

Arsenic in well water: What you should know

Arsenic is a naturally occurring element found in the earth's crust. It has no color, smell or taste. As water flows through certain rock formations, arsenic can dissolve and be carried into underground aquifers and your well water. Arsenic is a health hazard.

Arsenic and your health

Long-term consumption of water with arsenic above the drinking water standard may increase the risk of health problems of the skin, circulatory system, nervous system, lungs and bladder. These health problems include some forms of cancer.

Arsenic and your well water

The only way to know if you have arsenic in your well water is to test. Contact an accredited laboratory for specific instructions on how to collect, store and send the sample. The test will cost between \$30–\$45. To find accredited labs in Oregon, visit www.healthoregon.org/wells.

Arsenic is measured in parts per billion (ppb). It can also be measured in milligrams per liter (mg/L). For example, 10 ppb is the same as 0.010 mg/L. The safe drinking water standard (also called maximum contaminant level or MCL) for arsenic is 10 ppb. If your water has arsenic levels above 10 ppb (0.010 mg/L), you should switch to bottled water or another source of safe drinking water and seek treatment options.

Interpreting your arsenic results

Arsenic result	Water use	Recommendations
10 ppb or less (0.010 mg/L or less)	SAFE for drinking, cooking and all other domestic uses.	Test water once every three years
Between 10 and 99 ppb (0.010 and 0.090 mg/L)	NOT SAFE for drinking, mixing into beverages, cooking or washing fruits and vegetables. NOT SAFE for pets to drink. SAFE for all other domestic uses, including bathing, washing dishes, doing laundry or irrigating gardens.	Do not boil water. Use bottled water (or approved water filtration system) for drinking, cooking and washing fruits and vegetables. Use bottled water for pets. Supervise children to help them avoid swallowing water while bathing, brushing teeth, etc.
Between 100 and 499 ppb (0.100 and 0.499 mg/L)	Same restrictions as above. NOT SAFE for irrigating gardens. SAFE for all other domestic uses.	If you have a treatment system, test treated water at least once a year. Test untreated water (pre-treatment unit) at least every three years.
500 ppb and higher (0.500 mg/L and higher)	NOT SAFE for any domestic uses.	Contact your local drinking water specialist.



You should test for arsenic at least once in well's lifetime.

For more information:

- Private well owners with health-related questions about arsenic in their water, well maintenance and testing recommendations, call 971-673-0977 or email domestic.wells@state.or.us.
- For questions about treatment options for your domestic well, contact the drinking water specialist at [your local health department](#) (<http://tinyurl.com/DWcontacts>).

This document can be provided upon request in an alternate format for individuals with disabilities or in a language other than English for people with limited English skills. To request this publication in another format or language, contact the Domestic Well Safety Program at 971-673-0977 or 711 for TTY.



Coliform bacteria in well water: What you should know

Coliform bacteria are part of a broad group of bacteria found in soil, water and vegetation. Some coliform, called “fecal coliform,” is also found in the intestines of humans and other warm-blooded animals. Coliform can enter your well through groundwater, surface water run-off, cracked or broken well parts, poor construction and leaking septic tanks.



You should test for coliform bacteria at least once a year.

Coliform bacteria and your health

Presence of coliform in your water could indicate the presence of fecal coliform such as *E. coli*. If fecal coliform or *E. coli* is in your water, you may have diarrhea, cramps, nausea, headaches or other symptoms. Infants, young children and people with compromised immune systems are at a higher risk.

Coliform bacteria and your well water

Testing for coliform bacteria and *E. coli* is the most common way to know if your drinking water is contaminated and unsafe to drink. Contact an accredited laboratory for specific instructions on how to collect, store and send the sample. The test will cost between \$25 and \$40. To find accredited labs in Oregon, visit www.healthoregon.org/wells.

If your water tests positive for coliform or *E. coli*, you should switch to bottled water or another source of safe drinking water and seek treatment options.

For more information:

- Private well owners with health-related questions about coliform bacteria in their water, well maintenance and testing recommendations can call 971-673-0440 or email domestic.wells@dhsosha.state.or.us.
- For questions about treatment options for your domestic well, contact the drinking water specialist at [your local health department](#) (<http://tinyurl.com/DWcontacts>).

