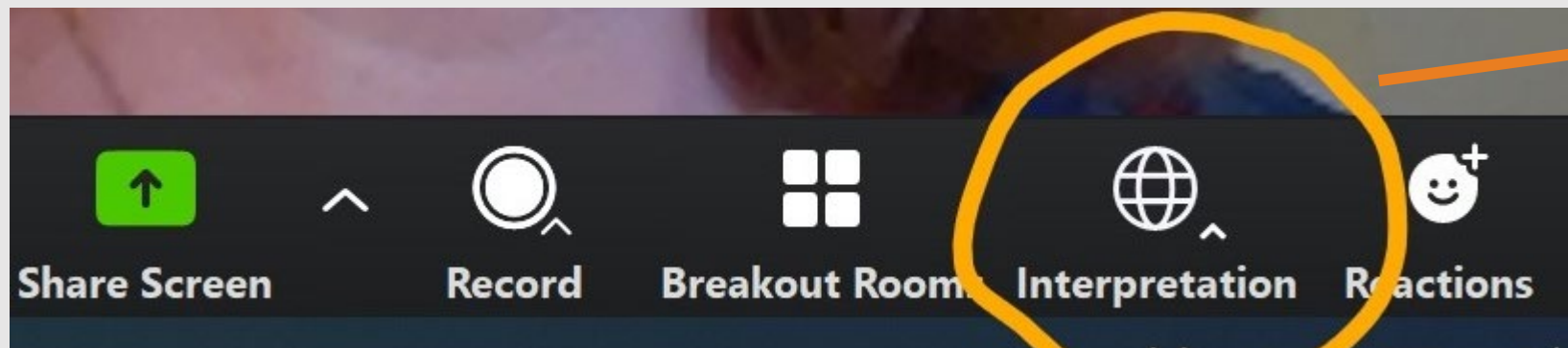
July 27, 2021, 5:30 – 6:00 PM

July 28, 2021, 12:00 – 12:30 PM

SPANISH TRANSLATION/TRADUCCIÓN ESPAÑOLA

To listen to the presentation in Spanish, click the globe icon at the bottom of your screen and select Spanish.

Para escuchar la presentación en español, haga clic en el ícono del globo terráqueo en la parte inferior de la pantalla y seleccione Español.



ZOOM WEBINAR DETAILS

- **Video and audio is OFF for participants**
- **Questions & Answers**
 - **Use the Q&A feature to type a question throughout the presentations**
 - **Verbal questions will be taken at the end of the presentations**
- **Technical difficulties**
 - **Use the Chat feature for Zoom technical assistance**

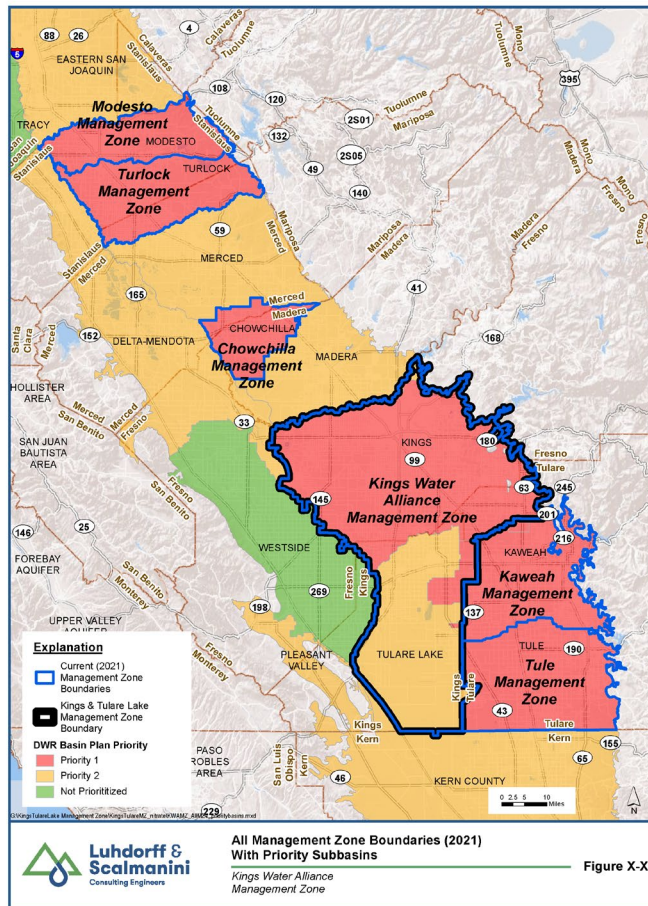
AGENDA

- 1. Background/Who is the KWA? (3 minutes)**
- 2. Nitrates in Groundwater: The Basics (15 minutes)**
- 3. Next Steps for Residents (5 minutes)**
- 4. Q&A (5 minutes)**

BACKGROUND/WHO IS THE KWA?

WHO IS THE KINGS WATER ALLIANCE?

- The Kings Water Alliance is a non-profit funded by a coalition of nitrate dischargers regulated under new Salt and Nitrate Control Programs
- The Kings Water Alliance is implementing programs that provide safe drinking water to nitrate-impacted residents



WHAT IS THE KINGS WATER ALLIANCE DOING NOW FOR RESIDENTS?

- **In 2019, the State Water Resources Control Board adopted the regulatory framework for a new Nitrate Control Program with three goals:**
 - **Provide short- and long-term safe drinking water supplies to residents impacted by unsafe levels of nitrate (>10 mg/L-N)**
 - **Reduce nitrate impacts to water supplies**
 - **Restore groundwater quality, where reasonable and feasible**

