

# February 2023 Board of Health Spotlight

*Lower Yakima Valley  
Drinking Water Pilot Project*



# Nitrate in Groundwater

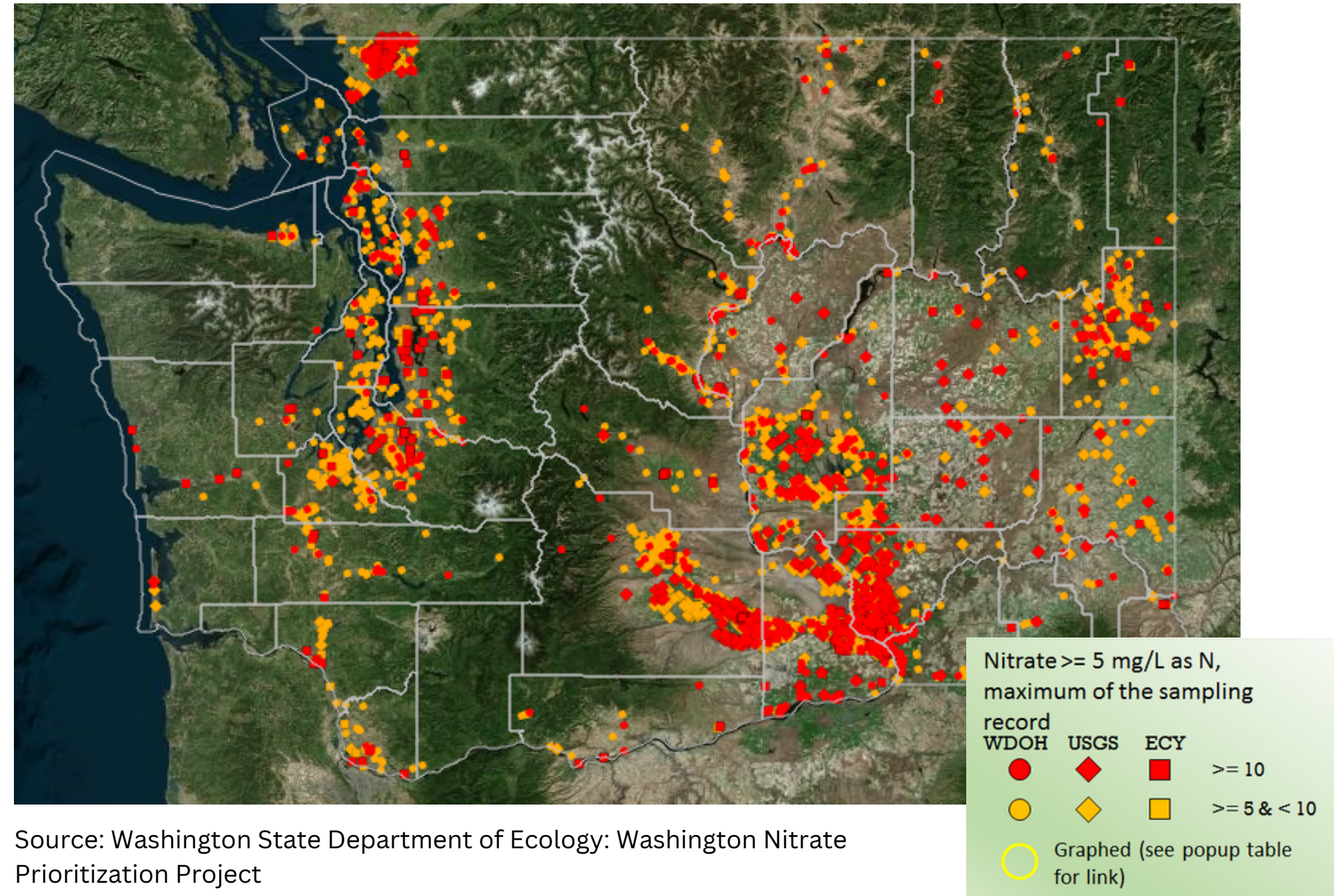


- Nitrate is a chemical found in fertilizers and human and animal waste
- Rain or irrigation water can carry nitrate down into groundwater
- Drinking water with high levels of nitrate has been linked to acute health effects
  - Blue baby syndrome (notifiable condition)



