

February 2023 Board of Health Spotlight

*Lower Yakima Valley
Drinking Water Pilot Project*



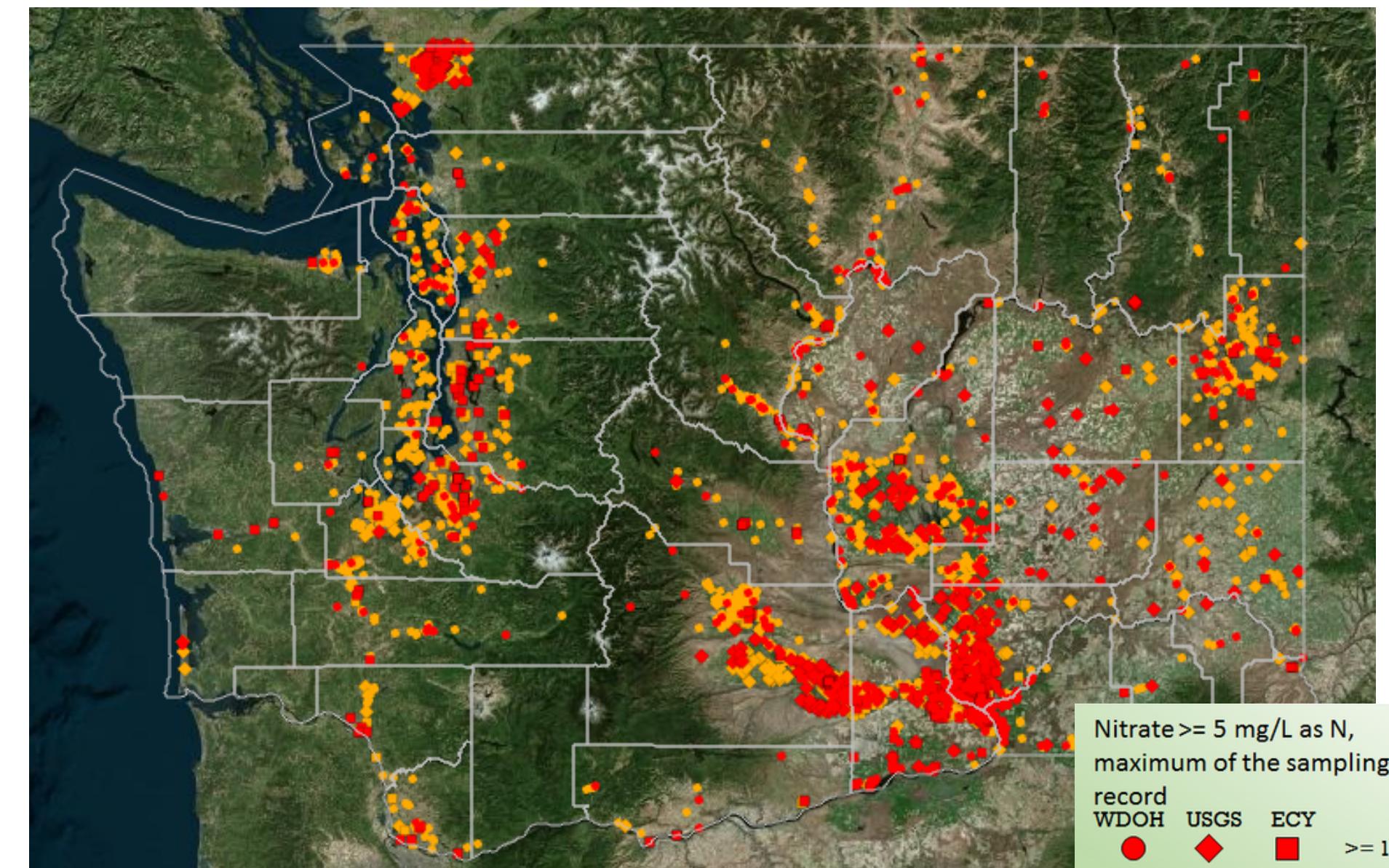
Nitrate in Groundwater



- Nitrate is a chemical found in fertilizers and human and animal waste
- Rain or irrigation water can carry nitrate down into groundwater
- Drinking water with high levels of nitrate has been linked to acute health effects
 - Blue baby syndrome (notifiable condition)

Nitrate in the Lower Yakima Valley.