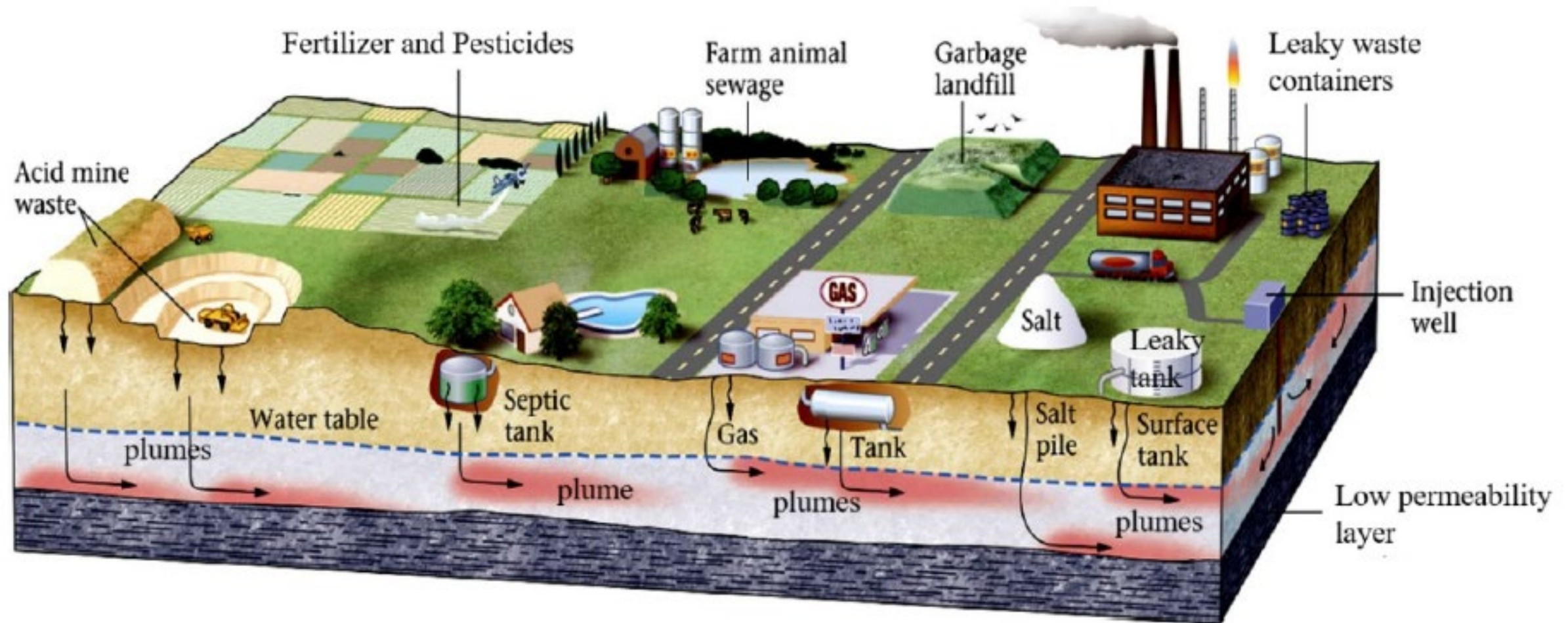
NITRATES IN GROUNDWATER: THE BASICS

NITRATE: A VERY COMMON CHEMICAL

■ What is Nitrate?

- Contaminant that can make drinking water unsafe for drinking when above a certain level
- You can not see, smell, or taste Nitrate in water
- You can not boil Nitrate out of water
- Chemical found in most fertilizers, manure, and septic tanks
- Rain or irrigation water can carry Nitrate down through the soil and into groundwater

CHEMICAL CONSTITUENTS (INCLUDING NITRATE): HUMAN LAND USES



- Adapted from Marshak, 2005 in Poeter, et al., 2020

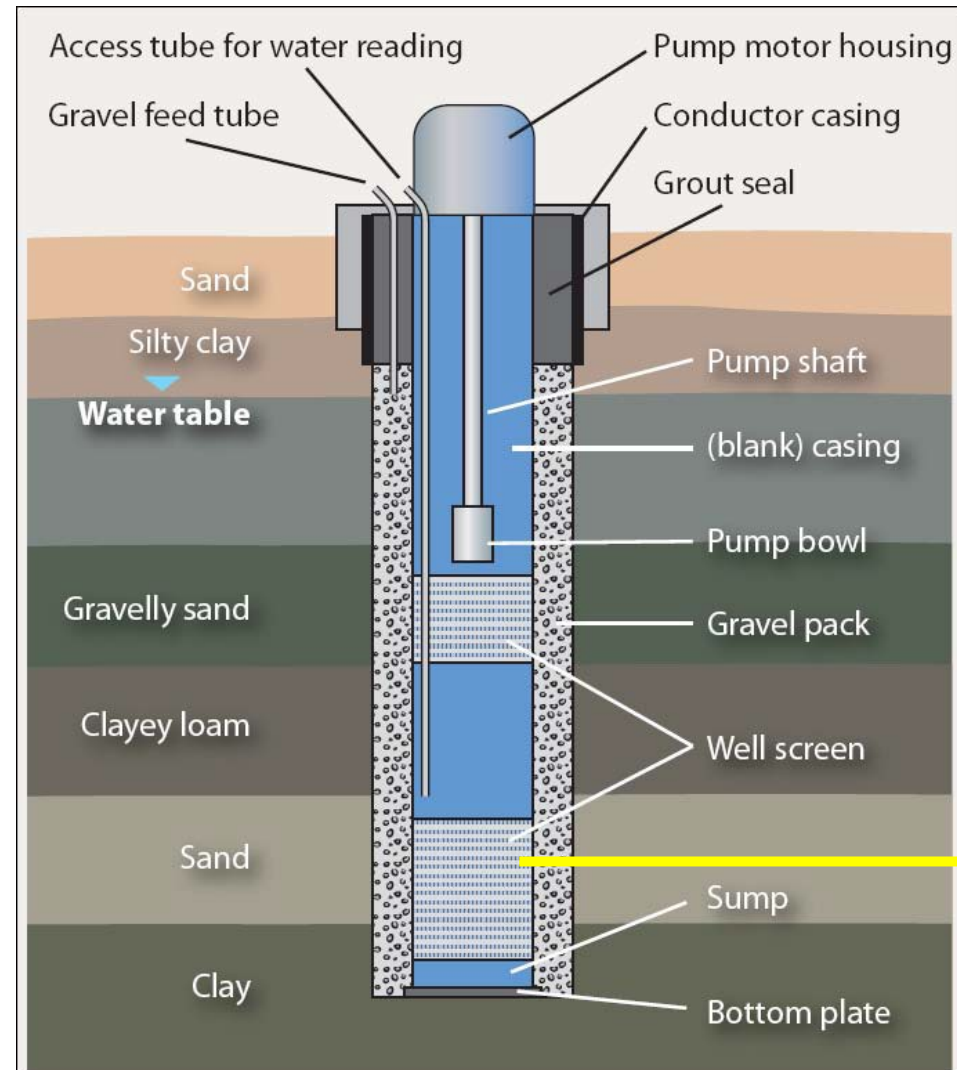
WHY DO WE CARE ABOUT NITRATE?

