

HOW WELL IS YOUR WELL? PART 2

by Bill Clarke, EACoE Member

In this article, groundwater quality is discussed, and specifically the quality of water in wells.

In southern Ontario, the main rock types are carbonates – like limestone. As a result of glaciation from 250,000 to 10,000 years ago, almost all of our soils are rich in carbonate minerals, which are the result of the glacier grinding up the exposed bedrock, and adding the carbonate minerals to the various soils. The benefit is that carbonate acts as a chemical buffer (just like antacids for your stomach), so that acidity (or pH) of the soil and waters remains neutral at a pH between 7 and 8. We are not affected by acid rain, as in northern Ontario where carbonates are rarely present, and the rocks are actually acidic. This determines the natural chemical characteristics of our surface water and groundwater.

This is also the reason why our groundwater is “hard”, which means that there is an abundance of dissolved minerals (especially calcium and magnesium) in the water. This gives water ‘taste’. Try drinking distilled water and then drinking water from your tap sometime. Distilled water contains no minerals.

This also means that most of us require a water softener to remove some of the calcium so that our pipes don’t become clogged with precipitate, and that we can use less soap for showers and laundry.

With intensive land use, there are other chemicals that eventually get into the streams and the groundwater. Most of these chemicals are invisible and tasteless. Changes can take place over time, so I highly recommend that each homeowner test their well water at least once, so that there is a reference point in case a problem occurs later on. The water analysis should include the inorganic parameters: calcium, sodium, magnesium, potassium, alkalinity, sulphate, chloride, hardness, pH and nutrients: nitrate, nitrite and phosphate. There are many more chemicals that may be present, if your well is near a potential source (fuel supplies, pesticide storage). It is up to each well owner to assess that potential.

There are commercial laboratories in large urban centres in Ontario. These labs can be identified in the yellow pages. It is suggested that the home owner contact the lab to verify the type of analyses to be performed, arrange for bottles and arrange to have the filled bottles returned to the lab (usually by courier). Remember to sample by Wednesday of the week, so that there is no delay for the lab receiving the sample over a weekend.

At least once each year (preferably in the spring when the water table is high), each well should be sampled for bacteria. If the well is old, and down gradient of a septic system or a manure storage area, then the well should also be sampled for bacteria in the fall. Sample bottles are available at each Health Unit, and the analysis is free of charge.

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