- Lower Yakima Valley identified as a hotspot of groundwater nitrate contamination.
 - Primary drinking source for over 56,000 residents
- In 2011, DOE created the Lower Yakima Valley Groundwater Management Area to address contamination
- Private well owners are responsible for testing and treating their own well water



Source: Washington State Department of Ecology: Washington Nitrate Prioritization Project

Nitrate ≥ 5 mg/L as N,
maximum of the sampling
record

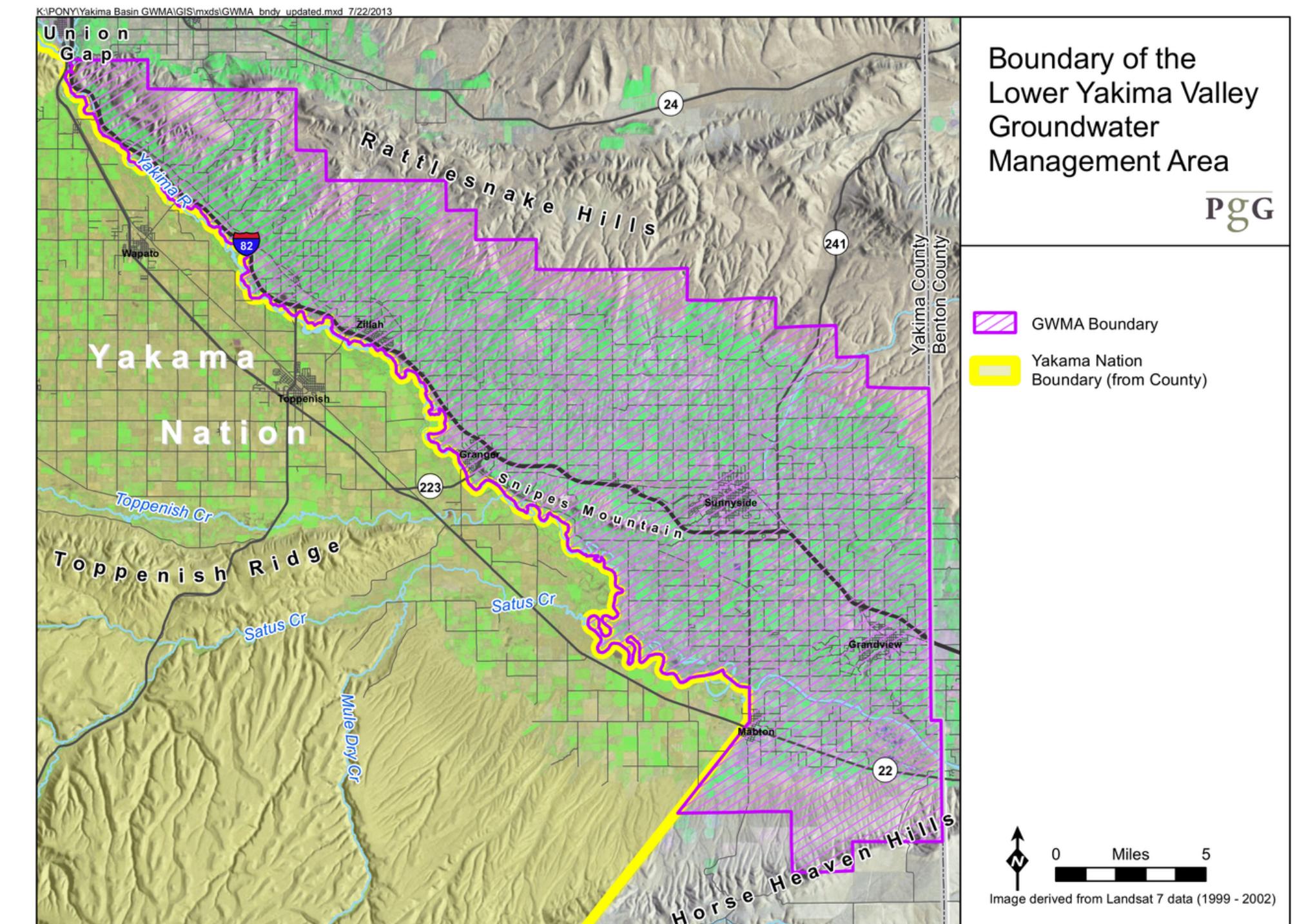
WDOH	USGS	ECY
●	◆	■
○	◇	■

≥ 10
 $\geq 5 \text{ & } < 10$

Graphed (see popup table
for link)