- When is Nitrate Unsafe?
 - Government set a legal limit on the amount of Nitrate in water used for drinking
 - Drinking water limit is 10 milligrams per liter Nitrate as nitrogen (US EPA and California state regulatory requirement)



HOW DO NITRATE AND OTHER CHEMICALS GET INTO WELL WATER?

- How does Nitrate get into your well water?
 - Groundwater is produced from water-bearing deposits beneath the land surface
 - All wells need to have good integrity and be protected from land surface activities
 - Proper well construction helps reduce contaminants from being introduced at the land surface



Typical Well Structure

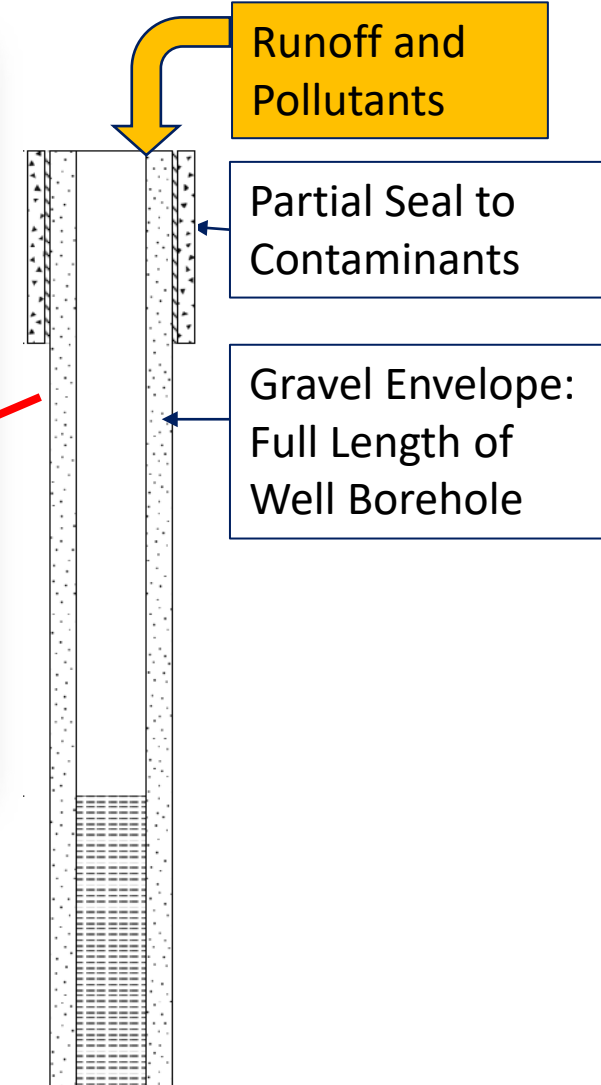
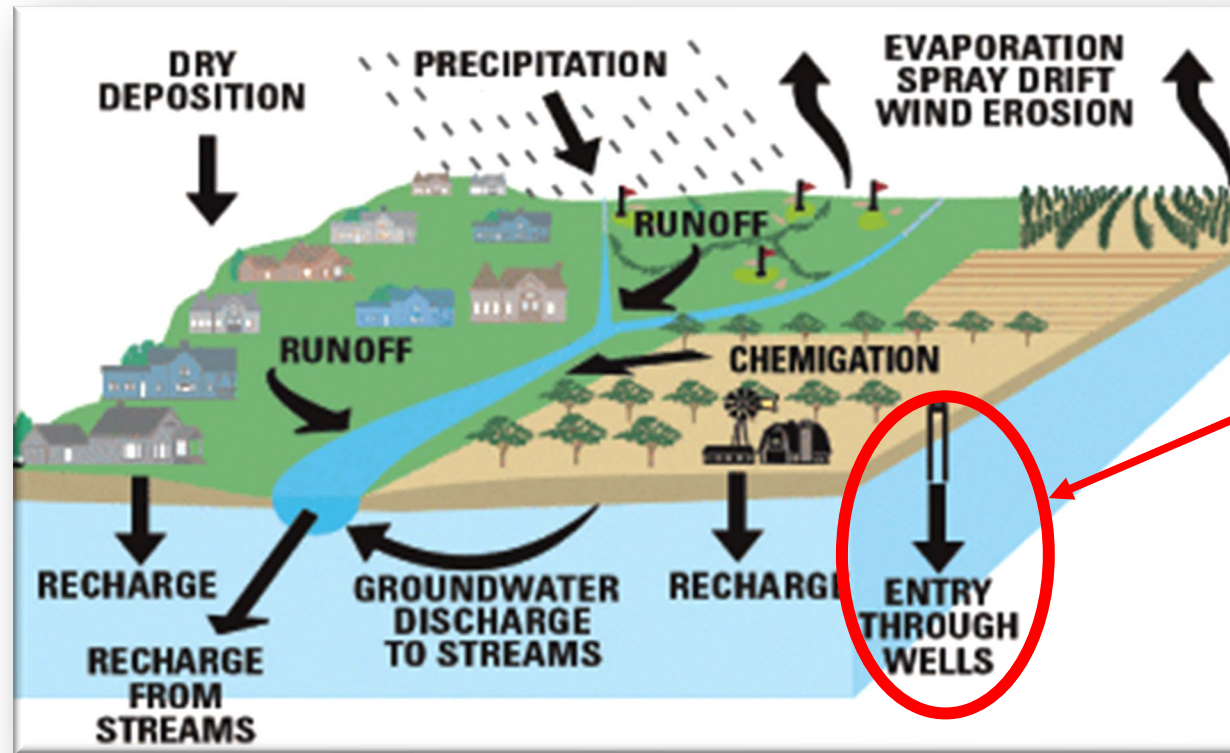
Well Screen



