



Sustainable Development

Office of Drinking Water

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Private Well Water Systems

- Assessing Bacterial Contamination Risk -

Private well owners are responsible for ensuring the safety of the drinking water from their own well. Bacteria is routinely found in wells throughout the province and across the country. At any given time, approximately 40 percent of private wells test positive for total coliform bacteria and roughly 5 percent test positive for *E.coli*. Experience indicates this is due primarily to construction and maintenance issues associated the well or nearby on-site septic systems, not widespread aquifer contamination. For this reason, the province is no longer reporting boil water advisories on communities served by private wells.

Regular maintenance and bacteria testing is needed to ensure any issues are identified and addressed quickly. Where water quality concerns exist, homeowners should take appropriate measures to rectify maintenance issues, eliminate sources of contamination, install certified treatment equipment, or use an alternate safe source of drinking water (ex: connect to a municipal water supply or purchase bottled water).

Assessing Risks to Your Well

There are multiple factors to consider when assessing the risk of bacterial contamination to a well. All well owners share some inherent risk. The more risk associated with your well, the greater the likelihood of bacterial contamination. Risk factors include but are not limited to:

- Poor well maintenance (loose well cap, cracked or corroded casing, poor drainage around the well, insufficient well casing stickup, voids in the ground around the well casing, etc.)
- Pit style wells, where access to the well head is below the frost line, at the bottom of a large diameter pit or culvert
- Shallow wells (less than 15m or 50ft)
- Sand point wells
- Large diameter wells (well casing diameter is greater than 75cm or 30in) with culvert style or concrete ring casing
- Aquifer type (surface sand and gravel, or shallow bedrock with thin or highly permeable soil cover)
- Nearby abandoned or poorly maintained wells
- Nearby failing onsite septic systems

In communities served by private wells and onsite septic systems, neighbouring properties are relatively close together and may influence each other, increasing the risks to well water quality. The risks vary with the aquifer type, and age and construction of local wells and septic systems.

For information on how to reduce the risk of contamination, please see Provincial Well Water Fact Sheet #1 "[How to Reduce the Risk of Well Water Contamination](http://www.gov.mb.ca/waterstewardship/odw/public-info/fact_sheets/index.html)" available at: www.gov.mb.ca/waterstewardship/odw/public-info/fact_sheets/index.html.

Bacteria Testing Recommendations

Routine bacteria testing of your well is needed to assist in assessing risk. In Manitoba, small regulated water systems using secure low risk groundwater sources are required to test quarterly. More frequent testing and/or installation of treatment equipment is required if bacteria is found in the water or other risk factors are present. The Province of Manitoba offers private water system owners a once-a-year subsidy for bacteriological (total coliform and *E. coli*) testing of their drinking water through Horizon Lab. If the first sample result indicates a water quality concern (total coliforms greater than 10 and/or *E. coli* greater than 0), homeowners receive a coupon from the lab for one re-sample free of charge. For more information on the subsidy program, visit:

www.gov.mb.ca/waterstewardship/odw/public-info/water-well/index.html

The best time to sample for bacteria is following a period of significant run-off (ex: following the spring snow melt or a heavy rain storm). Well owners should also sample if there is a change in taste, smell, clarity or colour of the water, and following any maintenance of the system.

If Bacteria is Found in Your Drinking Water

Where bacteriological testing indicates water is not safe to drink, private well owners should boil all water used for:

- Drinking
- Making infant formula or juice
- Mixing with food
- Washing fruits and vegetables
- Brushing teeth
- Soaking false teeth

For more information, see Boil Water Advisory Fact Sheet #2, "[Boil Water Advisory for Private Wells](http://www.gov.mb.ca/waterstewardship/drinking_water/boil_water_advisory_factsheet.html)" available at: www.gov.mb.ca/waterstewardship/drinking_water/boil_water_advisory_factsheet.html.

Note that boiling water will not remove chemicals such as trace elements or nitrate.

Other Testing Recommendations

The province also recommends private well owners test for:

- Nitrate every 3 to 5 years or if someone is pregnant, nursing, planning a pregnancy, or there is an infant less than a year old drinking the water.
- Trace elements (arsenic, barium, boron, fluoride and uranium) at least once to ensure there are no concerns. In general, well water should be tested for trace elements every three to five years in areas known to have elevated levels. More frequent testing is recommended if levels are at or near the drinking water quality standard.

Information on nitrate and trace elements is available at:

www.gov.mb.ca/waterstewardship/odw/public-info/fact_sheets/index.html

Installing Treatment Equipment

A treatment device may be installed at the kitchen faucet (point-of-use) or where the water enters the home (point-of-entry).

The treatment device should be certified to meet the NSF International (NSF)/American National Standards Institute (ANSI) standard for:

- Ultraviolet Microbiological Water Treatment Systems (NSF 55)
- Reverse Osmosis Drinking Water Treatment Systems (NSF 58)
- Drinking Water Treatment Units- Health Effects (NSF 53)
- Drinking Water Distillation Systems (NSF 62)

Accredited certification organizations include:

- NSF
- Canadian Standards Association (CSA)
- Underwriters Laboratories Incorporated (UL)
- the Quality Auditing Institute
- the International Association of Plumbing and Mechanical Officials (IAPMO)
- the Water Quality Association (WQA)

Certified devices are tested to ensure the safety of materials used in the devices and to ensure they perform as claimed.

Quotes should be obtained from reputable water treatment equipment suppliers. The supplier should provide information on maintenance requirements and costs.

More Information

For more information on well water treatment, testing recommendations, or assistance with understanding test results, contact the Private Well, Education and Outreach Coordinator at 204-948-1351.

For other health-related questions contact Health Links at 204-788-8200 (in Winnipeg) or toll-free at 1-888-315-9257.

For information on certification of residential water treatment devices, visit: www.nsf.org.