LYV Drinking Water Pilot Project

- Pilot project with funding from the Washington State Department of Health to provide free bottled water to households with nitrate levels greater than 5 mg/L
- Project area was the Lower Yakima Valley GWMA
- March 2022 - June 2023



Project Objectives



Provide safe drinking water
Free bottled water deliveries



Community engagement
Gather information on well-water users' knowledge, attitudes, and practices on well-water safety

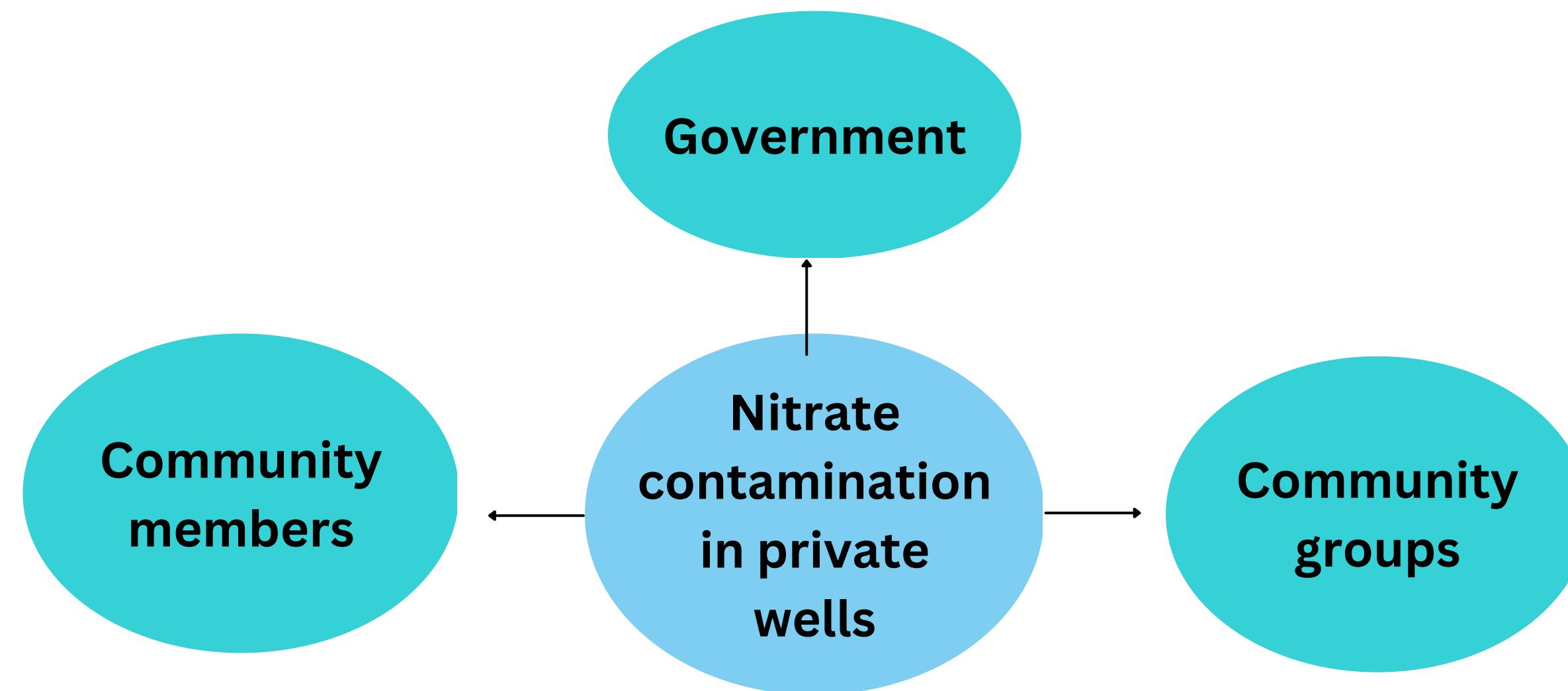


Education
Develop educational material for well users



Pilot Testing
Pilot test educational material among community members

Need for Systems Approach



Bottled Water Deliveries

- Eligible households were identified through DOE's Ambient Groundwater Monitoring Network
- Partnered with Culligan Water to deliver bottled water directly to homes
- Currently distribute water to 46 households; 198 individuals



Development of Educational Materials



- Previous materials were dense and difficult to understand
- Lack of understanding of nitrates and health effects
- Need for YHD specific materials

Development of Educational Materials

What should I do if there is nitrate in my well water?