NITRATE AT THE LAND SURFACE MAY AFFECT GROUNDWATER

Sources of Nitrate Near Well:

- Entrance to well near land surface

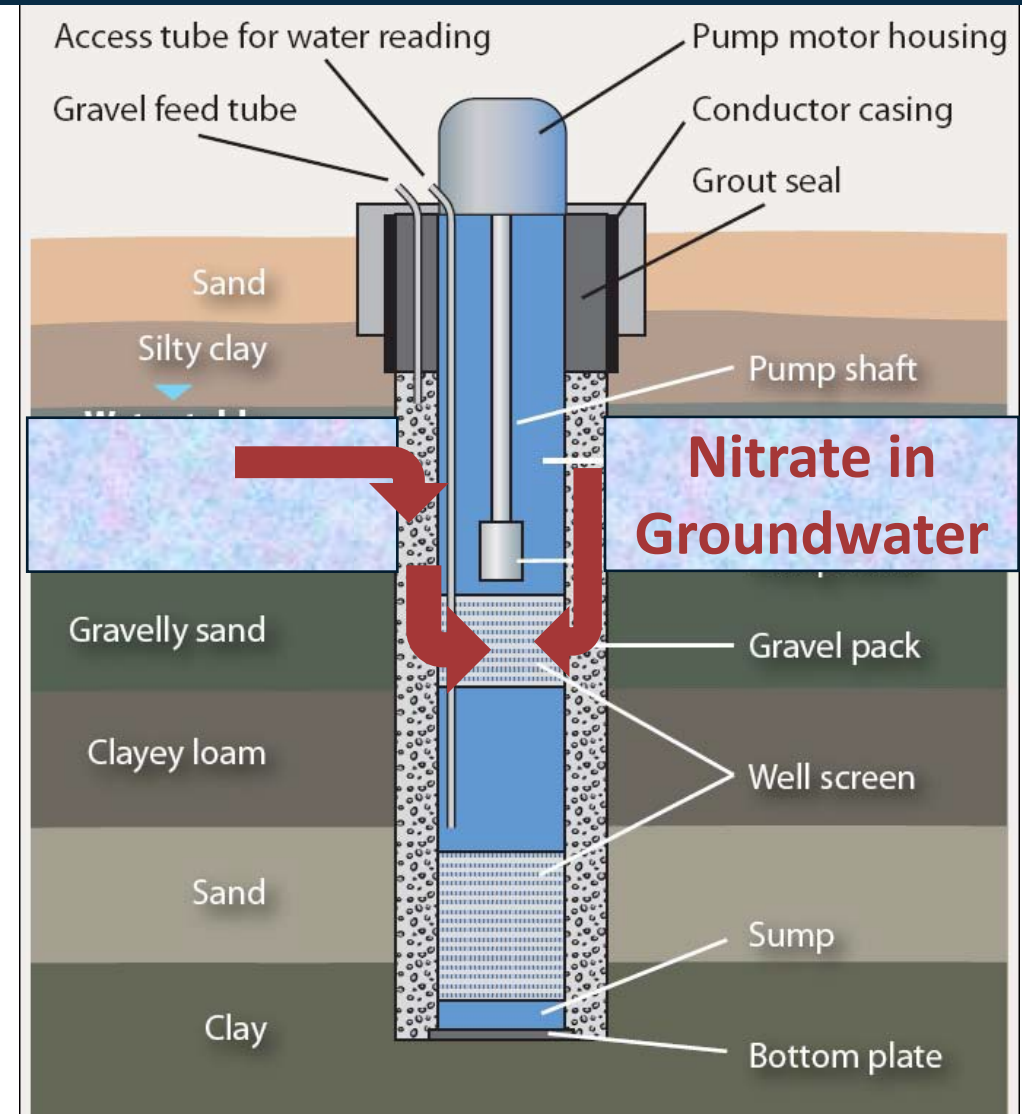


USGS, C.E. Thodal et al.. 2008. Fact Sheet 2009-3093
Modified from Gilliom and others, 2006

NITRATE IN GROUNDWATER MAY ENTER THE WELL

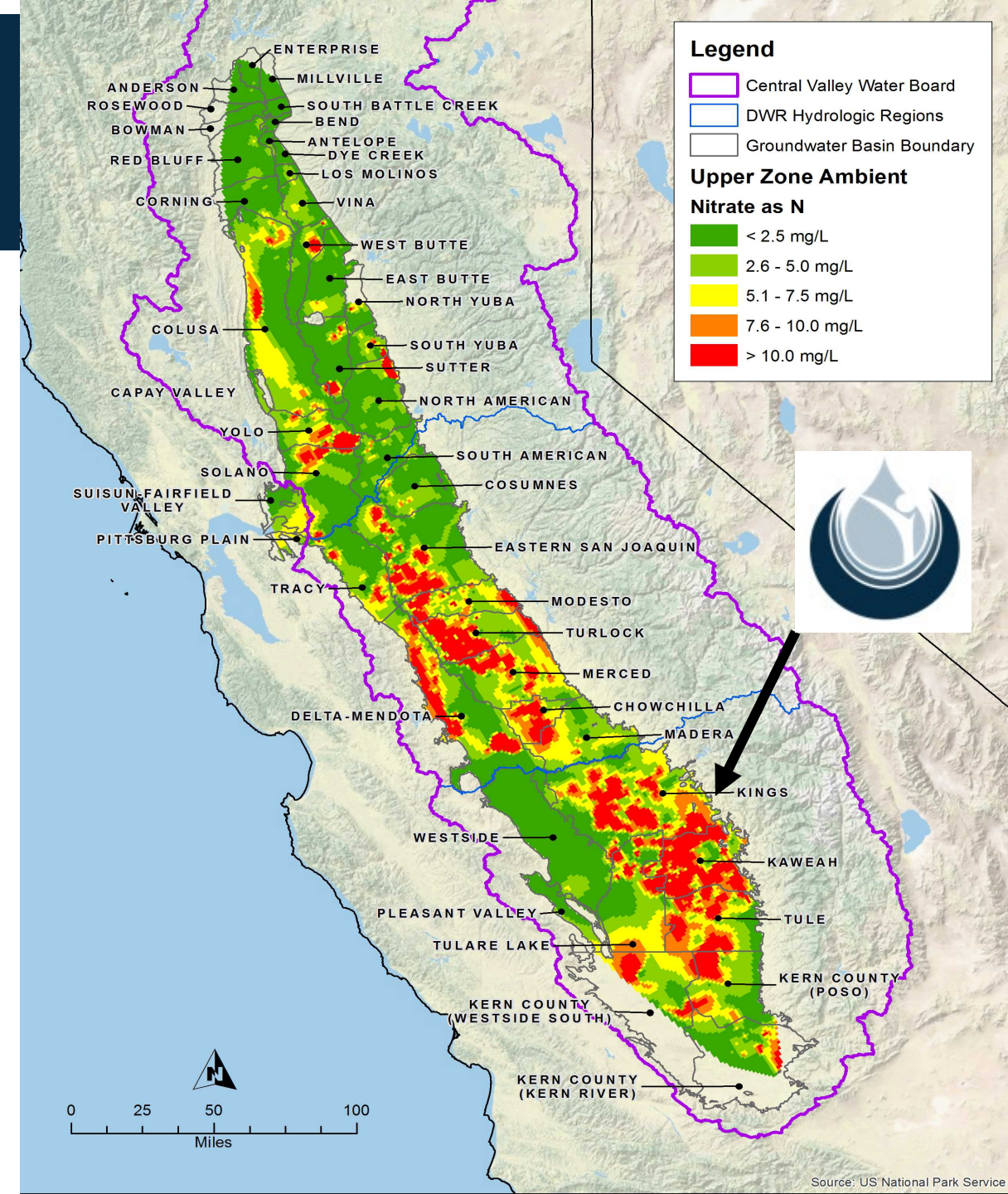
Movement into Well Structure:

