

Nitrate in groundwater

What is nitrate?

Nitrate is formed in the soil when nitrogen and oxygen combine. Common sources of nitrate are fertilizers, septic systems, and livestock waste so elevated nitrate is most often found in rural and agricultural areas. Since the Santa Clara Valley has a long history of agricultural production and septic systems are still in use in some areas, nitrate is an ongoing groundwater protection challenge, particularly in South County.

How does nitrate get into my well water?

Nitrate travels easily through the soil, carried by rain or irrigation water into groundwater supplies. Shallow wells, wells in sandy soil, or wells that are improperly constructed or maintained are more likely to have nitrate contamination.

Does nitrate pose a health risk?

Nitrate can interfere with the blood's ability to transport oxygen, causing a condition called methemoglobinemia. It is of greatest concern for infants and pregnant women, and the effects of nitrate are often referred to as "blue baby syndrome." For more information on the health effects of nitrate, please see the California Department of Public Health website at www.cdph.ca.gov or consult your health care provider.

What is the allowable level of nitrate in drinking water?

Nitrate is a regulated drinking water contaminant in California. The maximum contaminant level is 45 milligrams per liter (mg/L) for nitrate as nitrate (NO_3) or 10 mg/L for nitrate as nitrogen (N). Public water systems are required to monitor water quality and take action to ensure water delivered to consumers meets drinking water standards for all regulated contaminants, including nitrate.

What is the Santa Clara Valley Water District doing about nitrate?

The district has undertaken numerous efforts since 1992 to define the extent and severity of nitrate, identify potential sources, reduce nitrate loading, and reduce customer exposure. Current efforts focus on the evaluation of nitrate data to assess hot spots and trends, public outreach, and collaboration with other

agencies to increase water and nutrient use efficiency. Nitrate management strategies will also be evaluated as part of regional salt and nutrient management plans, which will be developed in coordination with groundwater basin stakeholders.

Do I need to test my water for nitrate?

If your water comes from a public water supply, such as a city or water company, it is tested regularly to ensure that it meets drinking water standards. Contact the agency that provides your water bill to get more information on water quality, including nitrate.

If your water comes from a private well, you are responsible for ensuring that it is safe to drink. Because nitrate is colorless and odorless, the surest way to tell if you have nitrate in your water is to have it tested. The district encourages private wells owners to test their well water annually or more frequently if there is a change in taste, odor, or appearance.

The district recommends that any water quality samples be analyzed by a state-certified laboratory. A list of certified laboratories is available on the district website at www.valleywater.org.



continued on back...

What do the results of my water test mean?

Lab results should be interpreted carefully as nitrate can be measured as NO₃ (nitrate) or as N (nitrogen). The state drinking water standard for nitrate as NO₃ is 45 mg/L. This is equivalent to 10 mg/L for nitrate as N. Results above these levels would require action by a public drinking water system, such as blending or treatment. Although private wells are not subject to drinking water standards, these standards provide context to help interpret the results of your water test.

What can I do if my well water is high in nitrate?

If the level of nitrate in your water is higher than the drinking water standard, you may want to consider installing a treatment system or using an alternate source of water for drinking, cooking, and mixing baby formula. Boiling the water does not remove nitrate but may actually increase the nitrate concentration.

Treatment technologies to remove nitrate include reverse osmosis, anion exchange, or distillation. The California Department of Public Health maintains a list of certified residential treatment devices at www.cdph.ca.gov. Water treatment system vendors are also listed in the yellow pages under "Water Filtration & Purification Equipment." The district recommends that you ask for assurance that the system you are considering is certified to remove nitrate.

How can I guard against nitrate in my water?

Fertilizer, septic systems, and animal waste are all potential sources of nitrate contamination. The following guidelines will help to reduce the risk of nitrate contamination:

1. Ensure proper well location, construction, and maintenance: Wells should be located uphill (upgradient) and at least 100 feet away from septic tanks, leach fields, animal confinement areas, and fertilized areas. The well casing should extend above the ground and surface runoff should be directed away from the wellhead. The concrete slab on the wellhead should be intact.

2. Perform proper septic system maintenance: To help avoid system failure that can lead to contamination and the need for costly repairs, maintain your system according to the specifications and use the tips below:

- Don't drive or park heavy equipment over your septic tank, drain pipes or leach field.
- Avoid planting trees or shrubs near drain pipes or the leach field as roots can clog the lines.
- Don't dispose of hazardous chemicals or non-biodegradable materials in your toilet or drain.
- Install a lint trap on your washing machine.
- Conserve water.
- Have your septic tank inspected and pumped every three to five years (more often if you have a garbage disposal).
- If you have two leach fields, switch them every year.

3. Reduce your use of fertilizer: Use fertilizers only when necessary, and according to the manufacturer's instructions.

Contact us

For more information, contact **Vanessa De La Piedra** at **(408) 265-2607, ext. 2788**, or visit our website at www.valleywater.org and use our **Access Valley Water** customer request and information system. With three easy steps, you can use this service to find out the latest information or to submit questions, complaints or compliments directly to a district staff person.