

Microbiological Standards for Private Water Systems in Ohio

Private water systems provide drinking water in rural or suburban areas and include water wells, rainwater cisterns, springs, hauled water storage tanks, and ponds used for drinking water. Private water systems in Ohio are regulated under Ohio Administrative Code (OAC) Chapter 3701-28 through Ohio’s local health districts. A private water system:

- Provides water to homes in rural and suburban areas that are not connected to public water systems.
- Is used for drinking water and other potable and domestic purposes.
- Serves water to small businesses, churches, etc., to fewer than 25 people for less than 60 days out of the year.
- Has less than 15 service connections.

Larger water supply systems in Ohio are regulated by the Ohio Environmental Protection Agency.

Why are microbiological water samples required?

All new private water systems are required to have a water sample collected by a local health district and analyzed for **E. coli** and the number of **total coliform** bacteria to help ensure microbiological drinking water safety. Water samples may also be collected and analyzed for bacteria as part of a real estate evaluation, routine monitoring, or just out of curiosity.

Total coliform is a bacterial group used to evaluate the sanitary condition of the water system or to determine if a disinfection system is working properly.

E. coli bacteria are used as an indicator of the sanitary condition of a water supply.

Findings in microbiological water samples are reported as colony forming units (CFUs) or the equivalent most probable number (MPN) of colonies.

What are the microbiological standards for private water systems?

The established health-based standard is NO detection of *E. coli*, enterococci, or coliphages (indicators of virus) for all types of private water systems. Nearly all water samples are analyzed for *E. coli* because the test is inexpensive and results are available in 24 hours.

There are two different standards for total coliform depending on the type of private water system being used, how the system is constructed, and whether disinfection is required on that system. Private water systems that use continuous disinfection are required to meet a total coliform negative standard to ensure the disinfection equipment is working properly. Private water systems not required to have continuous disinfection installed are required to meet a total coliform count standard of 4.2 or fewer MPN as well as having no detection of *E. coli*.

What are the microbiological standards for wells with 25 feet of casing or greater?

For private water wells with 25 feet of casing or greater, lab results for a 100 ml water sample must have:

- 4.2 or fewer total coliform MPN.
- No detection of E. coli (less than 1 MPN or CFU).

Low levels of coliform can occur naturally in ground water and will not make healthy people sick. Levels of coliform higher than 4.2 colonies can indicate poor well construction or cleaning, or issues related to aging of the well, such as the presence of holes in the well casing.

What are the microbiological standards for private water systems that use continuous disinfection or receive water from a hauled source?

For private water systems using continuous disinfection, such as shallow wells, rainwater cisterns, springs, or ponds, and hauled water storage tanks that receive water from a public water supply, the lab results for a 100 ml water sample must have:

- No detection of any total coliform colony (less than 1 CFU or MPN).
- No detection of E. coli (less than 1 CFU or MPN).

The absence of total coliform and E. coli in a water sample is a good indicator that a disinfection system is functioning properly.

Where can I get more information?

- **Ohio Department of Health
BEHRP/Private Water Systems Program**
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