



Extension Service

Sample # _____
Date _____

Nitrate (NO₃-N)
Concentration*: _____ ppm

ppm = parts per million = mg/L
*Estimate. Use certified lab if more accuracy is needed.

What does the nitrate concentration mean?

- First, a nitrate test alone is not enough to determine if water is safe.
- Nitrate **greater than 2 ppm** usually means that the well is in the top layer of groundwater or the well has construction problems. Note that you may also have these conditions without nitrate.
- Owners of private wells can decide how much nitrate they consider safe. The limit for public drinking water supplies is 10 ppm.

Use chart as a guide to interpret your nitrate results

0 – 2 ppm	Nitrate concentration shows no or very little impact from human activities. —Nitrate level is not a concern.
2 – 4 ppm	A small impact from human activities is seen. —Not likely a health concern for most people.
4 – 7 ppm	Obvious impact from human activities. —Monitor nitrate levels & try to identify source.
7 – 10 ppm	Close to public health limit for nitrate. —Determine if suitable as your drinking water.
Greater than 10 ppm	Above public health limit for nitrate! —This water is not considered safe for infants and women who are pregnant or nursing. —May be long-term a risk for others. Learn more.

OSU EXTENSION WELL WATER PROGRAM

<http://wellwater.oregonstate.edu>

For more information contact your county Extension office.

Benton, Linn & Lane Counties: 541-737-6294
Marion & Polk Counties: 503-566-2906

FREQUENTLY ASKED QUESTIONS ABOUT NITRATE

What is nitrate?

Nitrate (NO₃⁻) is the form of nitrogen taken up by most plant roots. It is formed when dead plants and animals break down. Animal manure, compost piles, and septic systems are all sources of nitrate. Fertilizers, both chemical and natural, are also sources of nitrate.

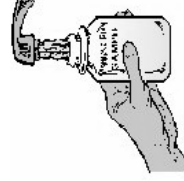
What are the health concerns with nitrate?

High levels of nitrate may cause a rare type of blue baby syndrome in **infants younger than six months**. Nitrate is not generally considered a concern for healthy people over six months old, but it has been *linked* to some forms of cancer and miscarriages. Some people have a condition that makes them especially sensitive to nitrate.

How can nitrate be removed from drinking water?

It is very difficult to remove nitrate from water. Water-softeners or filters do not remove nitrate. Neither does boiling. **Distillation, reverse osmosis**, and some **ion-exchange** systems will remove nitrate. Because these systems are fairly expensive, you may choose to use bottled water for infants and nursing or pregnant women.

What other water tests are recommended?



- **Coliform bacteria** tests are recommended for all drinking water wells regardless of nitrate results.
- If you live in an area with **arsenic**, get that test.
- If there has been a serious chemical spill, leaking tank, or backflow, test for those contaminants.

Visit the web site for more info & list of labs, or call DHS at (503)731-4317.

How does nitrate get in well water?

Nitrate dissolves very easily and moves with water as it soaks into the soil. If there is more nitrate in the soil than plants can use, the extra might end up in groundwater. If nitrate is found in well water, there is probably no protective layer of rock or clay between the surface and the groundwater being taken up by the well.

Can we clean-up the nitrate in groundwater?

Careful management of nitrate sources—like fertilizer, septic systems and manure—can reduce the amount of nitrate in groundwater over time. Contact the OSU Well Water Program or your local Extension Service office to learn about best management practices.