

Well water testing

Is water from my well safe to drink?

There are 2 categories of wells for drinking water: those that service drinking water supply systems under permit by the local health authority (2 or more connections) and private wells (those serving only 1 single family dwelling). If you do not know what type of well you are connected to please contact your local health authority.

If you own a well that supplies water to 2 or more connections, you are a water supplier and have responsibilities under the *Drinking Water Protection Act* (https://bclaws.gov.bc.ca/civix/document/id/complete/stareg/01009_01). You should contact your local health authority for further information (www2.gov.bc.ca/gov/content/health/about-bc-s-health-care-system/partners/health-authorities/regional-health-authorities).

If you are the owner of a well that only supplies water to one connection (eg. a private household) you are responsible for testing your water to determine if it is safe for you and your family to drink. Water samples should be sent to qualified laboratory for testing (see <https://directory.cala.ca/> for a list of qualified labs).

Unsafe drinking water can make you sick. Even if you are not sick right now, your well water may not be safe. Some contaminants found in well water can cause long-term health problems.

Just because your neighbour's well has been tested and found to be safe, this doesn't mean yours is too. The safety of your well water depends on surface and underground geology, the depth and construction of the well, and other factors.

Be aware that test results will only tell you about the water quality on the day you test it. Well water quality can change over time. Weather, seasons, drought, floods or other events may cause contamination. It's recommended you re-test after such events to see if water quality has become a problem. You need to test your well water on a regular basis, and keep all testing results for future reference.

Why might my well water be unsafe?

Your well water may taste and look fine, however, there can be many harmful substances that you cannot taste, see or smell, such as bacteria and chemicals that could

affect your health. These can enter well water both from the surface and ground, and can be from natural sources or human activities. For example, nearby farming and agricultural activities or septic systems, if built or maintained improperly, could lead to increased nitrates and fertilizers seeping into soil and contaminating your well water. Poor well maintenance may also cause contamination of your well water.

For more information on water quality and guidelines, see the Guidelines for Canadian Drinking Water Quality at <https://canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/water-quality/guidelines-canadian-drinking-water-quality-summary-table.html>.

What do I test my well water for?

There are 2 categories of testing for well water:

1. Bacteriological testing
2. Chemical testing

Bacteriological testing

Bacteriological testing should be done on private wells at least once per year or immediately if you notice a change in clarity, colour or taste. 2 common types of bacteria found in water are: Total Coliforms and *E.coli*.

Total coliforms

Total coliforms include bacteria found in soil, surface water, and the intestinal tracts of animals. Finding total coliforms in a well may not mean that the water is unsafe to drink, but does indicate:

- The well may require improved sanitation or physical upgrades
- The well may be subject to surface contamination

Escherichia coli (*E. coli*)

E. coli originates in the intestinal tracts of animals. The presence of *E. coli* in your well water may mean fecal matter has entered the well. Fecal organisms cause stomach and intestinal illnesses, including diarrhea and nausea, and may even lead to death. Babies, children, elderly or people with immune deficiencies or other illnesses may be affected more severely.

E. coli in your drinking water is an immediate health concern and the water is not safe to drink.

Chemical testing

Chemical testing should be done when well construction is complete and continued annually. The most common chemicals of concern in B.C. groundwater are: nitrates, fluoride and metals such as arsenic, lead, copper and manganese.

Nitrates

High levels of nitrates have been found in a number of wells throughout B.C. This usually occurs in areas where groundwater may be contaminated by surface activities such as agriculture or farming. For more information, see [HealthLinkBC File #05a Nitrate in well water](#).

Metals

Since well water comes from underground sources, different metals in the soil and rock can leach into the water. Some metals, such as arsenic can have serious and long-term health effects if they are consumed in high amounts. Other metals such as lead and copper can leach out of pipes and soldered joints. For some, but not all metals, you may notice taste, odour, or staining of fixtures.

Other chemicals

Chemicals found in well water can come from human activity and natural sources. Most naturally occurring chemicals are found in small quantities that are little or no risk to human health. For example, low levels of fluoride have dental benefits, but high levels can have a negative impact on the development of healthy bones and teeth in children. For more information see [HealthLinkBC File #28 Water fluoridation facts](#).

If you live in an agricultural or farm area, you may also want to test for pesticides. If you live near a gas station, industrial area, or there is a history of chemical spills or known contaminants in your community, consider testing for a broader combination of chemicals.

How do I get my well water tested?

Your water should be tested by a qualified laboratory (<https://directory.cala.ca/>). For other questions, or to report possible contaminants in your area, contact your health authority.

When testing your water supply the lab will provide you the necessary sample bottles and instructions. Read the instructions carefully and follow them exactly. The lab (or your local health authority) may provide information

to help you understand the test results and determine if there is a problem with the water.

What if the tests show possible contamination?

If contamination is detected then mitigation will be required. The type and urgency of the mitigation will depend on the type and severity of contamination. Contact your health authority if your test results are above the guideline limits, or to get advice on mitigation strategies.

Poor bacteriological test results are an immediate health concern. Where *E. coli* is found, you must treat your drinking water before drinking it, using it for food preparation, or brushing your teeth. For short term treatment options such as boiling water, see [HealthLinkBC File #49b Disinfecting drinking water](#). You should investigate the source of all *E. coli* and if they cannot be corrected, find a long term treatment solution for your water.

For more information on disinfecting your well, consult your health authority or see 'Water Well Disinfection: Using the Simple Chlorination Method' at www2.gov.bc.ca/assets/gov/environment/air-land-water/water/water-wells/bc_gov_5402_water_well_disinfection_webbrochure.pdf (PDF 3.42 MB).

What is long term treatment?

There are many types of water treatment devices that remove contaminants. Your local health authority can provide some general advice on your treatment options and a water treatment supply company can provide solutions for your specific water quality problem. Using the wrong device may create new health concerns.

The final selection and costs of treatment devices and their maintenance, follow-up sampling, and ongoing testing are the responsibility of the private well owner.

For more information on well water, visit the Ministry of Environment – Water Protection & Sustainability Branch at www2.gov.bc.ca/gov/content/environment/air-land-water/water/groundwater-wells-aquifers or contact your health authority.