OREGON HEALTH AUTHORITY

State of Oregon
DEQ Department of Environmental Quality

Public Health Division
Oregon Domestic Well Safety Program

Water Treatment Systems for Nitrate in Private Wells

This resource is about treating your well water to lower high amounts of nitrate. It was created by the Oregon Health Authority (OHA) and the Oregon Department of Environmental Quality (DEQ). Nitrate is a common contaminant of domestic well water, but OHA also recommends well users test regularly for coliform bacteria and arsenic. Visit the Testing Recommendations page on OHA's Domestic Well Safety Program website (healthoregon.org/wells) for more information.

Quick Links

What is a water treatment system?

Water treatment systems help give your home cleaner and safer water. They are also called water filtration systems. Only certain kinds of water filtration systems remove nitrate. One example is a "point-of-use" reverse osmosis (RO) system. These systems are installed at a faucet inside your home (usually at the kitchen sink). Water pitchers with charcoal filters (example: BRITA pitchers) will not remove nitrate. Water softeners also will not remove nitrate.

How do I know if I need a water treatment system?

The only way to know if you need a water treatment system is by testing your well water. Be sure to use an accredited laboratory.

The "maximum contaminant level" set by the Environmental Protection Agency (EPA) is 10 milligrams of nitrate per liter of water (10 mg/L). **This means that water with nitrate at 10 mg/L or more is not safe to drink, especially for formula-fed babies and people who are pregnant.** If your test results show nitrate at or above 10 mg/L, we strongly recommend installing a water treatment system.

RO systems are only able to remove up to a certain amount of nitrate. If your drinking water has levels **over 25 mg/L**, a RO system may not be able to reduce enough nitrate for the water to be safe.

What if I have a septic system?

You can use a RO system with a septic system. However, choosing the right type of treatment system is important for avoiding serious damage. RO systems create extra wastewater, which can put stress on older septic systems. Because of this, DEQ does not recommend whole house RO systems. These are also called "point-of-entry" systems. Having a system installed at your kitchen sink (point-of-use) will create less wastewater. This will be better for your septic system.

Salt or brine is harmful to septic systems. RO systems do not add salts to your water, but water softeners do. DEQ rules do not allow discharging water softener brine to septic systems. A damaged septic system can contaminate drinking water wells along with nearby rivers, streams, or lakes.

How do I choose a treatment system if I want to install it myself?

An organization called NSF develops standards for water treatment products. Systems are tested for safety and for how well they reduce drinking water contaminants, like nitrate. A NSF seal means a product has met the standards and is certified.

When purchasing a system, it is important to pick one that has a **nitrate reduction claim** along with the NSF seal. **Not all RO systems have met the standard for reducing nitrate.** "NSF/ANSI 58" is the American National Standard for point-of-use RO systems. The box below covers how to search for a system online:

Option 1: NSF has a list of certified RO systems. Click the link and follow the steps below to search for a system:

1) In the Product Standard section, select **Reverse Osmosis Drinking Water Treatment Systems (NSF 58)**

2) Under Reduction Claims for Reverse Osmosis Drinking Water Treatment Systems, check the **Nitrate/Nitrite Reduction box**

3) Leave all other fields blank and click search

Option 2: The Water Quality Association also provides a list of systems that meet NSF standards. Click the link and follow the steps below to search for a system:

1) In the Product Category, select **ROs**

2) In Common Contaminants, select **Nitrate**

3) Leave all other fields blank and click search

How can I make sure a plumber or water treatment company installs the right kind of treatment system?

If you hire a company to install a RO system, ask them to provide the make and model of the system and check on the websites above to make sure it is listed as certified to reduce nitrate.

If you need support, you can call the OHA Domestic Well Safety Program. We would be happy to help.

How will I know if the treatment system is working?

Regular testing and maintenance are important. Follow these steps to keep your system working well:

1) **Replace filters** when needed. Your system's manual will tell you what to look for when they need to be changed. You can also work with a professional (like a plumber) to schedule filter changes. Read the next section for more information.

2) **Keep a record** of when filters and other parts are replaced.

3) **Test your treated drinking water** at least once a year. This is to make sure your system is keeping nitrate levels below 10 mg/L. Use an accredited Oregon laboratory for all testing.

How will I know when it is time to replace the filter cartridge or membrane?

Your system will have filter cartridges or a membrane, depending on which kind you choose. This is the part that reduces the nitrate in your water. How often replacements are needed will depend on the amount of water you use and the quality of your well water. We recommend choosing systems with indicators (like a small light). These systems let you know when it is time for a replacement. Some RO systems will shut off after you have used 500 gallons of water. These systems will begin working again once the filter cartridges are replaced.

Total dissolved solids (TDS) can clog membranes. TDS are minerals, salts, and metals dissolved in the water. Certified RO systems will have information about the maximum amount of TDS they can handle. If there is too much build-up, your system will not work as well as it should. TDS meters are optional tools to check levels in your drinking water. High meter readings in your treated water tell you that it may be time to change the membrane.

