



Is My Drinking Water Safe?

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An abstract graphic consisting of several rows of rectangular blocks in various shades of green and white, arranged in a stepped, staircase-like pattern that recedes into the distance.

WHITE PAPER

Is My Drinking Water Safe?



When we were growing up, we were told in school that Canada contains more than half the world's fresh water. This resource, it was said, would sustain this country and guarantee us a supply of fresh, clean drinking water for centuries to come.

But then tragedy struck Walkerton, Ontario, when their water became contaminated with E. coli bacteria; followed by the cryptosporidiosis outbreak in North Battleford, Saskatchewan. Both events caused thousands of people to become ill and several residents of Walkerton died as a result of drinking contaminated water. Canadians in every region began to question the safety of their water supply, no longer taking its quality for granted.

As the manager of the Saskatchewan Research Council's Environmental Analytical Laboratories, I have taken many phone calls over the years from people with questions about their drinking water. While we provide water testing services to large cities and companies, the majority of the calls we receive come from owners of private wells where the responsibility for water safety and quality falls on their shoulders.

As you read further, you will find common reasons for well and home owners to test water, advice on how to test water and some suggestions on what do to if tests show that your water is not safe.

SRC Environmental Analytical Laboratories performs a wide range of water quality tests for both groundwater and surface water.

Five reasons to test your water

1. **You have constructed a new well.** Because wells are privately owned, the responsibility for water safety and quality is strictly the well owner's. There are no legal testing requirements. However, when a new well is constructed, the water should be tested before use. It is advisable to recheck the well annually or after modifying it in any way. The well water should also be tested when any change in taste, odour or appearance is noticed.

2. **You require a mortgage for a property with an independent water source.** The Canada Mortgage and Housing Corporation (CMHC) requires that the water supply be tested for nitrates and coliform before it will support the mortgage of any property using a private source of water.

Saskatchewan's groundwater is notorious for being high in dissolved minerals. Nitrates may occur naturally and are acceptable up to 45 mg/litre. There is no acceptable level for coliform.

While groundwater does not naturally contain coliform bacteria, there are reasons why a well can become contaminated. It may not have a tight cap, which allows insects or other vermin that carry bacteria to enter the well. There could also be a source of contamination, such as a septic system too close to the well, or the well casing could allow surface water to seep in and contaminate the groundwater.

3. **Your water has a rotten egg odour.** A rotten egg odour (hydrogen sulfide) indicates the presence of iron or sulfur bacteria. You may also notice a red slime in the toilet tank. Although these organisms do not pose a health risk, their presence makes the water unpalatable and can corrode plumbing equipment and clog screens and pipes in the well. Disinfecting the well and water system using shock chlorination usually eliminates the problem. This

bacteria tends to grow back, so be prepared to repeat the treatment from time to time.

4. **Your water is discoloured.** Discolouration of water is usually caused by the presence of iron and/or manganese. Because they are not detrimental to your health, guidelines are set based on taste and appearance. When the level of iron exceeds the guideline, you may experience red, brown or yellow staining of laundry, dishes and fixtures.

Manganese acts similarly, but causes a brown-black stain. The water may have an offensive taste and odour and your water system piping and fixtures can become restricted or clogged. Treatment depends on factors such as the concentration and form of iron and manganese in the water.

5. **You notice that plumbing pipes are corroded or show signs of mineral and lead build-up.** Lead can be a concern. It is rarely found in source water above the maximum acceptable concentration of 10 ppb (parts per billion), but it can enter tap water through corrosion of plumbing materials. Many older homes used lead pipes in their plumbing systems. The insides of most of these pipes are completely coated with a mineral scale build-up; therefore, the water does not come in contact with the lead. Copper pipes have replaced lead pipes but until the late 1980s, lead soldering was often used to join the copper pipes. Household faucets may also be a source of concern because they can contain brass which is three to eight per cent lead. If you have any doubt about whether or not your water contains lead, you should have it tested.

How do I test my water?

Drinking water testing should be carried out by an accredited laboratory. SRC Environmental Analytical Laboratories is an accredited facility that performs the required specific tests. Contact the lab for further information on how to take a sample. Sampling bottles are supplied at no charge.

What if my water isn't safe?

If your water tests positive for coliform bacteria, the water should be boiled before use. Fix the cause of the contamination and disinfect the well and distribution system. Shock chlorination, the procedure used for disinfecting a well, uses water containing chlorine at concentrations many times greater than the amount of chlorine found in 'city water'. Once the system is disinfected and flushed, the water should be retested to confirm that there are no coliforms present.

If your water exceeds the safe level for nitrates, you should talk to a water treatment specialist for advice on treatment systems. The most common and easy-to-use-technology for nitrate removal is reverse osmosis.



Contact Us to Test Your Water

If you have questions about the quality and safety of your water or would like more information on SRC Environmental Analytical Laboratories' services, please go to www.src.sk.ca/analytical, send us an email at analytical@src.sk.ca or call 306-933-6932 (toll-free 1-800-240-8808).

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Brenda began employment with the Environmental Analytical Laboratories at the Saskatchewan Research Council in 1975 after graduating from the Chemical Technology program at SIAST. She earned a Bachelor of Science degree in 1983 from the University of Saskatchewan and became supervisor of SRC's Inorganics group. In 2005, she became Manager of the Environmental Analytical Laboratories.



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