

# Keeping Your Well Water Well

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***If you get your water from a private source, such as a well or spring, YOU are responsible for ensuring that your drinking water is safe. You are the regulator, inspector, maintenance manager, accountant, and consumer.***

## How safe is well water?

Generally, the groundwater pumped from wells is safe to drink. As water moves through layers of soil to reach the underground aquifer, disease-causing organisms such as bacteria and viruses are filtered out or eaten by tiny soil animals. Many harmful chemicals also are broken down in the soil before they reach the groundwater that supplies your drinking water. Exceptions occur when:

- Wells were not properly constructed or maintained.
- Wells indirectly draw water from surface water sources.
- Wells use the water table aquifer in areas where there has been a chemical spill, a large number of septic systems, or intensive agriculture.

## What should I look for to make sure my well is properly constructed and maintained?

In addition to checking the inspection points shown in Figure 1, make sure that cement or bentonite clay is sealing the outside of the casing to the earthen well hole at least 18 feet deep. A copy of your well report will provide valuable information.

## How do I know if my well water is safe to drink?

It is impractical for people with individual water systems to test for all possible contaminants. Testing every 1 to 3 years for **coliform bacteria** and **nitrate** will give a good indication of the overall condition of your water supply. If any change is noticed in the color or taste of your water, test immediately for coliform bacteria. If

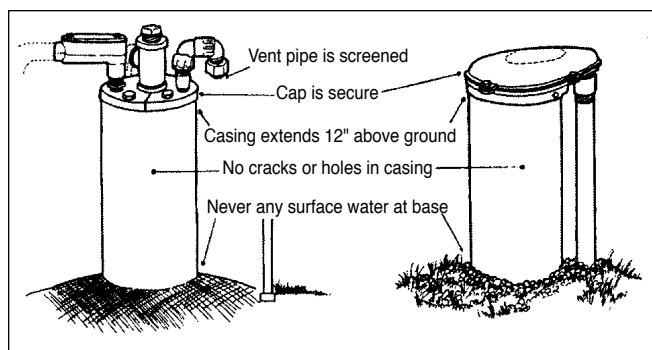


Figure 1.—Areas to inspect on your well.

you have a reason to suspect specific problems, such as a leaking underground fuel tank or a pesticide spill, test for those chemicals.

**Taste is not a good indicator of safe water.** Wonderful-tasting, sparkling-clear water can carry disease organisms or toxic chemicals, and some foul-tasting water may be safe to drink.

## What does a positive test for coliform bacteria mean?

It says that coliform bacteria were found in your water. Coliform is a group of bacteria that are found almost everywhere, but they do not occur naturally in groundwater. Coliform in your water indicates that above-ground contamination has reached your water supply. The contamination may be from surface water leaking down your well, from objects entering an open well, or from a shallow water source that is closely associated with a stream or pond. Coliform generally do not cause disease, but if they are present, other bacteria that can cause disease also may be present.

## What can I do if coliform bacteria are found in my well?

- DO NOT DRINK THE WATER unless you boil it for 3 minutes to kill the bacteria.
- Shock chlorinate your well to kill all bacteria. Retest.
- Repair your well.
- Divert surface water from the wellhead.
- If you are unable to get clean test results, treat your water using a chlorination or UV system.
- If the problem is community-wide, consider connecting to a public water system.

## What about fecal coliform or *E. coli*?

These are a subgroup of coliform bacteria that occur in the guts of warm-blooded animals, such as humans, dogs, deer, cattle, horses, and ducks. If fecal coliform or *E. coli* are in your water, there is a direct connection between your drinking water and the gut of a warm-blooded animal and all the diseases they can transmit. *Identify the source of the human or animal waste and ensure that it does not continue to reach your well.*

## What does the presence of nitrate indicate?

Nitrate is a form of nitrogen used by plants. It is found in fertilizers and animal wastes. Other forms of nitrogen in the soil also are converted to nitrate. Nitrate is carried through the soil very easily by water. If there is more nitrate in the soil than plants can use, the extra is washed downward, eventually reaching the water table. If nitrate is found in your well water, it means that:

- There is a source of extra nitrogen in the vicinity, such as agriculture, fertilized lawns, septic systems on small parcels, or animals.
- Your water is coming from the water table aquifer, and therefore may be affected easily by other contaminants leaching through the soil.

## Is water with nitrate safe to drink?

The EPA has set the maximum level of 10 mg/l or 10 ppm of nitrate for public drinking water supplies, because higher amounts of nitrate in drinking water have been associated with a type of blue baby

syndrome. Water containing less than 10 mg/l nitrate is considered safe for people of all ages to consume. If the nitrate level in your water is approaching or above 10 mg/l, infants and nursing and pregnant women should not drink the water. Information on adult health risks from nitrate in drinking water is inconclusive. An additional concern for water supplies showing nitrate is the potential for other chemical contaminants to reach the water along with the nitrate.

## What can I do if nitrate levels are elevated?

- Identify the potential sources of nitrate and find ways to manage those sources. (Check with your county office of the OSU Extension Service or your Soil and Water Conservation District office.)
- Examine your property and the surrounding area for sources of other contaminants. Test for these chemicals if you think your water may be at risk.
- Monitor your nitrate levels regularly and keep records.
- If you choose to treat your water to remove nitrate, use reverse osmosis or ion exchange. Boiling water *does not* remove nitrate, but instead will increase the concentration.

## Where can I get more information about keeping my well water well?

OSU Extension Service Well Water Program:  
<http://wellwater.oregonstate.edu/>

### Websites

- OSU Extension publications and multimedia catalog—[extension.oregonstate.edu/](http://extension.oregonstate.edu/) (lists publications available to download or purchase)
- Oregon Water Resources Department—[www.wrd.state.or.us](http://www.wrd.state.or.us)
- US Geological Survey—[www.usgs.org](http://www.usgs.org) or [water.usgs.gov/education.html](http://water.usgs.gov/education.html)
- Oregon Health Division—[www.dhs.state.or.us/dhs/publichealth/cehs/dwp](http://www.dhs.state.or.us/dhs/publichealth/cehs/dwp)

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