- Shallow Groundwater with Nitrate in Vicinity of Well May Move into Well



CENTRAL VALLEY AND NITRATE IN GROUNDWATER

- Legacy and existing conditions
- Direct impacts to drinking water supplies
- Significant economic costs, including treatment or alternate supply
- Diverse sources of nitrate to be managed



WHY DO WE CARE ABOUT NITRATE IN GROUNDWATER?

Drinking water obtained from groundwater that enters our homes through a private domestic well may require action if impacted by Nitrate.

■ Public Supply Wells

- Public Supply Wells are tested regularly
- Public Supply Wells can have treatment to make sure the water is safe for drinking before it reaches homes



VS.

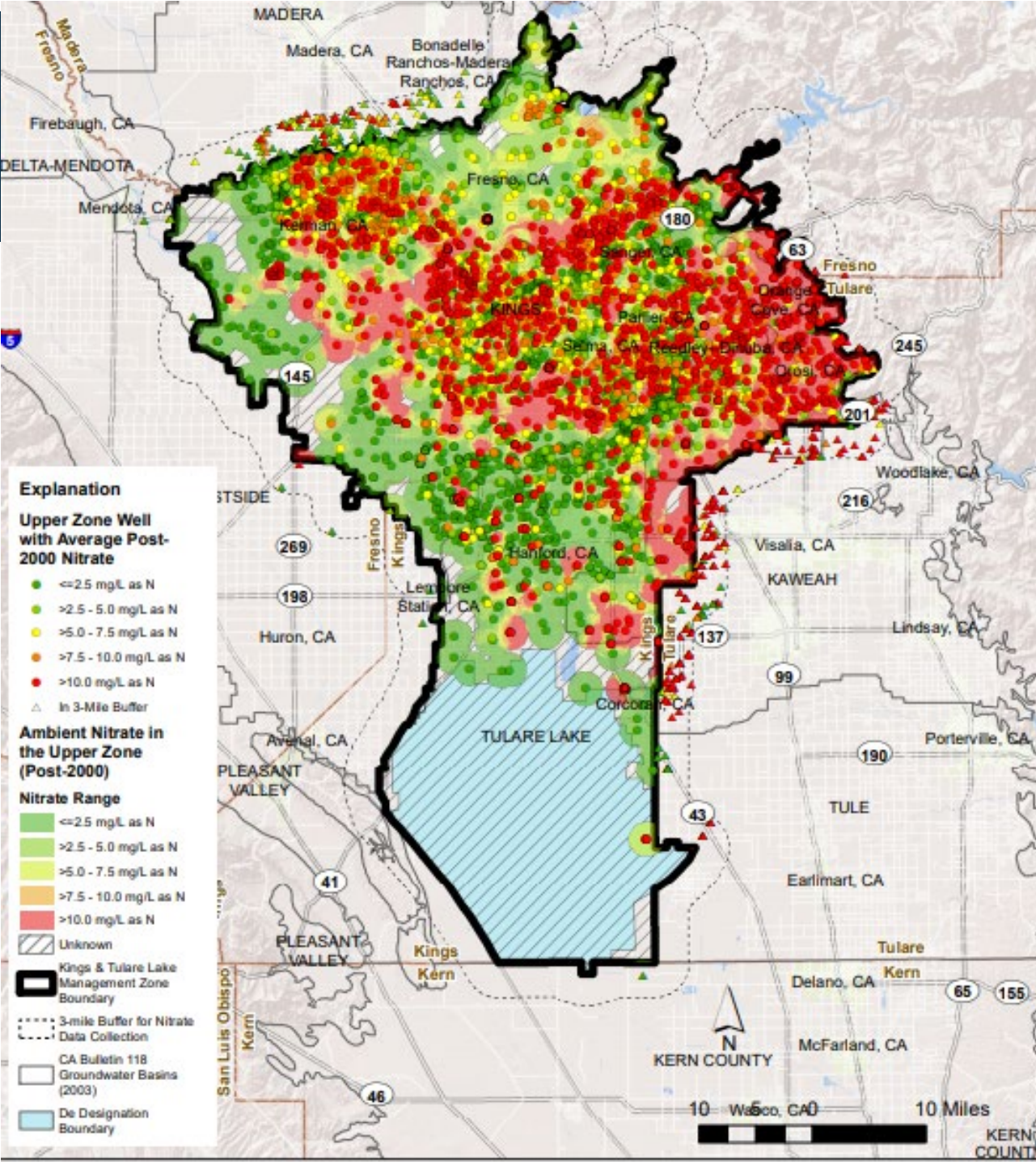
■ Private Domestic Wells

- The well owner must test the water to determine if it is impacted by Nitrate
- If impacted, the well owner should take action to address the Nitrate before water is used for drinking