Interpreting your coliform bacteria results

Bacteria result	Water use	Recommendation
Absent (coliform and <i>E. coli</i>)	SAFE for all uses.	Test water at least once a year.
Coliform present, <i>E. coli</i> absent	NOT SAFE for drinking, food preparation, brushing teeth and use in eyes.	If coliform bacteria is in the water, your well may easily become contaminated with more harmful bacteria, such as <i>E. coli</i> , at any time. Follow the instructions below.
Present (coliform and <i>E. coli</i>)	SAFE for other domestic uses and irrigating gardens.	Boil your water before using or use bottled water (or other safe drinking water source). Supervise children to help them avoid swallowing water while bathing, brushing teeth, etc. Although you should always wash produce, remember to wash garden produce with boiled or bottled water. Inspect your well head and well parts for repairs and contact your local drinking water specialist for treatment advice.

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Nitrate in well water: What you should know

Nitrate is a naturally occurring form of nitrogen that has no color, smell or taste. It is an essential component of living things. Although nitrate can occur naturally in groundwater, high levels are often associated with human activities. Nitrate is a major part of animal manure, human sewage waste and commercial fertilizers. Nitrate in your well water is a potential health hazard.

Nitrate and your well water

The only way to know if you have nitrate in your well water is to test. Contact an accredited laboratory for specific instructions on how to collect, store and send the sample. The test will cost between \$20 and \$40. To find accredited labs in Oregon, [visit www.healthoregon.org/wells](http://www.healthoregon.org/wells).

Nitrate is measured in parts per million (ppm) or milligrams per liter (mg/L) (1 mg/L = 1 ppm). Nitrate occurs naturally in surface water and groundwater at concentrations up to 2 mg/L and is not harmful at these levels. The safe drinking water standard (also called maximum contaminant level or MCL) for nitrate is 10 mg/L. If your water has nitrate levels above 10 mg/L, you should switch to bottled water or another source of safe drinking water and seek treatment options.

Nitrate and your health

Presence of nitrate in drinking water can cause a variety of long- and short- term effects. Infants fed baby formula mixed with nitrate-contaminated water above 10 mg/L are at risk for blue baby syndrome, a condition causing decreased ability of red blood cells to carry oxygen.¹ Breastmilk is safe for infants even if the water the mother is drinking has more than 10 mg/L nitrate.² Women who are pregnant or may become pregnant should not drink water with high nitrate. There is some evidence that drinking water with nitrate above 10 mg/L can increase the risks of spontaneous abortion (miscarriage) and certain birth defects.¹



You should test for nitrate at least once a year.

For more information:

- Private well owners with health-related questions about nitrate in their water, well testing and maintenance recommendations, call 971-673-0440 or email domestic.wells@state.or.us.
- For questions about treatment options for your domestic well, contact the drinking water specialist at [your local health department](#) (<http://tinyurl.com/DWcontacts>).

Interpreting your nitrate results

Nitrate results	Water use	Recommendation
10 mg/L (ppm) or less	SAFE for all uses. Concentrations above 4 mg/L may indicate contamination.	Test water at least once a year.
Between 11 mg/L and 40 mg/L (ppm)	NOT SAFE to drink for infants who rely on baby formula, children under 3, or women who are or may become pregnant, and to use for tooth brushing in children under 3. SAFE to drink short term, up to a year*, by people ages 3 years and older (except pregnant women). SAFE for other domestic uses, including bathing, washing dishes, laundry and garden irrigation.	Use bottled water or water from a safe source. Boiling the water does not help. It might even increase the concentration due to water loss. Supervise children to help them avoid swallowing water while bathing, brushing teeth, etc. Contact your local drinking water specialist for treatment advice.
More than 40 mg/L (ppm)	NOT SAFE for drinking. SAFE for other domestic uses, including bathing, washing dishes, laundry and garden irrigation.	Contact your local drinking water specialist for treatment advice.

*Drinking water containing over 10 mg nitrate per liter for more than one year poses risk for all. Infants and women who are pregnant or may become pregnant should not use for drinking.¹

References

1. Agency for Toxic Substances and Disease Registry (ATSDR). 2017. Toxicological profile for Nitrate and Nitrite. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.
2. Pediatric Environmental Health Specialty Units (PEHSU). 2014. Nitrates, Blue Baby Syndrome, and Drinking Water: A Factsheet for Families. Retrieved December 8, 2022, from https://ldh.la.gov/assets/oph/Center-EH/envepi/PWI/Documents/PEHSU_Nitrates_Consumer_1.20.15FINAL.pdf.

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