# Nitrate in the Lower Yakima Valley

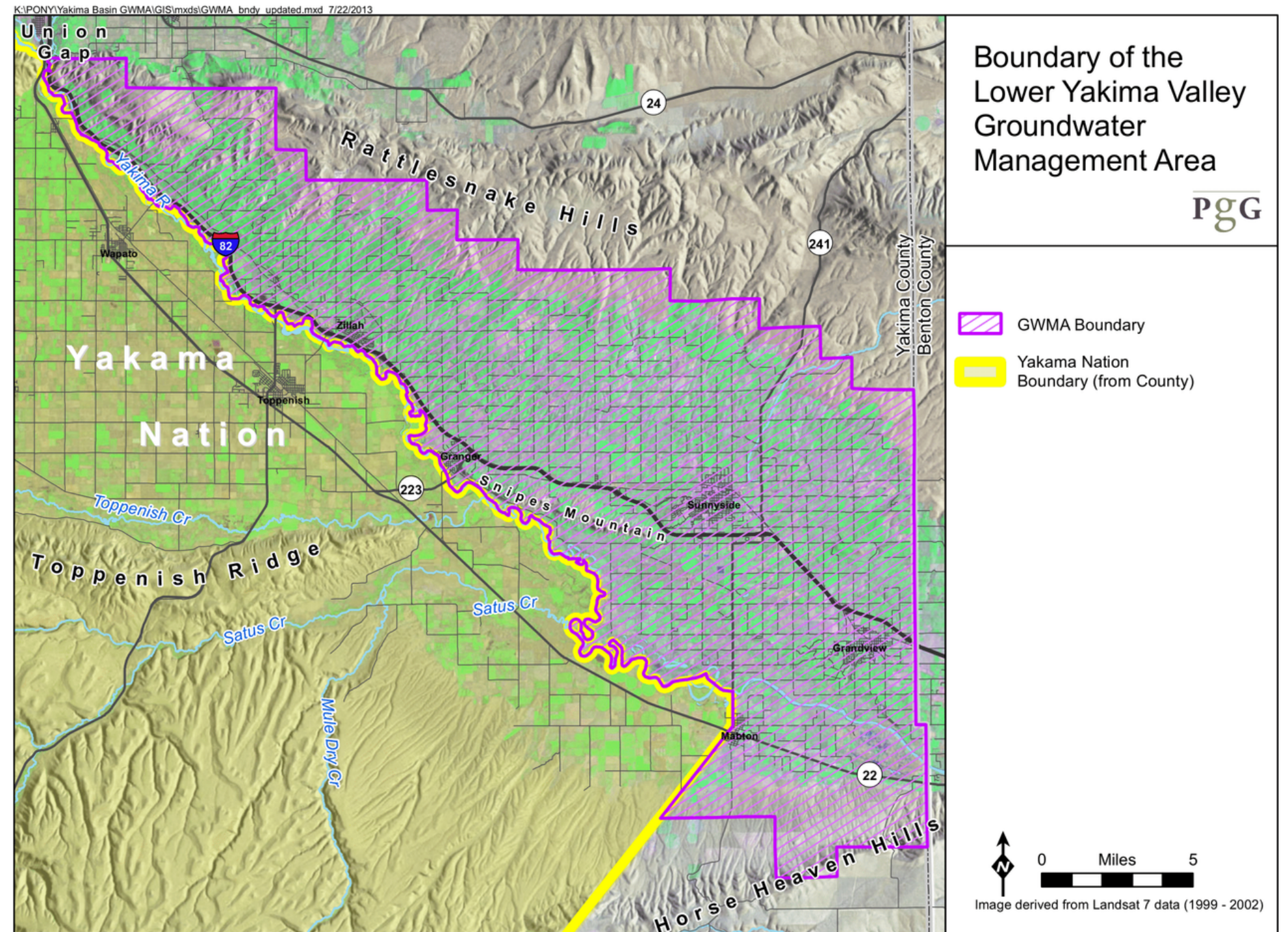
- Lower Yakima Valley identified as a hotspot of groundwater nitrate contamination.
  - Primary drinking source for over 56,000 residents
- In 2011, DOE created the Lower Yakima Valley Groundwater Management Area to address contamination
- Private well owners are responsible for testing and treating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





