

Water Quality Fact Sheet: Microbiological Quality

The Province of Newfoundland and Labrador has established drinking water guidelines based on Health Canada's *Guidelines for Canadian Drinking Water Quality* (GCDWQ). Source water and tap water are routinely sampled and analyzed by the Province and compared with the Maximum Acceptable Concentration (MAC) of the GCDWQ. This fact sheet describes the common microbiological parameters that may impact drinking water quality in Newfoundland and Labrador.

Typical Indicators of Microbiological Quality

Microbiological standards are considered to be the highest priority guidelines, as they are used to reduce the risk of waterborne illnesses caused by pathogenic organisms. Monitoring water for all pathogens is not feasible, and therefore “indicator” organisms, such as total coliform and *E. coli* and are used to monitor microbiological water quality.

- **Total Coliforms:** Total coliforms are commonly found in the environment, and the presence of total coliform bacteria in drinking water may indicate a breach in treatment or regrowth of bacteria in the distribution system, and that the water may be vulnerable to contamination by more harmful microorganisms. MAC: none detectable per 100 mL. Detection of total coliforms in repeat samples or more than 10% of sites in a given sample set could require initiation of a boil water advisory.
- ***Escherichia coli (E. coli):*** *E. coli* is a sub-group of total coliform and is found only in the intestines of mammals, including humans. The presence of *E. coli* in drinking water indicates recent fecal contamination and the potential presence of microorganisms capable of causing gastrointestinal illnesses. A boil water advisory must be initiated upon the detection of *E. coli*. MAC: none detectable per 100 mL.

Other Microbiological Quality Parameters

Other microbiological parameters include protozoa and viruses. Protozoa, such as *Giardia* and *Cryptosporidium*, are common causes of waterborne disease outbreaks. According to Health Canada, *Giardia* is the most commonly reported intestinal protozoan in Canada. *Giardia* and *Cryptosporidium* are both resistant to chlorine, so the multi-barrier approach, which includes source water protection, treatment and disinfection, is the best approach to reduce enteric protozoa in drinking water.

Enteric viruses in drinking water commonly cause gastrointestinal illness. Viruses are inactivated by chlorine disinfection, so it is critical that a water system meets the CT requirement and maintains a free chlorine residual throughout the distribution system.