If the nitrate level is higher than 10 mg/L, do not drink the water.



Use bottled water for drinking, cooking, and preparing baby formula.



Do not boil your water.
Boiling your water may increase the concentration of nitrate in the water.

Scan the QR code to go to our website.



Have more questions?

Call 509-249-6508 or visit YakimaHealthDistrict.org/Nitrate



Nitrate in Drinking Water

Questions & Answers for Private Well Users



YAKIMA HEALTH DISTRICT
EST. 1911
PREVENTION IS OUR BUSINESS

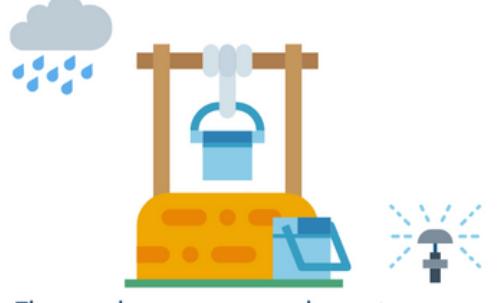
¿Qué es el nitrato?

El nitrato es una sustancia química que se puede encontrar en los fertilizantes, estiércol y desechos humanos que se descargan de los tanques sépticos.



¿Cómo llega el nitrato al agua de pozo?

El agua de lluvia o de riego puede transportar nitrato a través del suelo hacia las aguas subterráneas.



¿Cómo afecta el nitrato a la salud?

Beber niveles altos de nitrato puede dificultar el transporte de oxígeno en su cuerpo.



Los bebés que beben altos niveles de nitrato pueden desarrollar una condición de salud grave llamada **síndrome del bebé azul** debido a la falta de oxígeno.



Las personas con las siguientes condiciones también pueden ser afectadas:

- Personas que están o pueden quedar embarazadas
- Personas con ciertos trastornos de la sangre.
- Personas que no tienen suficientes ácidos estomacales.

¿Cómo puedo saber si el agua de mi pozo tiene nitrato?

La única forma de saber si el agua de su pozo tiene nitrato es analizándola. Esto puede costar entre \$40 y \$55.



¿Con qué frecuencia debo analizar mi pozo?

Dado que los niveles de nitrato pueden variar con el tiempo, se recomienda que analice su pozo cada año.



Si su agua tiene un nivel de nitrato de 5 mg/L o más, puede realizar otro análisis en seis meses.

Development of Educational Materials

Español

Nitrate in Well Water

Nitrate is a chemical found in most fertilizers, manure, and liquid waste discharged from septic tanks. Natural bacteria in soil can also convert nitrogen into nitrate. Rain or irrigation water can carry nitrate down through the soil into groundwater. Your drinking water may contain nitrate if your well draws from this groundwater.

How does nitrate affect health?

Drinking water with high levels of nitrate can affect how blood carries oxygen. Infants are particularly at high risk of developing a serious health condition due to the lack of oxygen. This condition is called **blue baby syndrome**. Some people may also be susceptible to health problems from nitrate.

How Does Nitrate Affect Health?

Drinking too much nitrate can affect how blood carries oxygen.

Infants may develop a serious health condition called **blue baby syndrome** due to the lack of oxygen.



Blue baby syndrome may cause signs similar to the cold and other infections. It may also cause skin to turn blue

Individuals with the following health conditions may also be affected by high levels of nitrate:

- People who are or may become pregnant
- People with certain blood disorders
- People who don't have enough stomach acids

If nitrate levels in your water are above 10 mg/L, use bottled water or water from a safe source to drink, prepare infant formula, and wash and cook food.

Nitrate in Drinking Water - Questions and Answers for Private Well Users



Treating Your Well Water for Nitrate

Treating Your Well Water for Nitrate

If your well water contains nitrate levels greater than 10mg/L, use bottled water for drinking, preparing infant formula, and washing or cooking food.

Do not boil water! This will increase the amount of nitrate in the water.

