Anoka County
HUMAN SERVICES DIVISION
Public Health & Environmental Services

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Bacteria in Well Water

The Minnesota Department of Health (MDH) recommends that private well owners test their drinking water annually for bacteria, sometimes referred to specifically as "coliform bacteria". Total coliform bacteria serve as what is called indicator bacteria, as it is not practical to test water for every disease-causing microorganism. According to MDH, total coliform bacteria are good indicators of sanitary protection of the well and water system. Therefore, the desired result of an annual test for total coliform is "Absent".

Total Coliform vs. *E. coli*

Coliform bacteria are microorganisms that are always present in the digestive tracts of animals, including humans, and are found in their wastes. They are also found in plant and soil material. According to MDH, coliform bacteria are found everywhere on the surface of the ground, but do not usually occur past a few feet into the soil.

If organisms of this group are detected in a water sample, the result is that total coliform organisms are present. Generally, these bacteria are not harmful, as they are common in the environment. However, their presence can indicate a few things:

- There may be disease-causing microorganisms in the water;
- There is a potential pathway for other contaminants to enter the well.

Sometimes water build-up over time or standing water in the plumbing system can trigger a "present" result. Other times, this result is triggered because water from the surface is entering the well through a loose well cap or damaged casing. This is important because it means that if coliform bacteria can enter the well, other contaminants can too, including lawn fertilizer, *E. coli* (see below), etc.

Escherichia coli (*E. coli*) bacteria are a specific type of coliform bacteria that are found in human and animal waste. If total coliform organisms are found to be present in the water sample, the laboratory will run another test to determine if *E. coli* specifically is present. If using the Anoka County well water testing program, this result will be referred to as *E. coli* "positive".

The presence of *E. coli* is strong evidence that the water supply may be contaminated by a sewage source. This also indicates a greater potential for other pathogenic organisms to exist in the water supply. Infants are particularly susceptible to complications due to exposure to *E. coli* and other disease-causing microorganisms.

What to Do When Bacteria are Detected

When total coliform organisms are present and *E. coli* is absent (when using the Anoka County well water testing program, if there is no mention of *E. coli* in the result letter, *E. coli* was absent in the sample), the well and building plumbing, including any treatment equipment, should be disinfected. Instructions for well disinfection will be sent with well water testing results if using the

Anoka County well water testing program.

A licensed well contractor may be hired to complete the disinfection, or the private well owner can do this themselves. If the well owner chooses to do it themselves, the instructions should be followed carefully.

The well water should be resampled at least 10 days after disinfecting the well and water system. **It is not unusual to have to disinfect a water system multiple times to eliminate total coliform.** It is recommended to consult a licensed well contractor if the private well owner has attempted to disinfect their own well twice and still receives a total coliform present result, as the well may need to be fully cleaned and/or closely examined by a professional to ensure there are no problems with the integrity of the well.

When *E. coli* is present ("positive" result when using the Anoka County well water testing program), it is recommended to immediately retest the water to confirm the presence of *E. coli*. In order to receive faster results, it is recommended this be done by a private, state-accredited laboratory. It is also recommended to disinfect the well and plumbing before obtaining the result of the second water test.

Is the Water Safe to Drink?

As previously mentioned, coliform bacteria are generally not harmful. Since coliform bacteria are used as indicator bacteria, private well owners may wish to use boiled or bottled water for cooking and drinking until the issue is addressed.

If *E. coli* is detected, it is strongly recommended by both MDH and Anoka County Environmental Services to use boiled or bottled water for cooking and drinking until the water no longer tests positive for *E. coli.*

NOTE: If the water also has high nitrate or arsenic, boiling water may not be the safest option, as boiling water can increase the concentration of these contaminants.

Resources

Anoka County Water Website (www.anokacounty.us/water) and resources therein, including:

- Testing Your Private Water Well
- Directory of Area Well Contractors
- State Accredited Water Testing Laboratories

Bacterial Safety of Well Water – MDH (https://www.health.state.mn.us/communities/environment/water/wells/waterquality/bacteria.html)

Know the Flow (www.knowtheflow.us)

Private well owners may also call Anoka County Environmental Services at 763-324-4260 and ask to speak to a water specialist for more information or with specific questions.

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