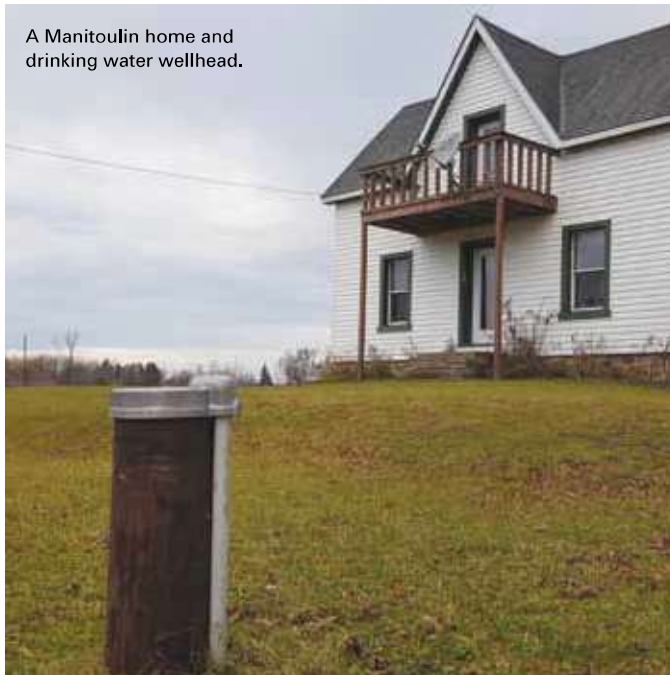
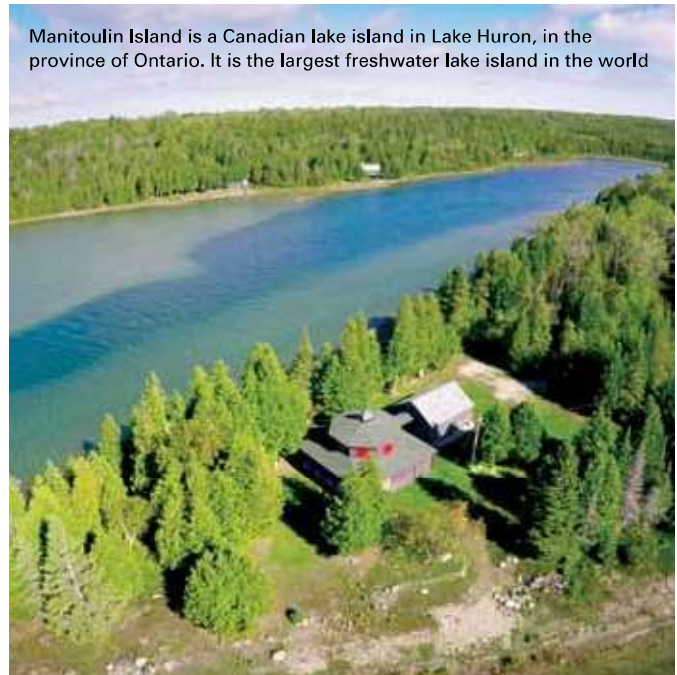


Credit: Jeff Wahl



A Manitoulin home and drinking water wellhead.

Credit: Lisa Hies



Manitoulin Island is a Canadian lake island in Lake Huron, in the province of Ontario. It is the largest freshwater lake island in the world

Invisible Problem

Making the case for Total Dissolved Solids testing. BY JEFF WAHL

IF A GLASS OF WATER is held up and it is colourless, crystal clear, and has no odour, would you think there is anything unsafe about the water? Total Dissolved Solids (TDS) are completely dissolved in a water supply and generally invisible to the human eye, and they aren't tested when Ontario well owners send in water samples for a Health Unit bacterial test.

In essence, TDS are comprised of inorganic salts and small amounts of organic matter. TDS are typically one or more of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, chloride, sulphate, and nitrates. They can be found in drilled or dug wells and can be influenced by agriculture, sewage, or road salts.

According to the Canadian Drinking Water Guidelines (CDWG), when TDS levels exceed 500 milligrams per litre (or 500 parts per million), the water is not recommended for drinking. While TDS may not lead to health problems, a high concentration of TDS can be used as an indicator of other harmful contaminants, such as iron, manganese, sulfate, bromide, or arsenic. This is

especially true when the excessive dissolved solids are added to the water as human pollution, through runoff and wastewater discharges.

TDS are a nuisance and costly, as they can contribute to scaling in hot water tanks, boilers, tea kettles, steam irons, and plumbing fixtures, and can shorten the service life of these systems.

In the Prairie provinces, groundwater tends to have high levels of dissolved solids, because of high amounts of calcium and magnesium in the ground. In Saskatchewan, the natural levels are so high that the province chose to set its own guideline of 1,500 parts per million.

In my own hometown of Manitoulin Island, Ontario on Lake Huron, the water quality of groundwater varies by region and test results have seen TDS levels range from 50 to 17,200 parts per million. In one region of the Island, in a concentrated five-kilometer area, there were recorded levels of 5,530, 7,620, 11,502, and 17,119 parts per million. These water samples would pass the Ontario Health Unit test for bacteria, even though they fail the

national recommendations.

My point is that, people trust a health unit test, whether it's part of a real estate sale or routine water testing. They are often completely unaware of the potential for dissolved solids to be present in levels not recommended for consumption.

Although there are many fast, easy ways to test for TDS—using a portable hand-held meter, taking a sample to a water treatment dealer or lab—it's not commonly done. There is even the old DIY trick of freezing a water sample, and then looking for white flaking or as discoloured white ice. This is easily spotted in ice cubes as they will shrink in size and leave white flakes in the tray.

TDS can be an indicator of other water quality problems. Testing should be regulated. wc



Jeff Wahl is the owner of Wahl Water, a water treatment company in Manitoulin, Ont.