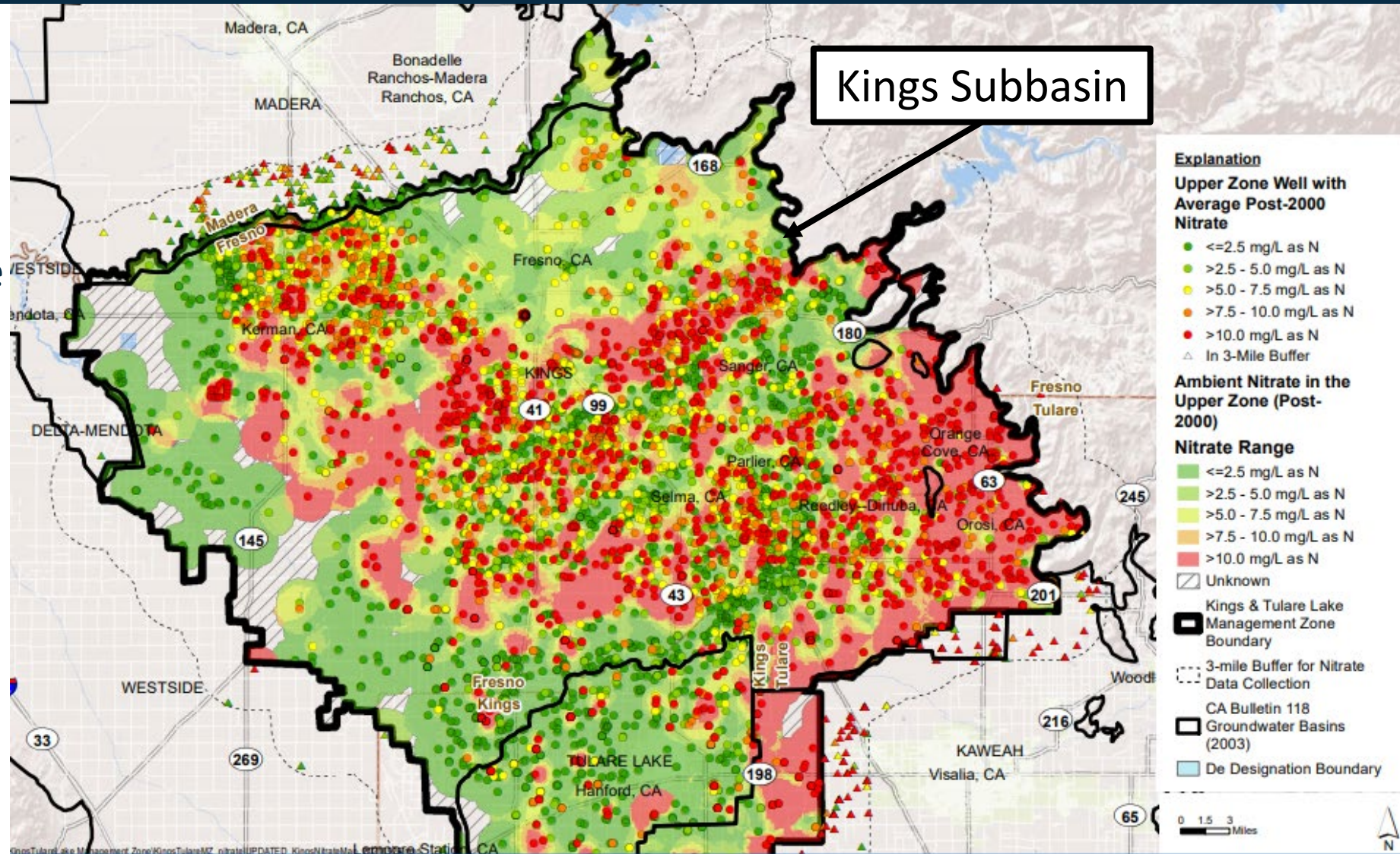
WHERE IS DRINKING WATER AFFECTED?

- **The Kings Water Alliance is working to identify areas affected by Nitrate**
 - Locating areas where unsafe levels of Nitrate are in drinking water
 - Locating domestic wells in areas with unsafe Nitrate levels
 - Identifying existing water systems that treat for Nitrate



NORTHERN KWA MANAGEMENT ZONE: INITIAL FOCUS

- Kings Subbasin:
Priority 1
Subbasin
- **Free** Well Testing
to Identify Nitrate
Affected Wells
- Water
Replacement for
Safe Drinking
Water



NEXT STEPS FOR RESIDENTS

ACCESSING SAFE DRINKING WATER

Explanation

Upper Zone Well with Average Post-2000 Nitrate

(mg/L as N)

- ≤2.5
- >2.5 - 5.0
- >5.0 - 7.5
- >7.5 - 10.0
- >10.0

△ Upper Zone Control Point Outside MZ

■ MZ Area Delineation (for reporting and displaying purposes)

Ambient Nitrate in the Upper Zone (Post-2000)

(mg/L as N)