Identify Potential Sources of Contamination

If possible, identify any sources around the home that could be contributing to the elevated nitrate levels in your well water. Some potential sources include:

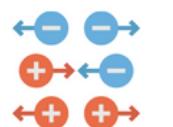
- Excessive use of nitrogen-based fertilizers
- High concentrations of animal manure too near the well
- Septic systems too near the well

Nitrate is more likely to enter wells that are damaged. If you notice any damages to your well, contact a licensed well contractor.

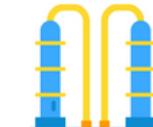


Install a Water Treatment System

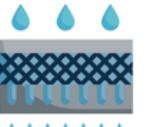
There are three types of water treatment systems that can be installed to reduce or remove nitrate from water. However, these treatment systems may be expensive to install and require careful maintenance and monitoring.



Ion Exchange



Distillation



Reverse Osmosis

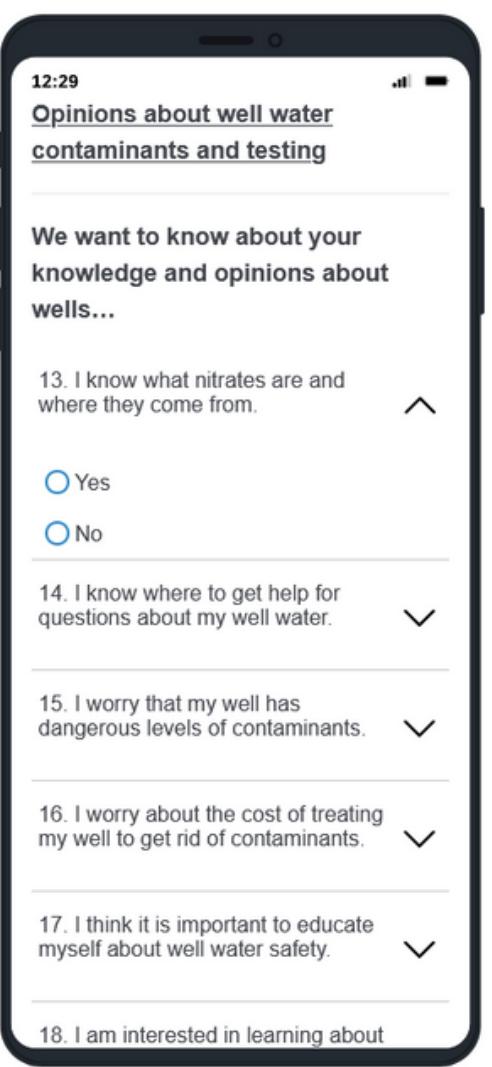
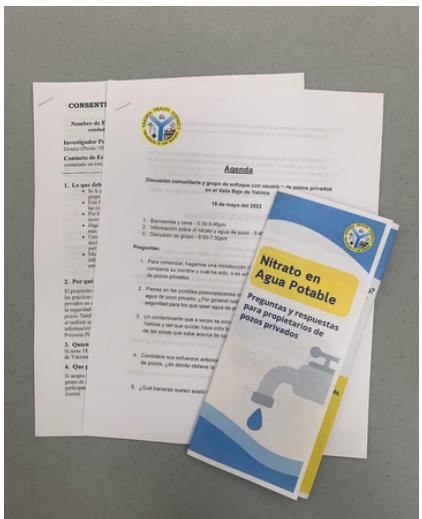
Before you install a water treatment system, make sure to consider the following:

- You may choose to install a treatment system that treats water at a single tap or all of the water in the home. **Remember, nitrate is only a concern for ingestion.**
- Water treatment systems need to be properly maintained to remain effective over time.** Maintenance can include changing filters, disinfecting the unit, backwashing, or cleaning out mineral build-up.

