



Ensuring the safety of your drinking water

WATER SAMPLING RESULTS—WHAT DO THEY MEAN?

The Public Health Laboratory normally reports two numbers for well water testing: **Total Coliform** – ordinary soil bacteria found everywhere that are not harmful to people and; **E. coli** – a family of bacteria that come from the intestine of warm blooded mammals such as dogs, cats, raccoons, skunks, cattle and humans. There are thousands of kinds of E. coli but only a few that are harmful to people.

Because the lab cannot test every sample for all possible bacterial species, total Coliform and E. coli are used by the laboratory as *indicator organisms*. If these bacteria are present then other bacteria may also be present.

If your lab result has any E. coli or is Overgrown (O/G), then your water must be considered unsafe to drink.

If your lab result has no E. coli, but has some **Total Coliform**, you should consult your public health inspector. In some cases, the risk may be low and you may only need to do some maintenance

on your system. In other cases, you may need to do much more to be confident the water is safe to drink.

TAKING A WATER SAMPLE

Follow these steps carefully so that the water sample does not become contaminated:

1. Do not rinse the bottle before use. The bottle contains a preservative added by the manufacturer.
2. Remove the aerator or other attachment from the tap. Run cold water for two to three minutes.
3. While the water is running, unscrew the cap from the bottle without touching the neck of the bottle or the inside of the cap. Don't put the cap down. Hold it facing down so airborne contaminants can't settle in the cap.
4. Fill the bottle to the line and replace the cap tightly. Keep the sample cool. Deliver it within 24 hours – the sooner the better - to the nearest health unit office (Monday to Thursday only) or directly to the laboratory in Orillia.

IF LAB RESULTS SHOW CONTAMINATION

- ✓ Do not drink the water or use it for making ice, juice, formula for infants or other drinks.
- ✓ Do not use the water for:
 - brushing teeth
 - washing fruits and vegetables
 - making coffee in a percolator
 - bathing, especially by children who may swallow water or by pregnant women
 - dishwashing by hand unless dishes rinsed in a sink full of clear water (no detergent) and capful of bleach
 - automatic dishwashers unless the dishwasher has a final hot rinse setting
- ✓ You can temporarily make your water safe to drink by:
 - boiling water at a rolling boil for 1 minute
 - OR
 - adding 5 to 8 drops of bleach to a gallon of water (1.25ml to 4.5 litres), then stir and let stand for 15 minutes before use
 - OR
 - you can buy bottled water or get water from a known supply like a municipal system or neighbour whose water has tested safe recently.
- ✓ Look for the source of the problems and make needed repairs or changes.
- ✓ Disinfect the well and house plumbing.
- ✓ Resample the water after all traces of chlorine are gone from the system. Do not consider the water safe to drink until three consecutive sample results, taken a week apart, show no bacterial contamination.

Taking care of your well

Disinfect well if: you get any E. Coli or Overgrown reported in any sample result; or the Total Coliform count is high on any sample; or the counts are low or marginal but you can't get consecutive good results.

Before starting: you should check your well construction to make sure it is as safe as you can reasonably make it; this should be done whether you need to disinfect your well or not.

Drilled Wells

Drilled wells usually draw from a deep water table and are less susceptible to what happens on the surface

- The well casing should extend about a foot above ground to prevent contamination from flooding.
- The well cap should be sound and tight and any vent openings should be screened to keep insects and mice out.
- The earth around the well casing should be mounded with heavy soil (clay) to keep any standing water, drainage, or spring runoff from lying against the well casing.
- When a well is drilled, the bore hole is larger than the casing that is put into it. This extra space around the casing, called the *annular space* is sealed, usually with bentonite clay, by the well driller. The seal doesn't extend more than a few feet below ground even though the bore hole may be much deeper. You should check that the seal is still in place and hasn't washed away into the space below it. If it has, surface water can get into the well by flowing down the outside of the casing. Reseal with bentonite clay if necessary.

Dug Wells

While disinfecting a dug well can be successful, keep in mind that it may not be effective past the next heavy rainfall. You should consider installing a permanent treatment system in the house to disinfect your drinking water for the long term. Chlorinators and ultra-violet light systems seem to be the most common methods. You should contact your plumber for details about these. Untreated dug wells should be sampled more frequently.

Dug wells are most commonly constructed from 36" diameter concrete rings stacked one on top of the other. The well is capped with a concrete cover that usually has a small square hatch in the centre. Dug wells are usually drawing from a shallow water table.

Because the joints between rings and around the hatch are not nearly watertight, the well is easily susceptible to surface water contamination, particularly after heavy rain, storms or spring snow melt.

- Generally, make sure that surface drainage is kept away from the well. Interceptor swales may need to be constructed uphill of the well to divert drainage away.
- The area around the well casing should be mounded with heavy soil (clay) to keep any standing water, drainage, or spring runoff from lying against the well casing.
- The top of the well should have a waterproof cover to keep rain from washing in around the hatch.
- The yard that the well is in should not be where animals are kept.