# 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

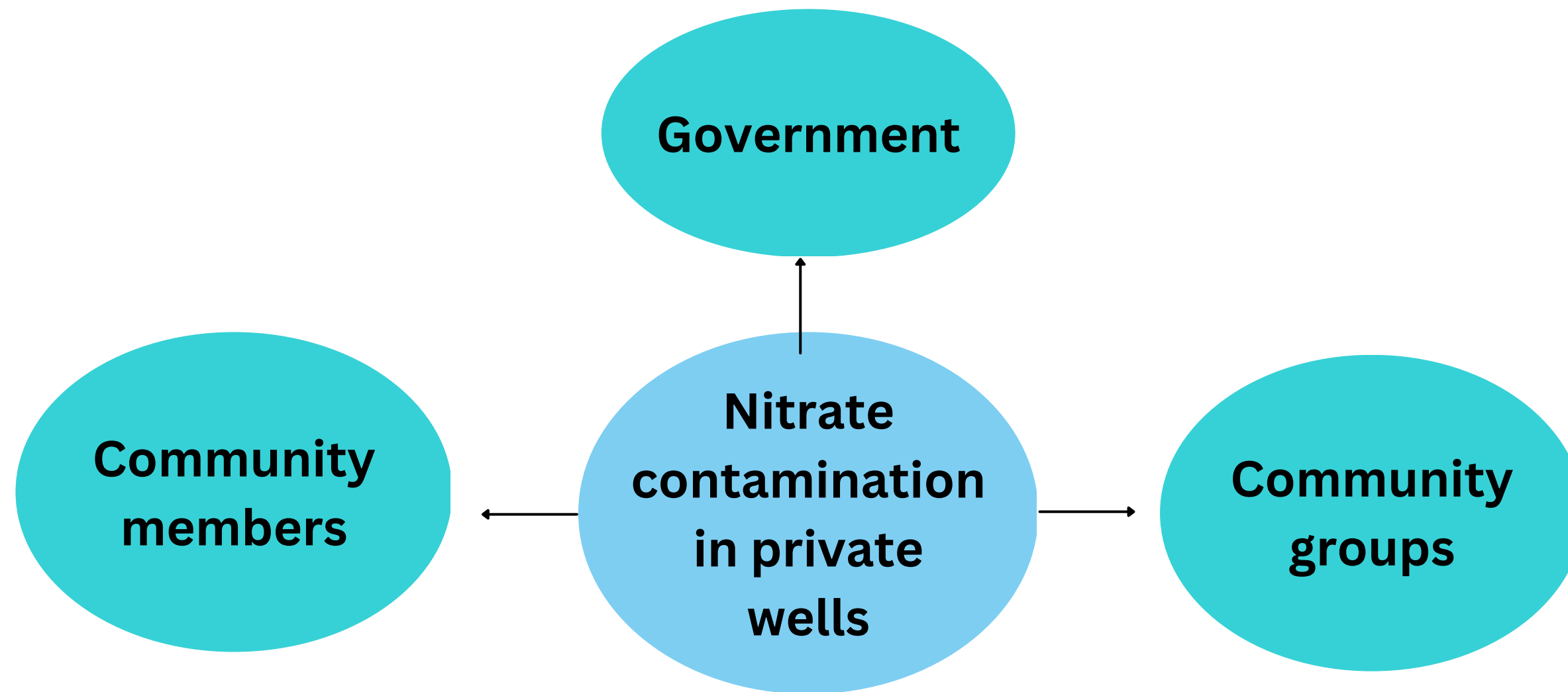


## Pilot Testing

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

Scan the QR code to go to our website.





## 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.



## Have more questions?

Call **509-249-6508** or visit [YakimaHealthDistrict.org/Nitrate](http://YakimaHealthDistrict.org/Nitrate)



## Nitrate in Drinking Water

### Questions & Answers for Private Well Users



**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.

**For information on how to test your well, call the following labs:**

- **Cascade Analytical**  
1008 W Ahtanum, Yakima, WA 98903  
(509) 452-7707
- **Valley Environmental Laboratory**  
201 E. 'D' St., Yakima, WA 98901  
(509) 575-3999
- **Ag Health Laboratories**  
445 Barnard Blvd.  
Sunnyside, WA 98944  
(509) 836-2020

## ¿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.



#### 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 consumption.**
- 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.

### Additional resources:

- [FREE well assessments and water quality screening for nitrate](#)

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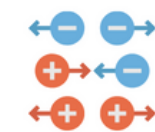
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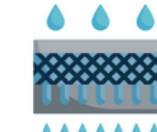
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Ion Exchange



Distillation



Reverse Osmosis

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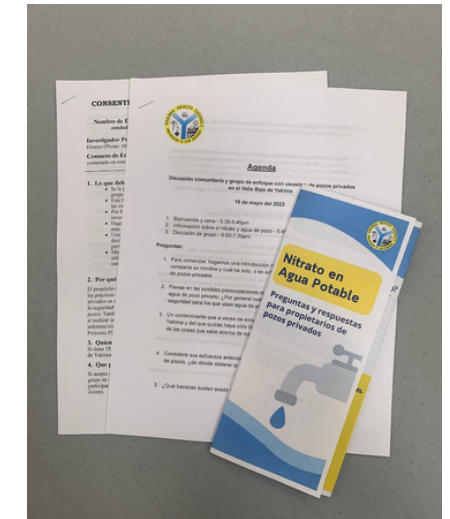
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# Community Engagement

- 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



12:29

Opinions about well water contaminants and testing

We want to know about your knowledge and opinions about wells...