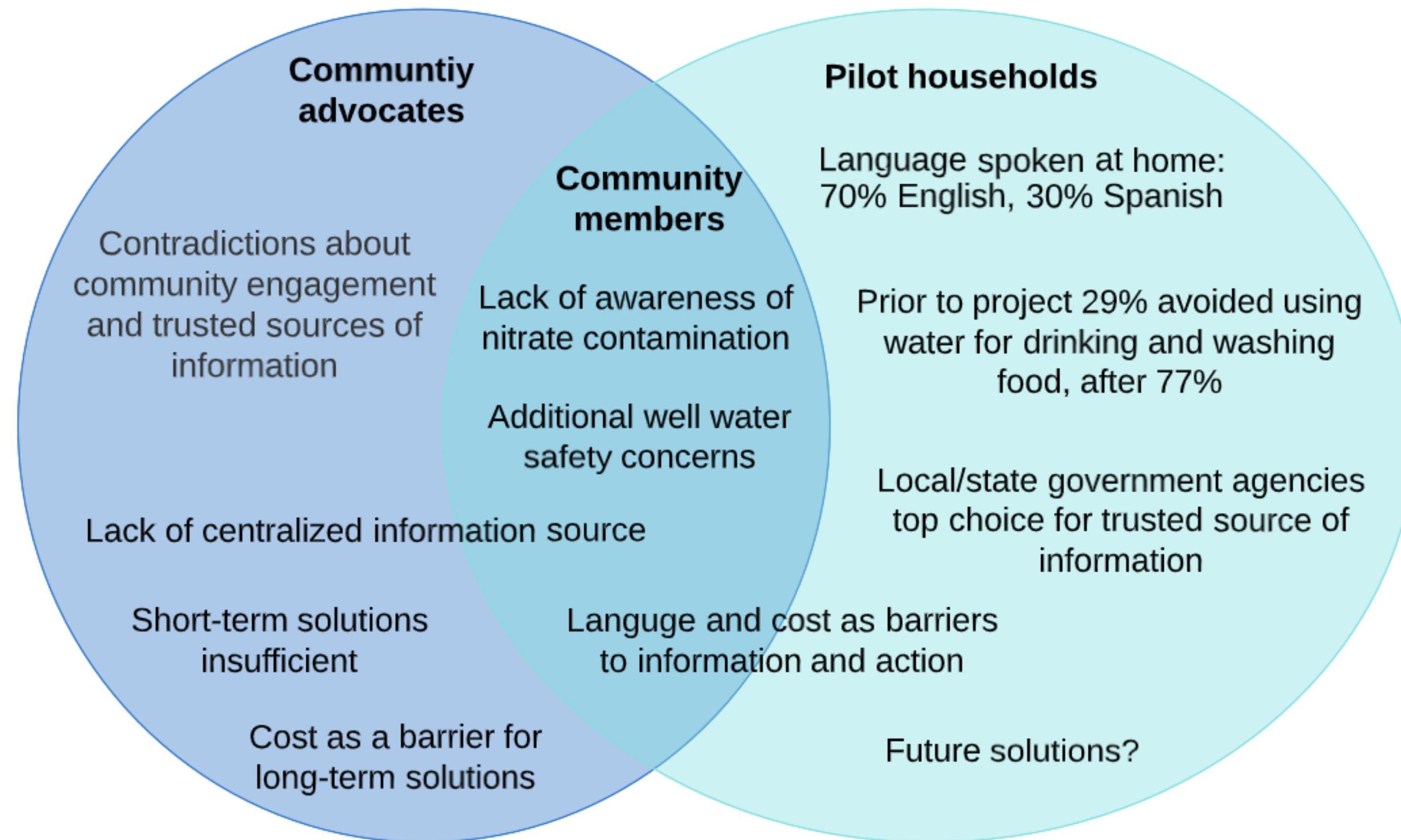


Community Engagement

- Focus groups
 - 2 community advocate focus groups
 - 2 community member focus groups
 - Conducted via Zoom and in-person
- Pilot household survey
 - 35 surveys completed
 - Conducted online and in-person
- Questions were about:
 - Community engagement, trusted sources of information, well water safety awareness, practices and behaviors and educational material



Key Findings



Successes and Challenges

- Bottled water deliveries
 - Funding
 - Enrolling additional households
- Education
 - Accessibility
 - Created awareness
 - Developed with community input
- Research
 - Academic partnerships
 - CBPR Framework
 - Sample size



General Well User Survey

ARE YOU A PRIVATE WELL USER IN THE LOWER YAKIMA VALLEY?

Help develop educational
materials for private well users
in your community!

Take 10-15 minutes to complete
an online survey on well water
use and safety practices.

Have questions? Call 509-249-6506 for more information.



YHD Strategic Goals



Deliver mandated services



Develop a network of community partners invested in improving public health



Increase the effectiveness and efficiency of district services

Questions?