

# Environmental Fact Sheet

(Information compiled from New Hampshire Department of Environmental Services Literature)

## Interpreting the Presence of Coliform Bacteria in Drinking Water

Determining the bacterial quality of drinking water is the single most important water quality test. Why? Because one glass of water containing just a few disease organisms can cause illness. When minimal exposure creates an immediate health risk factor, that is known as an **acute** health risk. In contrast, a meaningful health risk from chemical contaminants such as arsenic, radon, or benzene, to name only a few, requires a long period of exposure, typically over many years.

The total coliform test is the basic yardstick for determining a water supply's biological quality. This test is performed frequently because of the risk that disease-causing organisms pose to health. The test is easy to perform, inexpensive, and errs on the side of caution.

### Total Coliform As An Indicator Organism

The organisms in the total coliform group are called indicator organisms. That is, if present, they indicate that there is a **possibility, but not a certainty**, that disease organisms may **also** be present in the water. When absent, there is a very low probability of disease organisms being present in the water. The ability of the total coliform test to reliably predict the bacterial safety of water relative to the hundreds of possible diseases that might be present is critical since it's impossible, in a practical sense, to check separately for every disease organism directly on a monthly or quarterly basis.

Recently however, public health experts have recognized that certain protozoa that cause disease, such as *giardia* and *cryptosporidium*, **can be present in surface water** even when the total coliform test shows absence. Although an important exception, the total coliform test remains the standard for determining the bacterial quality of drinking water in the U.S. and the world.

### Risk Associated with Coliform Types

There are a number of subgroups within the coliform family. The presence of bacteria from each progressively smaller subgroup heightens the concern that disease-causing organisms may be present in the water. These groups and their relative risk implications are discussed below.

**Total Coliform.** These organisms are very prolific in the soil, and their presence does not necessarily imply poor wastewater disposal or other sanitation-based health risks. The presence of **only** total coliform generally does not imply an imminent health risk but does require an analysis of all water systems facilities and their operation to determine how these organisms entered the water system.

**Fecal Coliform.** This is a much smaller group within the total coliform family. Fecal coliform generally originates in the intestines of mammals. They have a relatively short life span compared to more general coliforms. Their presence could be related to improper disposal of sanitary waste.

**Escherichia Coli (e-coli).** This is a specific species (subgroup) within the coliform family. They originate only in the intestines of animals and humans. Like fecal coliform they have a relatively short life span compared to more general coliform. Their presence indicates a strong likelihood that human or animal wastes are entering the water system.

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## **FOR MORE INFORMATION**

Nelson Analytical Lab can test your water to determine if total coliform or e.coli bacteria is present in your water supply. We can mail you a water test kit with the necessary test bottle and water sampling instructions. We do need the water sample back to the lab for analyses within 24 hours of sample collection. Results will be emailed upon completion, usually by the next business day. Nelson Analytical Lab will discuss your test results with you should you have any questions or concerns, or would like to be directed to speak with a water treatment company regarding treatment options for your water supply. Nelson Analytical Lab can also review with you directions on how to disinfect your well, should your well need to be chlorinated.