13. I know what nitrates are and where they come from. ^

☐ Yes

☐ No

14. I know where to get help for questions about my well water. v

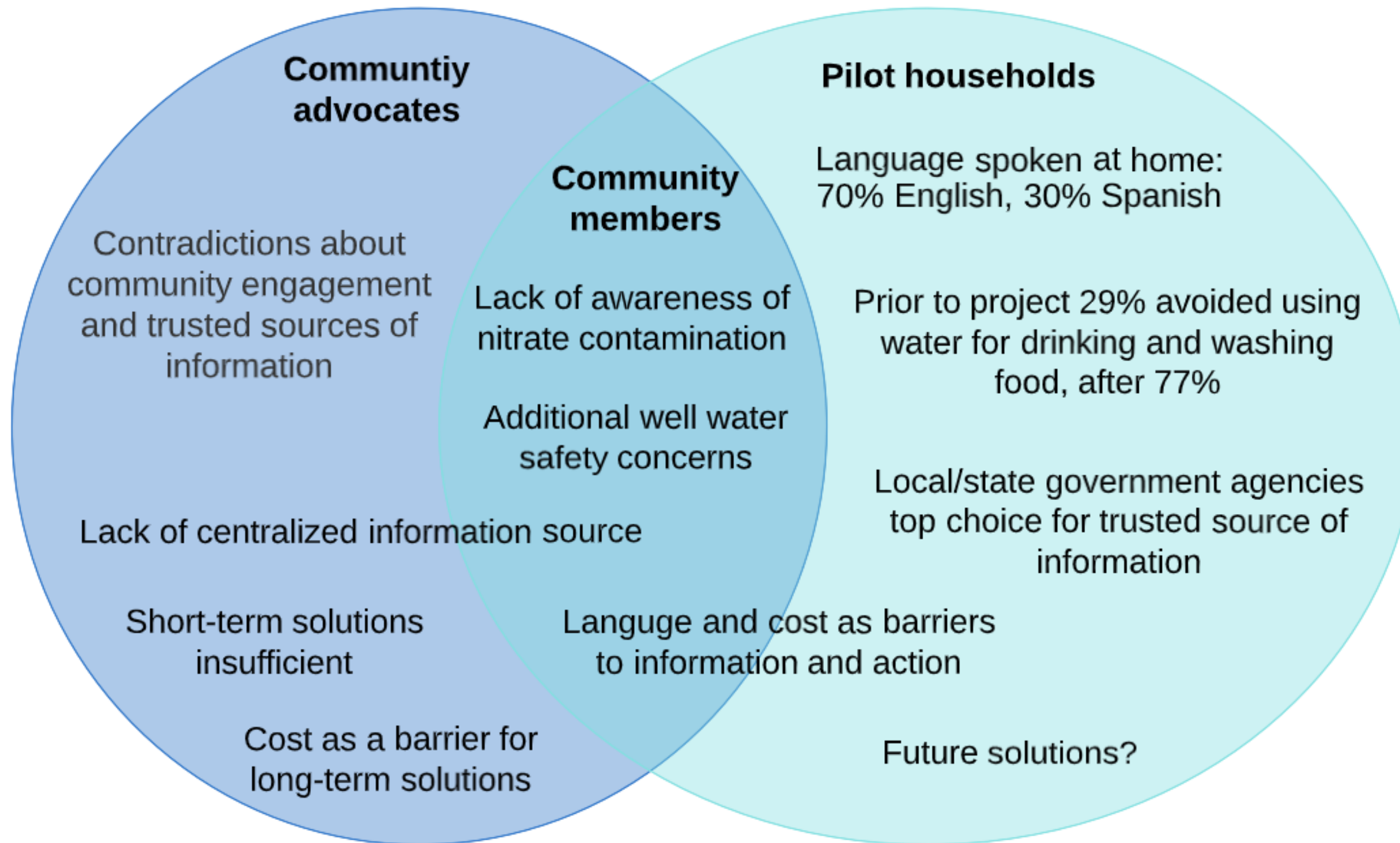
15. I worry that my well has dangerous levels of contaminants. v

16. I worry about the cost of treating my well to get rid of contaminants. v

17. I think it is important to educate myself about well water safety. v

18. I am interested in learning about

# Key Findings





# Successes and Challenges

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



# 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?**