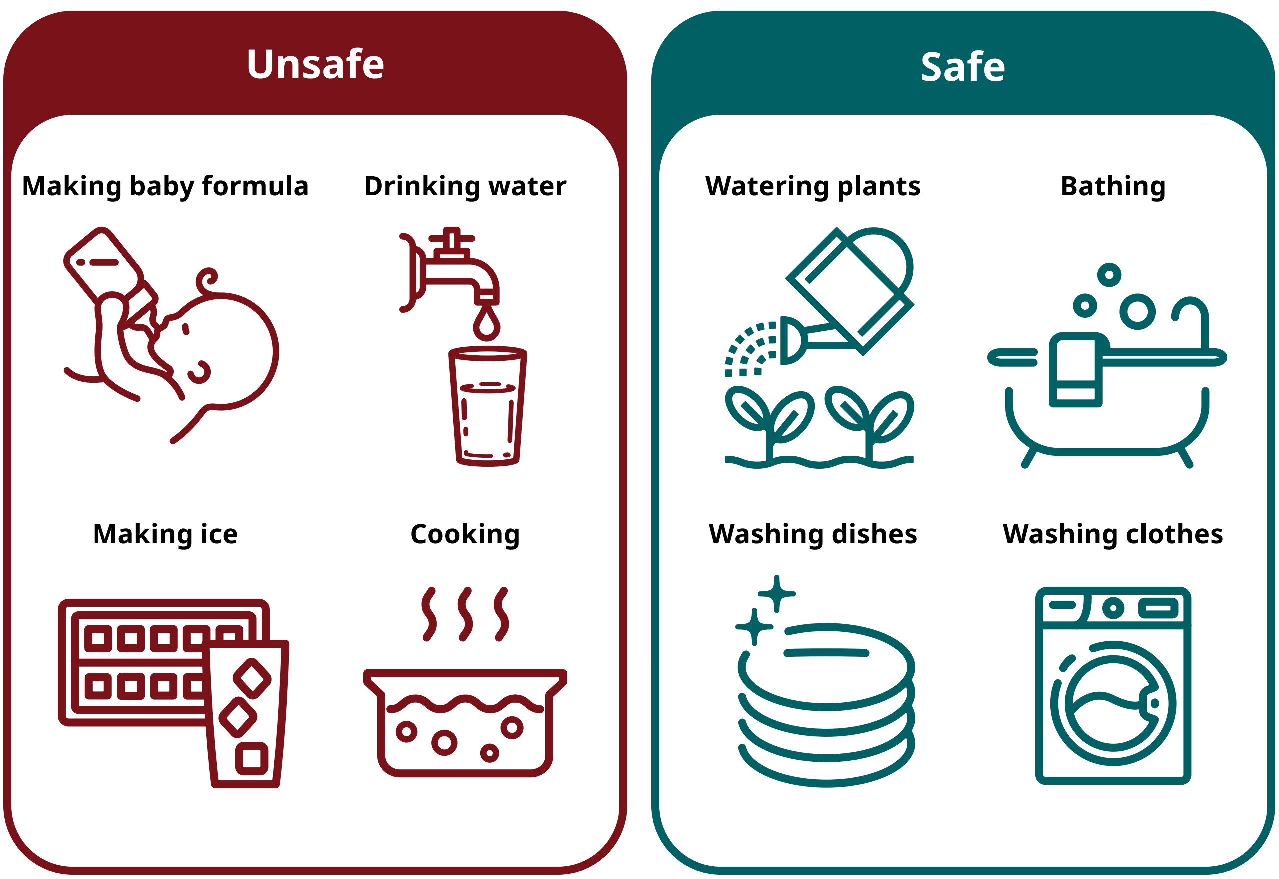
When can I use untreated water?

One way to make filter cartridges last longer is to use your treated water only for drinking and cooking. It is safe to use untreated water for:

- Washing dishes and clothes
- Bathing or showering (help children avoid swallowing water)
- Garden irrigation
- Brushing teeth (adults and children who are able to spit out water can brush their teeth and rinse. This can be safely done with nitrate levels up to 40 mg/L. Help children avoid swallowing water)

Formula-fed babies are at the greatest risk of experiencing health issues because of high amounts of nitrate. Breastmilk is safe for infants. This is true even if the water the parent is drinking has more than 10 mg/L of nitrate.

People who are pregnant or may become pregnant should not drink water with high nitrate. This goes for pregnant animals too. There is some evidence that drinking water with nitrate above 10 mg/L can increase the risks of miscarriage and certain birth defects.



More information

Visit OHA's Domestic Well Safety Program website. There are many resources available online, including a Well Owner's Handbook. You can also email Domestic.Wells@odhsoha.oregon.gov or call 541-952-9254.

For residents of Morrow and Umatilla Counties

If you use a private well in the Lower Umatilla Basin Groundwater Management Area (LUBGWMA), you can access **free well water testing**. This area includes parts of **northern Morrow County and northwest Umatilla County**.

You can apply for free testing online or by phone. Help is available for collecting your water sample.

- Apply online
- Call 541-952-9254

You may be able to receive free drinking water delivery and treatment depending on your household's nitrate test results. **Visit testmywell.oregon.gov to learn more.**

You can get this document in other languages, large print, braille or a format you prefer free of charge. Contact the Equity and Inclusion Division at oha.languageaccess@odhsoha.oregon.gov or 1-844-882-7889. We accept all relay calls.

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