Should I get my water tested?

by Babu Srinivas Madabhushi
NDWC technical assistance specialist

Many contaminants that pose health risks could be present in the water you drink. Unfortunately, your senses cannot detect these contaminants, and hence the water's taste, smell, or color may not indicate the actual water quality. It is a good idea to test the water so you will know exactly what is in it—especially since your health is involved.

When and how often the water needs to be tested depends on several factors, including the source of water, any plumbing changes, any indication of contamination, and any illness in the family that affected more than one person.

Below is a list of contaminants that you can test for:

• *Coliform bacteria* (a group of microorganisms): Coliform bacteria's presence indicates that disease-causing organisms may have entered the drinking water supply. Total coliform is an indicator of septic system problems and/or poor well construction. If you have replaced old pipes or installed a new well or pump, you should always test for total coliform bacteria.

• *Cysts and Viruses*: These are usually found in surface water supplies. *Giardia* cysts can cause giardiasis, a gastrointestinal disease. Another microbial contaminant, *Cryptosporidium*, may be found in many surface water supplies. However, they may also come from the intestines of warm-blooded animals. Only a few laboratories in the U.S. can analyze your water for *Cryptosporidium.*

• *Nitrates*: Nitrate in drinking water supplies could cause a disease called "methemoglobinemia," or "blue baby" syndrome. If a new baby is expected in the family, it is a good idea to have the water tested for nitrates. If nitrate tests are positive, you must treat the water or find an alternative source; however, boiling the water will increase the concentration of nitrates.

• *Lead:* Lead is known to leach from soldered joints in copper pipe networks. Lead poses greater risk to small children than to adults.

• *Pesticides:* Testing for pesticides requires more specialized laboratory equipment and training; it is more complex than testing for minerals or bacteria. If you observe pesticide contamination of your well, contact your state or local health officials to determine whether any contamination problems have been reported in your area. If contamination is confirmed in your area,

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Table 1

Testing for Suspected Contamination

If you observe this:	You should test for these:
Agriculture	Nitrates, pesticides, coliform
Coal or other mining	Metals, pH, corrosion
Gas and oil drilling	Total dissolved solids, chlorides, sodium, barium, lead, strontium, pH, corrosion.
Gasoline odor, or a nearby gas station	Volatile organic compounds
Landfills, junkyard, dry cleaning operation	Total dissolved solids, pH, volatile organic compounds, sulfate, chlorides, metals
Road salt	Total dissolved solids, sulfates, chlorides
Salty taste, seawater, or brackish* water	Total dissolved solids, sulfates, chlorides
Septic systems	Coliform, nitrates, surfactants

** Brackish water is groundwater contaminated by salt water, but less salty than sea water.*

Source: The Ohio State University

Sometimes water testing may be expensive, but it is the only way to make sure that the water is safe to drink. People using public water supplies pay for water testing as a part of their water bill. But private well owners must pay for water testing out of their own pockets.

What should I test for?

Though it is possible, it is unnecessary and expensive to test for ALL contaminants. It is wiser to test for certain contamination indicators on a regular basis. If you have concerns about well water contamination, contact your local health department for recommendations. They may handle certain tests, such as bacterial testing. A partial chemical test that detects magnesium, calcium, sodium, iron, fluoride, chloride, and nitrate is usually affordable. Tests for chemicals, such as solvents, pesticides, and petroleum products, can be very expensive since each contaminant requires a separate test.

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you should contact local health officials for advice on the necessary action to take and the frequency of testing.

• *Others:* If you reside in an industrial neighborhood, your well water should be tested for toxic metals, such as mercury, arsenic, and nickel. However, these tests are expensive. So unless you suspect that your water is contaminated, routine annual testing for these metals may not be practical.

How often should I test my water?

Currently, there are no laws that govern how often private wells should be tested. You may test your well water once a year for mineral content, lead, and radon, and once or twice a year for bacteria and nitrate. If you become aware of any contamination or any potential sources of pollution in the vicinity of your well, you should have your water tested more frequently. If the taste, odor, or color of your water changes, or if your family experiences any serious, ongoing gastrointestinal illnesses, you should get your water tested.

Shallow wells are particularly vulnerable to bacterial contamination and need more frequent testing. But other types of wells with no history of problems may not need to be tested as often. You should test for sodium, sulfates, iron, manganese, and lead every three years unless there are specific problems with any of these contaminants.

If you are considering buying a home, it is best to assess the water quality in that area by testing the water for coliform, bacteria, nitrate, lead, radon, iron, hardness, pH, sulfate, total dissolved solids, and corrosion.

Should I test the water from my own well?

If you own a private well, you are the only person who is responsible for the water your family consumes. Although there are a few requirements for water quality testing and monitoring of private wells, it is recommended that all well owners have their water tested periodically. The frequency of water testing and the contaminants to test for depend upon factors, such as the potential sources of pollution and the type of well.

Even if the current water quality is good, periodic testing might help the owner in tackling future problems. If any of the tests reveal positive results, it is advised that the owner should contact the state health department or the U.S. Environmental Protection Agency's (EPA) Safe Drinking Water Hotline (800) 426-4791).

