

Tips for Testing your Well Water

www.gov.ns.ca/enla/welltips.asp

Why Should I Test?

Water for drinking, cooking and other domestic uses should be of good quality, that is, free from organisms that may cause disease and from chemical substances and radioactive matter that may pose a health risk. The water should be aesthetically appealing, which means that it should be free from objectionable colour, odour, and taste. Other considerations such as corrosiveness, encrustation or excessive soap consumption due to hardness are also important in terms of public acceptance.

You, the homeowner, should have your water tested to determine its quality. Harmful bacteria or chemicals can be present in drinking water that tastes, looks, and smells acceptable. Some of the potential threats to groundwater quality in Nova Scotia include petroleum products, sea water intrusion, de-icing salt, sewage disposal systems, animal wastes, landfills, and pesticides.

A complete bacterial and chemical water quality analysis allows the following:

- an assessment of any possible contaminants, such as bacteria and ammonia from sewage, chlorides from sea water intrusion, and arsenic and uranium from natural minerals
- an assessment of potential aesthetic problems, such as hardness or staining
- a comparison of all parameters to the Guidelines for Canadian Drinking Water Quality
- validation of the accuracy of the analysis

The only way you can be sure your water supply is safe is to have it tested

What is Bacterial Quality?

Bacterial quality is usually assessed by a coliform test. Coliform are a group of bacteria found in soil and in large numbers in the intestines of warm blooded animals, including man. Experience has established the significance of coliform group density as a measure of the degree of pollution and of sanitary quality.

Before you use your well water, you should collect a sample for bacterial analysis. Make sure the results are acceptable before drinking it. If necessary, use bottled water until you receive the results. After two to four weeks of regular household use, recheck the bacterial quality. Remember, disinfecting an improperly located or constructed well will not ensure its safety!

How Do I Test for Bacteria?

Container

- Use a sterilized bottle with added sodium thiosulfate preservative, available from your local hospital or water quality laboratory.
- Label the bottle with your name, address, location of your water source, date, and time.
- Make sure all information on the requisition is filled out completely.

Flush the System

- If the sample is to be taken from a tap or pump, allow the water to run 10 minutes before collection, if possible. This will help to remove stagnant water from the distribution system.

Collect the Sample

- Do NOT rinse the bottle.
- Be careful NOT TO TOUCH the inside of the bottle or bottle lip. Do NOT touch the interior of the cap or lay it down. Hold the cap in your hand with the inside facing down while the bottle is being filled.
- Slow the flow rate to avoid splashing during the actual sampling. Collect the sample directly into the sterile bottle; do not use a dipper or pail.
- Fill bottle to fill line or about 3/4 full. Do NOT allow the bottle to overflow.
- If the sample is to be taken from a well or spring without a pump, tie a wire or string around the neck of the bottle and lower it beneath the surface. It is very difficult to obtain a sample this way without contaminating it during collection.

Storage and Transport

- Refrigerate the sample immediately or place in a cooler and store at 4 C.
- Transport the sample to the laboratory as soon as possible, definitely within 24 hours of collection. In regional labs outside the metro area, check days/time deadlines for sample acceptance to ensure meeting the 24-hour criterion.

What do the Results Mean?

For potable waters submitted by private individuals, the lab reports presence or absence of coliform bacteria. The results assume that the only water suitable for human consumption is that containing zero coliform-type bacteria per 100 mL of sample. The absence of either coliform or fecal coliform bacteria means that the water is bacteriologically suitable for drinking (passes). The presence of either indicates that it is bacteriologically unsuitable (fails) and the source of contamination should be investigated.

If the test indicates coliform are present, the well should be resampled in case the sample was contaminated during collection. If the retest is still positive, an investigation is necessary to determine the cause.

Well Maintenance

How Often Should I Check Water Quality?

You should be responsible for ongoing monitoring of your well water quality. The bacterial quality should be checked every six months. The chemical quality should be checked every one to two years, or earlier if you notice any change, such as increased turbidity, staining, or hardness, or a change in taste or odor. The parameters to be analyzed are the same as those listed previously.

Frequent testing checks the integrity of your well, lets you know if corrective measures are required, and warns you if another activity is having an impact on your well.

How Can I Protect my Water Supply for the Future?

Protecting your water source and water supply system must be your prime consideration. Protection starts with proper location and construction of the well, followed by disinfection. Chemical disinfection or chlorination is essential to ensure that your well, pump, and pipes are free from bacteria that can be introduced during well construction, pump installation, and well or pump repair. Disinfection is the final step after all defects in location and construction have been corrected. Followup samples should be collected for bacterial examination 1-2 weeks after disinfection, then 1 month after that sample, then twice a year for regular monitoring. Any time that the pump or lines are removed for any reason, or repair work is carried out on the well, it must be disinfected.

Disinfection will kill only the bacteria present in the well or system. If there is some external source of contamination, the problem will be solved only temporarily by a single application of chlorine solution. Improperly located and constructed water supplies are never safe, and disinfection cannot be relied on for 100% destruction of harmful bacteria. The most commonly used methods of disinfection involve chlorine either in liquid or tablet formulations.

The final protective measures are taken when the pump and other components of the distribution system are installed and the system is made operational. The purpose is to protect against surface water entering directly into the top of the well or the annular space.

- You should check at least once a year that:
- the cap is securely in place and water tight
- the vent screen is intact and not blocked by vegetation growth
- connections in the well casing are properly sealed
- surface drainage near the well is directed away from the well casing
- surface water does not pond near the well
- the well pump and distribution system is functioning properly, with no leaks

Changes in the quantity and quality of water should be investigated immediately.

- You can also follow some of these simple rules:
- Do not allow liquids or wastes from contaminant sources such as garbage and manure piles to drain towards the well.
- Grow a grass buffer and do not treat the area around the well with pesticides or fertilizer.
- Do not flush oils, detergents, paints, solvents, or other chemicals down the toilet.
- Do not dispose of waste oil, paints, pesticides, etc. on the ground.
- Do not allow animals to urinate or defecate near the well.

If you follow these guidelines, your well should provide good quality water for a long time.

Summary

Here are some Dos and Don'ts to keep in mind.

DO construct a well before you build.

DO hire a certified water well contractor and inquire about his reputation and qualifications.

DO require a written contract, but don't try to be a superintendent over the contractor. He knows his job and his judgement can be trusted.

DO hire a certified pump installer and ensure that a pitless adaptor is used in new installations.

DO check bacterial and chemical quality regularly.

DON'T take an individual's word that an ample supply of water will be available from a well without obtaining existing information from your local Nova Scotia Environment office and a reputable well contractor.

DON'T compare contractors' abilities and proposals merely on the per meter (per foot) prices they charge. A cheap well may mean poor materials and workmanship and may prove costly at a later date.

DON'T locate a well too close to sources of contamination. Check regulatory distances with your local Nova Scotia Environment office.