

Nitrate & Nitrite in Drinking Water

FOR WELL OWNERS

What are Nitrate and Nitrite?

Nitrate (NO_3) and nitrite (NO_2) are forms of nitrogen in the environment, both natural and human-made. Large amounts of nitrate in drinking water can be harmful to a person's health.

What health problems can Nitrate and Nitrites cause?

👤 Blue Baby Syndrome or methemoglobinemia (met-he-mo-glo-bi-ne-mia).

🧠 This affects the blood's ability to carry oxygen.

🍼 Infants and pregnant women are at the highest risk for Blue Baby Syndrome, but everyone with the following conditions has a greater chance of being affected:

- Some genetic conditions
- Reduced stomach acidity
- Anemia
- Cardiovascular disease
- Lung disease
- Sepsis
- Glucose-6-phosphate-dehydrogenase deficiency
- and some metabolic problems.

👤 Long-term exposure may also cause thyroid disease or colon cancer in adults.

Impact on Pregnant Women and Infants:

During pregnancy, the blood's ability to carry oxygen changes. Drinking water with Nitrates increases the risk of health effects.



Babies can get blue baby syndrome from breastmilk or formula if their home's water has nitrates.



Infants have less stomach acid than adults so exposure to nitrites is even more dangerous.

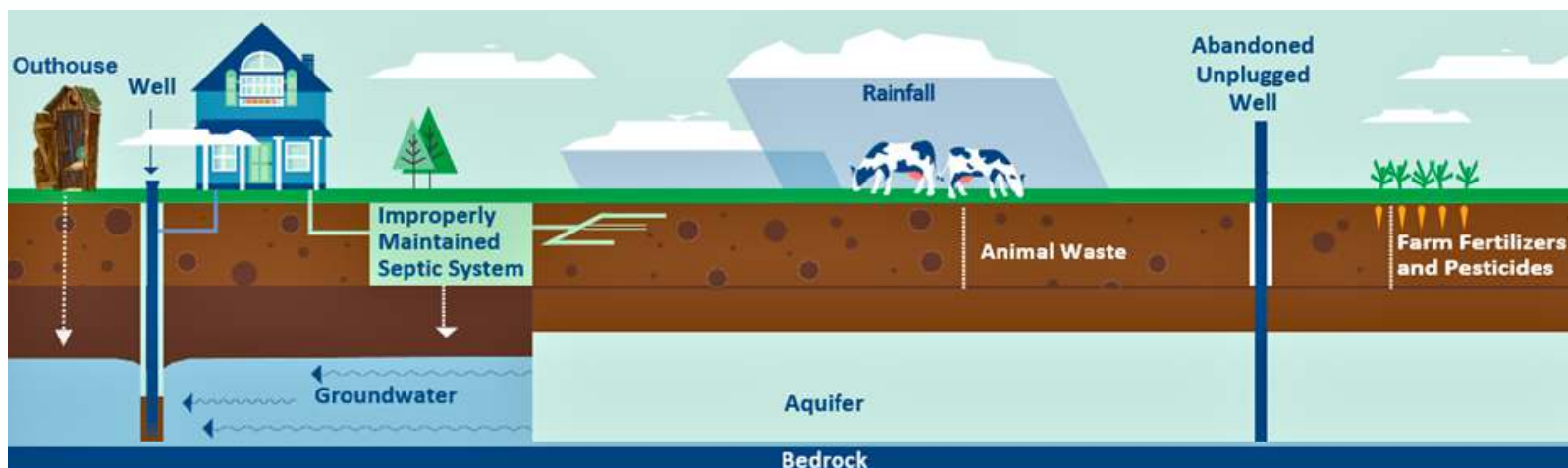


Nitrates keep oxygen out of the blood, causing blue skin to form around the eyes and mouth.

This can cause death if not addressed. Immediately stop using the water and contact your doctor or nurse if you notice these symptoms.

How do Nitrates get into your well water?

When Nitrates seep into the ground it can get into your drinking water. Nitrates in drinking water are often from fertilizer use, animal and human waste, failing septic systems, and dry or abandoned wells as shown below.



How do you know if Nitrates or Nitrites are in your well water?

Testing your well for nitrate and nitrite is the only way to know if they are in your water. They have no taste, color or odor. Because each well is placed at different depths you cannot assume your well water is safe just because your neighbors water tested below the limits of concern. Using land for pasture, farming, gardening, or woodlands can impact the level of nitrates introduced into the soil.

What do your water test results mean?

The Maximum Contaminant Level, or MCL, for nitrate is 10 milligrams per liter (mg/L). If your test result is above the MCL for nitrate, follow the recommendations below. Here is an example of laboratory test results and a description of what the test results mean.

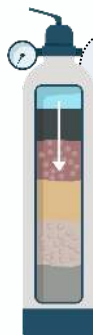
| Result Example | Result Description |
|-------------------|---|
| Not detected (ND) | The lab did not detect, or find, nitrate/nitrite in your water <u>sample</u> at or above the amount they can reliably report. |
| 2.21mg/L | If the test result listed is a number, the lab found nitrate/nitrite in your water sample. |

Recommendations:

- 🕒 Test your well at least every other year.
- 💧 If you are pregnant or planning to become pregnant test your well before using the water.
- ✓ If your nitrate level is below 10mg/L, you can safely use your water for drinking, cooking, bathing, etc.
- ✗ If your nitrate level is above 10mg/L, talk to your local health department for guidance on how to fix the problem.



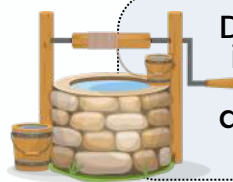
Until your well water tests below 10mg/L, use another source of water such as bottled water for drinking, cooking and preparing infant formula.



Install a reverse osmosis, ion exchange, or distillation filtration system. These systems require regular maintenance and testing to make sure they are working correctly. If the system is not installed, operated, or maintained correctly, it could let nitrate pass through the filter.



You CANNOT remove nitrate by boiling the water. Boiling will increase the amount of nitrate in the water and you will be consuming higher levels.



Drill a new well - possibly in a new location, into a different aquifer or deeper than the previous one.

For More Information or Assistance



Green Lake County Public Health

571 County Road A
Green Lake, WI 54941

Phone: 920-294-4070

Marquette County Public Health

428 Underwood Ave
Montello, WI 53949

Phone: 608-297-3135

Waushara County Public Health

230 W. Park Street
Wautoma, WI 54982

Phone: 920-787-6548