- ≤2.5
- >2.5 - 5.0
- >5.0 - 7.5
- >7.5 - 10.0
- >10.0

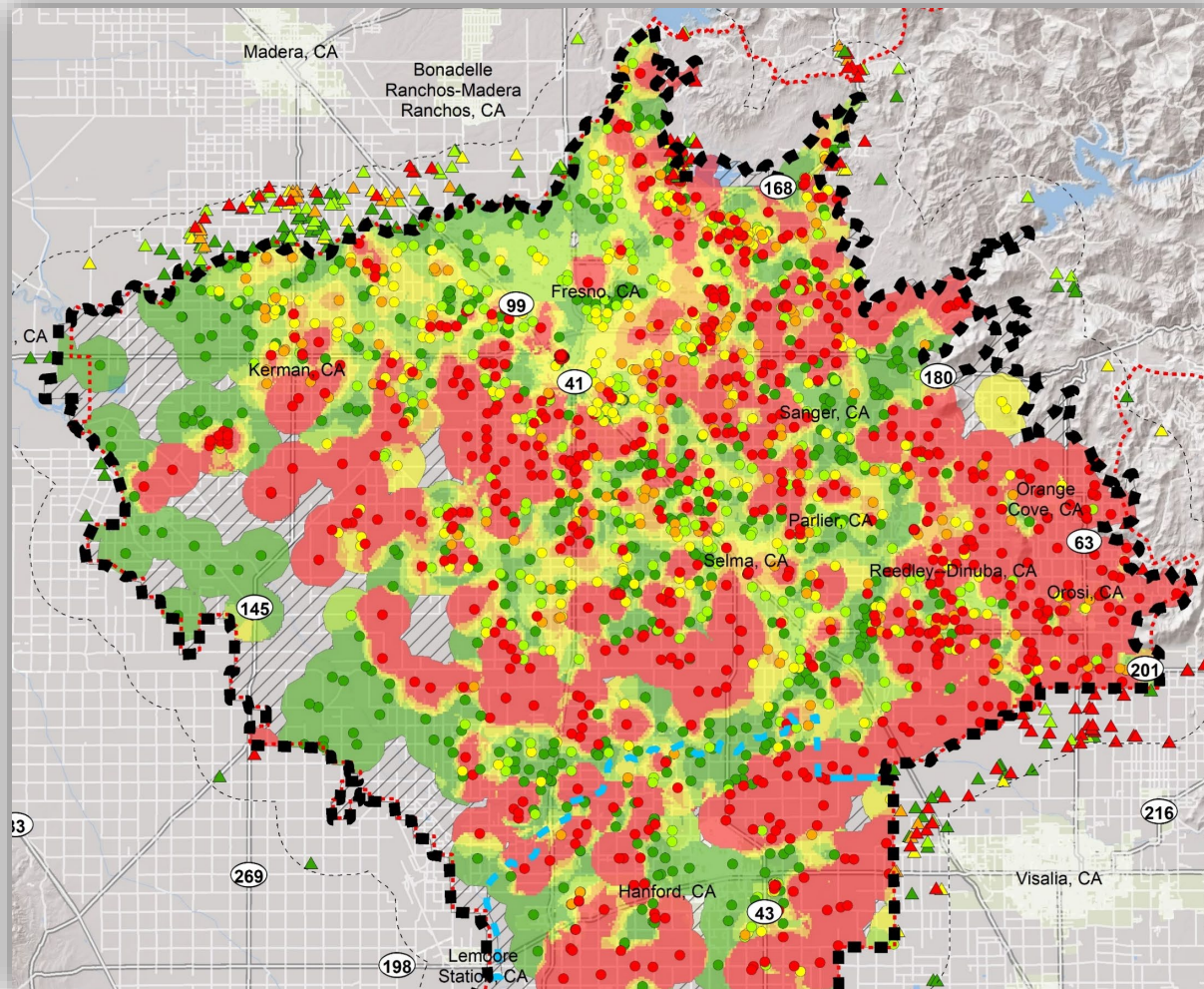
□ Unknown

■ Kings & Tulare Lake Management Zone Boundary

□ 3-mile Buffer for Nitrate Data Collection

□ CA Bulletin 118 Groundwater Basins (2003)

■ De Designation Boundary



Remember: >10 mg/L as N (red areas) means that the water is potentially unsafe to drink, and you may be eligible for free drinking water solutions

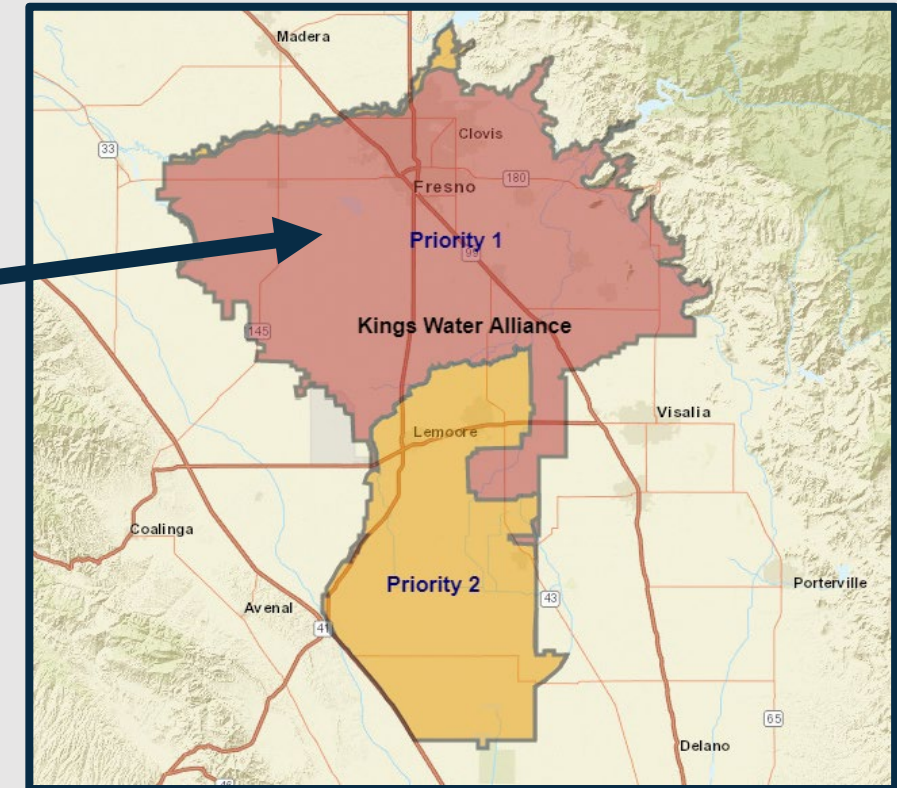
WE HAVE SOLUTIONS FOR IMPACTED RESIDENTS

- **FREE Bottled Water Delivery to your home**
- **Fill Stations**



REQUEST FREE WELL TESTING

- ❑ **Verify you are a resident in the Kings Water Alliance (Priority 1) by using our interactive map at www.kingswateralliance.org/map**
 - ❑ **Fill out our well testing form available at www.kingswateralliance.org/welltest.**
- Contact us if you need a paper form.**



(559) 549-6747

info@kingswateralliance.org

WORK WITH US TO RECEIVE BOTTLED WATER!



