Is It Safe to Drink?

This booklet series describes what private well owners can do to maintain clean, safe drinking water from their well to protect their health. This is booklet 1 in a series of 6.

Your Well Water series titles:

1 Is It Safe to Drink?
2 Fixing Bacterial Quality
3 Understanding Chemical Quality
4 Water Treatment Options
5 Maintaining Your Water Treatment
6 Real Estate Transactions

2009

Safe drinking water is a basic need. Water is basic to life. When your home is supplied with water from a well on your property, you are responsible for making sure that the water is safe.

Water that is safe to drink is called potable.

Physical quality – watch for changes

What we notice about water are its physical qualities – what we can see, smell, and taste. We want our water to be clear, colourless, odourless, and tasteless. But these alone do not give us enough information to know that our water is safe.

Indeed, water may be discoloured or have an unpleasant smell or taste and yet still be safe to drink. On the other hand, water may seem clear and clean, but have dangerous bacteria living in it or harmful chemicals dissolved in it.

You need information about bacterial quality and chemical quality before you can be sure that your water is safe. These require testing at a laboratory. However, you should also watch for changes in the physical quality of the water. If your water becomes cloudy (turbid) or develops a bad smell or taste, you should investigate. Check your wellhead, check your property, and test for bacterial and chemical quality through an accredited laboratory.

Bacterial quality – test every 6 months

We must know the water's bacterial quality to know if it is safe. Bacteria are living creatures too small to be seen by the human eye. You must have your water tested at a laboratory to know if harmful bacteria are present.

We recommend that you test for total coliforms and *E. coli* every six months. Total coliforms are a group of bacteria found in soil and in the intestines of warm-blooded animals, including humans. *E. coli* are found only in the intestines of humans and other warm-blooded animals.

The tests detect sewage or soil contamination in water. The test will find either that bacteria is present or absent.

The presence of *E. coli* indicates that the water source or the system has been contaminated by sewage and the water is unsafe to drink. The presence of total coliform in the absence of *E. coli* means either that the well is prone to surface water infiltration and therefore is at risk of sewage contamination or that a biofilm has developed within the well or plumbing system. You need the results of both *E. coli* and total coliform tests to help find the source of the problem.

If your water quality result indicates the presence of *E. coli* or total coliform, see *Your Well Water 2 – Fixing bacterial quality* for more information.

Chemical quality – test every 2 years

Water from a well is known as groundwater. It comes from under the ground where it moves through rock and soil. Groundwater always has dissolved minerals. The quality of your well water depends in part on the kinds of rock and minerals in your area and how long the water has been in contact with them. Some dissolved minerals can make water unsafe if too much is dissolved in the water. Some are beneficial in small amounts. Safe levels are set by the federal government and described in the document *Guidelines for Canadian Drinking Water Quality*.

Groundwater is constantly being replenished by surface water seeping into the ground. Chemicals that we use on our properties and in nearby industries also seep into the ground. So the quality of your well water also depends on what is happening above ground in your area. Chemicals from these human activities can contaminate groundwater.

We must know what is dissolved in the water to know if it is safe. Chemical quality tests include tests for specific minerals and metals. At minimum, you should test for arsenic, fluoride, lead, nitrate/nitrite, and uranium. These may cause health problems. See *Your Well Water 3 – Understanding Chemical Quality* for a list of other minerals and metals that we recommend you test for.

You should also test for characteristics of water, such as turbidity, pH levels, and hardness. These can alert you to potential problems with your water or water system. Some characteristics of water, such as low pH levels, can cause pipes to corrode, which may cause lead to leach from pipes into your water.

If you suspect that your water may be contaminated from local human activity, such as farming, waste disposal, or underground gas tanks, then test for the presence of volatile organic compounds (VOCs), pesticides, or other trace organic chemicals.

See *Your Well Water 3 – Understanding Chemical Quality* for more information.

Finding a testing lab

See our website for a list of accredited labs in the province. Note that some labs test for bacterial quality only. However, some of these labs may forward samples to the QE II Environmental Services Laboratory in Halifax for chemical quality tests.

www.gov.ns.ca/nse/water/waterlabs.asp

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This information has been prepared by Nova Scotia Environment.
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