Centers for Disease Control and Prevention
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Well Testing

Overview

The U.S. Environmental Protection Agency's (EPA) rules that protect public drinking water systems do not apply to individual water systems, such as privately owned wells. As an individual water system owner, it is up to you to make sure that your water is safe to drink.

What to test for in your well

Several water quality indicators (WQIs) and contaminants that should be tested for in your water are listed below. A WQI test is a test that measures the presence and amount of certain germs in water. In most cases, the presence of WQIs is not the cause of sickness; however, they are easy to test for and their presence may indicate the presence of sewage and other disease-causing germs from human and/or animal feces. (Please see Water-related Diseases and Contaminants in Private Wells (/healthywater/drinking/private/wells/diseases.html) for a list of additional germs and chemicals in drinking water wells and the illnesses they cause.)

Examples of Water Quality Indicators:

Total Coliforms

Coliform bacteria are microbes found in the digestive systems of warm-blooded animals, in soil, on plants, and in surface water. These microbes typically do not make you sick; however, because microbes that do cause disease are hard to test for in the water, "total coliforms" are tested instead. If the total coliform count is high, then it is very possible that harmful germs like viruses, bacteria, and parasites might also be found in the water.

Fecal Coliforms / *Escherichia coli (E. coli)*

Fecal coliform bacteria are a specific kind of total coliform. The feces (or stool) and digestive systems of humans and warm-blooded animals contain millions of fecal coliforms. *E. coli* is part of the fecal coliform group and may be tested for by itself. Fecal coliforms and *E. coli* are usually harmless. However, a positive test may mean that feces and harmful germs have found their way into your water system. These harmful germs can cause diarrhea, dysentery, and hepatitis. It is important not to confuse the test for the common and usually harmless WQI *E. coli* with a test for the more dangerous germ *E. coli O157:H7*.

pH

The pH level tells you how acidic or basic your water is. The pH level of the water can change how your water looks and tastes. If the pH of your water is too low or too high, it could damage your pipes, cause heavy metals like lead to leak out of the pipes into the water, and eventually make you sick.

Examples of Contaminants:

Nitrate

Nitrate is naturally found in many types of food. However, high levels of nitrate in drinking water can make people sick. Nitrate in your well water can come from animal waste, private septic systems, wastewater, flooded sewers, polluted storm water runoff, fertilizers, agricultural runoff, and decaying plants. The presence of nitrate in well water also depends on the geology of the land around your well. A nitrate test is recommended for **all** wells. If the nitrate level in your water is higher than the EPA standards, you should look for other sources of water or ways to treat your water.

Volatile Organic Compounds (VOCs)

VOCs are industrial and fuel-related chemicals that may cause bad health effects at certain levels. Which VOCs to test for depends on where you live. Contact your local health or environmental department, or the EPA to find out if any VOCs are a problem in your region. Some VOCs to ask about testing for are benzene, carbon tetrachloride, toluene, trichloroethelene, and methyl tertiary butyl ether (MTBE).

Other germs or harmful chemicals that you should test for will depend on where your well is located on your property, which state you live in, and whether you live in an urban or rural area. These tests could include testing for lead, arsenic, mercury, radium, atrazine, and other pesticides. You should check with your local health or environmental department, or the EPA to find out if any of these contaminants are a problem in your region.

Please remember that if your test results say that there are germs or chemicals in your water, you should contact your local health or environmental department for guidance in interpreting the test.

When to have your well tested

At a minimum, check your well every spring to make sure there are no mechanical problems; test it once each year for total coliform bacteria, nitrates, total dissolved solids, and pH levels. If you suspect other contaminants, you should test for those as well. However, spend time identifying potential problems as these tests can be expensive. The best way to start is to consult a local expert, such as the local health department, about local contaminants of concern. You should also have your well tested if:

- There are known problems with well water in your area
- You have experienced problems near your well (i.e., flooding, land disturbances, and nearby waste disposal sites)
- You replace or repair any part of your well system
- You notice a change in water quality (i.e., taste, color, odor)

Who should test your well

State and local health or environmental departments often test for nitrates, total coliforms, fecal coliform, volatile organic compounds, and pH (see above). Health or environmental departments, or county governments should have a list of the state-certified (licensed) laboratories in your area that test for a variety of substances.

For more information, visit one of the links below or contact your local health department or the EPA Safe Drinking Water Hotline at (800) 426-4791.

- Well Water Information Based on Where You Live (http://www.epa.gov/safewater/privatewells/whereyoulive.html) (http://www.cdc.gov/Other/disclaimer.html) (United States Environmental Protection Agency)
- State Certified Drinking Water Laboratories (http://www.epa.gov/safewater/labs/index.html) (http://www.cdc.gov/Other/disclaimer.html) (United States Environmental Protection Agency)

Related Links

U.S. Environmental Protection Agency (EPA)

- Source Water Protection (http://cfpub.epa.gov/safewater/sourcewater/) (http://www.cdc.gov/Other/disclaimer.html)

Around the Web (Non-governmental)

- Your Well and Septic System (http://www.watersystemscouncil.org/VAiWebDocs/WSCDocs/340771005_Your_Septic_System.pdf) (http://www.cdc.gov/Other/disclaimer.html) (Water Systems Council) [PDF - 34KB]
- Septic Systems (http://wellowner2.org/2009/index.php?option=com_content&view=category&layout=blog&id=15&Itemid=14) (http://www.cdc.gov/Other/disclaimer.html) (National Ground Water Association)

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Centers for Disease Control and Prevention 1600 Clifton Road Atlanta, GA 30329-4027, USA
800-CDC-INFO (800-232-4636) TTY: (888) 232-6348 - Contact CDC–INFO