Verify you are a resident in the Kings Water Alliance (Priority 1) by using our interactive map at

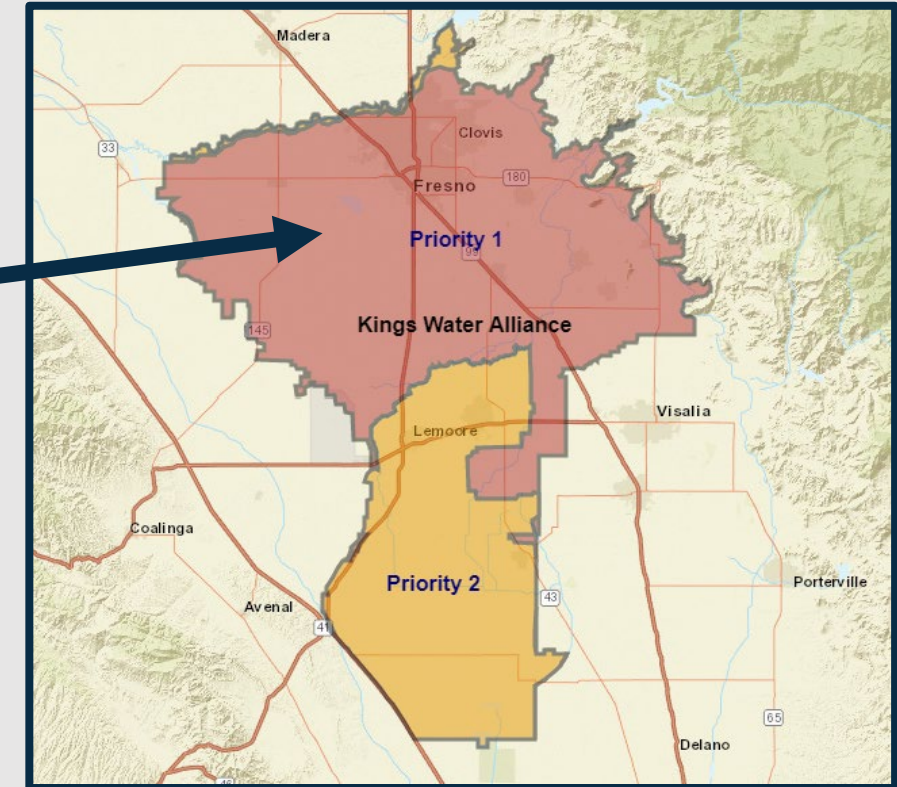
www.kingswateralliance.org/map



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EXISTING WELL TESTS

Parcel with a domestic well that has a regulatory requirement to test for nitrates:

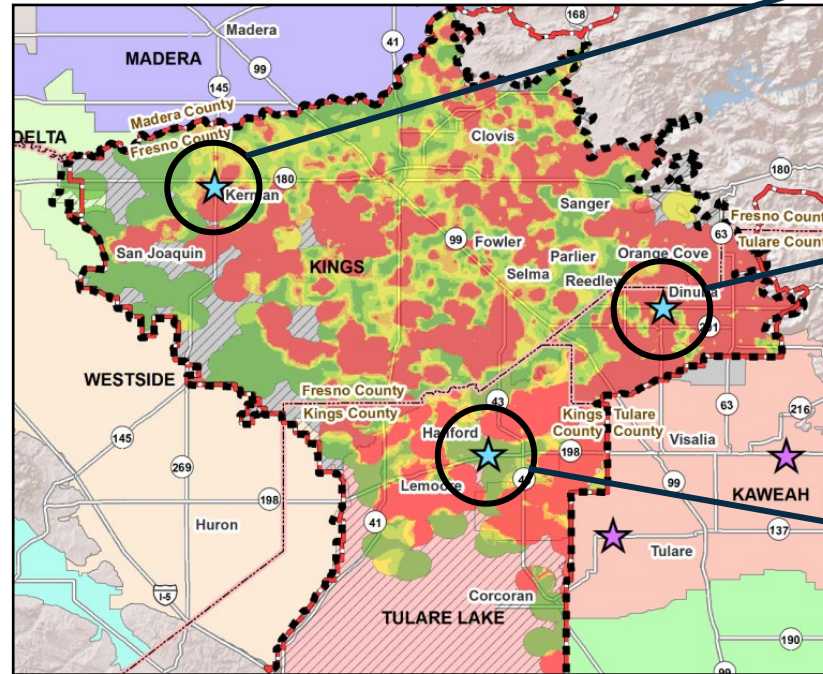
 **Free well test**

 **Free bottled water**

Simply provide us with the well test showing > 10 mg/L-n

FILL STATION LOCATIONS

You can access safe drinking water NOW!



KERMAN

15101 W Kearney Blvd
Kerman, CA 93630

DINUBA

517 W El Monte Way
Dinuba, CA 93618

HANFORD

KART Transit Center
504 W. 7th Street
Hanford, CA 93230

For more info: www.kingswateralliance.org/fillstations

ADDITIONAL RESOURCES

Additional resources on nitrates available at:

www.kingswateralliance.org/safedrinkingwater

- **Nitrate and health effects fact sheets**
- **Nitrate FAQs**
- **Resource webpages**
- **Informational guides**

STAY ENGAGED



Join our email list!

- Event notices and program updates
- Sign up at www.kingswateralliance.org or by dropping your name and email in the Chat!



Attend our upcoming webinar “How-to: Filling out the Well Test Form”

- Thursday, July 29th from 5:30 – 6:30 PM, OR
- Friday, July 30th from 12:00 – 12:30 PM
- Register at www.kingswateralliance.org/events



Follow us on social media! Latest updates and webinar livestreaming

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**KINGS WATER
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THANK YOU! QUESTIONS?

www.kingswateralliance.org/welltest

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