Table 2

Symptoms and Testing Schedule

Symptoms	Recommended Test	Frequency
Gastrointestinal disease	Coliform	Annual
Lead contamination	Lead, copper, pH	Immediate
Radon in indoor air	Radon	Immediate
Scaly residues, no lather with soaps	Hardness	3 years
Softener required	Iron, manganese	3 years
Stains on fixtures	Iron, copper, manganese	3 years
Bad taste or odor	Hydrogen sulfide, corrosion, metals	3 years
Corrosion of pipes, plumbing	Corrosion, pH, lead	3 years
Rapid wear of equipment	Corrosion, pH	3 years

Source: U.S. Environmental Protection Agency

Should I be concerned about public water supplies, too?

EPA requires that all public water systems test for contamination and report to state or federal authorities. You can obtain the water quality details of your public drinking water supply from your local public water system. Consumers should check to see if their concentrations/quantities are below the EPA's maximum allowable limits. If you still want to get the water tested, you should contact your state health department for the names of state-certified independent laboratories that can test for common contaminants. The costs of these tests range from $50 to $150.

Will EPA test my water?

EPA does not test individual homes and cannot recommend specific labs to test your drinking water. The only way to determine whether the water you are drinking has certain harmful pollutants is to have it tested by an independent lab. However, states are required to certify

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water-testing labs. It is always better to choose an EPA- or state-certified laboratory to ensure that the tests are performed properly.

Where can I have my water tested?

You can find an independent testing lab by contacting your water utility or the state health department. Private testing laboratories can also be found in the *Yellow Pages*. You can obtain more information about water quality and testing in your state or area from your local or state department of public health. You can call your state certification officer to get a list of certified water testing labs in your state.

Before you send water samples for testing, contact a state lab certification officer to make sure that the state health department has certified the lab. The water samples can also be tested at county and state health laboratories, or local health departments.

Can I get my water tested by any company that offers water testing?

Not all the companies that offer water testing are reliable. They might have some ulterior motives, such as marketing their own treatment units. The Federal Trade Commission provides certain suggestions to consumers who want to get their water tested. They include:

- avoid free water tests, which might be a part of a promotion;
- get the water tested at a private independent laboratory; and
- make sure that the lab is certified to conduct water testing.

How do I collect samples?

Proper collection and handling of a water sample is very important for getting accurate test results. Most of the certified laboratories supply their own sample containers. The samples should be collected in those containers according to the laboratory's instructions. For example, you should only use the sterile containers the lab provides for bacterial analysis and use a fixing compound while collecting samples for chemical analysis. Sampling and handling requirements vary with the water's quality and the contaminant that is tested for.

How do I interpret the test data?

After performing tests on a water sample, the lab will send a report that contains a list of contaminants tested, their concentrations, and highlight any problem contaminants. The laboratory may also include the drinking water standards to help you interpret the results. You should retain your copy of the report as a future reference.

An important feature of the report is the units used to measure the contaminant level in the water. Milligrams per liter (mg/l) or one part per million (ppm) of water is typically used for contaminants, such as metals and nitrates. Some contaminants can be reported in parts per billion (ppb). Radioactive contaminants can be reported in terms of picocurries per liter. Other parameters like pH, hardness, and turbidity are reported in units specific to the test.

Laboratory personnel may indicate some contaminants that are present at levels above EPA or state drinking water standards. If the test results indicate any contaminants, you should ask the laboratory personnel to clearly explain the test results. They may also be able to help you determine the contamination source. Notify your local health department if contamination is confirmed. They can help you take the necessary action to treat your water supply as well as supply you with information about contaminants found in your well water and their health implications.

References:

Mancl, K. 1993. *Water Testing*, Ohio Cooperative Extension Service of Ohio State University

U.S. EPA 1991. *Fact Sheet on Home Water Testing*, Office of Water, EPA 570/9-91-500.

Water Testing Scams, Facts for Consumers, Federal Trade Commission

Water FAQ Web site: siouxian.com/water/faq.html#test

Tice, M. 1998. "Water Testing, Top 10 Dealer FAQs," *Water Conditioning & Purification*, pp: 60-63.

NDWC Offers Well Water Testing Products

Private well owners are often frustrated about well water testing. The National Drinking Water Clearinghouse offers several products that private well owners may want to review before having their water tested. For ordering information, see back cover or call (800) 624-8301 or (304) 293-4191 to request any of the following products.

Water Testing
Item #DWBLPE58
This 1993 booklet explains water testing and treatment for households that depend on their own well, spring, or cistern for drinking water. Provided is information about choosing water tests, collecting water samples, and receiving test results.

Water Testing Scams
Item #DWBLPE97
This fact sheet offers suggestions to consider before having a water sample tested. There are many sales people who use scare tactics and fraudulent methods to market their water testing or treatment devices.

Bacteria and Water Wells
Item #DWPKPE78
This 1997 document provides information and guidance about what steps private well owners should take if bacteria are present in a water well. It also gives the necessary background information about bacteria, treatment technologies, and well water protection strategies. A list of sources for additional information is included.