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COMMON QUESTIONS ABOUT BACTERIA ANALYSIS FOR DRINKING WATER

Why must I have my water tested?

Public water systems are required by state and federal regulations to routinely monitor their drinking water for microbiological contaminants. However, owners of private sources, such as backyard wells, are responsible to ensure their own safe drinking water supply. When a new well is established, the EPA, Virginia Department of Health (VDH), and most local health departments require that the water be proven safe for drinking before the well can be put into routine usage. In the case of property exchange in the state of Virginia, the mortgage lenders typically require that a water test be performed before closing is completed.

How do I have my water tested?

The standard analysis for bacteria in water is called a “coliform” test. This testing must be performed by *certified* laboratory. Contact the laboratory for sample containers, instructions on sample collection, and sample submission.

Why do I need to use the lab sample container?

The lab will provide you with a sterile container and instructions. Samples must be submitted in sterile containers to ensure that any positive results are not due to the use of a contaminated sample container.

What are total coliform bacteria?

Total coliforms are a group of closely related bacteria commonly found in the intestinal tract of humans and animals. The presence of coliform bacteria in drinking water can indicate that the water has been contaminated by human or animal waste. Coliforms generally do not cause disease; however, other organisms found in human and animal waste may cause diseases such as dysentery, gastroenteritis, cholera, typhoid, and hepatitis.

Why test for coliforms instead of the disease-causing organisms?

Tests for the specific disease-causing bacteria are very expensive and time consuming, while the test for the coliform group of bacteria is relatively simple and inexpensive. In this test, the coliforms are used as indicator organisms for the more harmful bacteria.

How does the bacteria get into my water?

Newly constructed wells are made with pipes and other materials that usually lie on the ground in open areas and in non-sterile conditions prior to being used in construction. Therefore, new wells should be disinfected by chlorine before a bacteria test is run. The chlorine will contact the well casing and pass through the pipes, eliminating any bacteria that has accumulated during construction.

A change in the system, such as the addition of a bathroom, repair of a broken pipe or repair of a pump may also expose the system to bacteria.

A cracked well cap or a well cap that has been removed for a period of time may allow entry of soil or surface water that is contaminated with bacteria.

A well that has been unused for a long period of time may allow accumulation of bacteria in the pipes.

Flooding or heavy rains may also allow bacteria to enter the well.

What do I do if my water tested positive for coliform bacteria?

The well should be disinfected by chlorination using common household bleach or calcium hypochlorite (pool chlorine). Your laboratory will supply you with instructions for this relatively simple procedure. If any of the conditions exist as described above, it is best to perform the disinfection prior to submitting a sample for analysis.

What if I chlorinated my well and the sample still tested positive?

Talk to the laboratory representative about the steps you performed for chlorination to ensure that everything was done correctly, and that the correct amount of chlorine was used. Review the steps of sample collection to confirm that aseptic technique was used.

The amount of bacteria present in new wells immediately following construction may be very high. These new wells may require more than one chlorination treatment to eliminate all of the bacteria.

Common household bleach will be effective for the majority of wells requiring disinfection. For unusually deep wells, or wells suspected of having a high level of contamination, the use of calcium hypochlorite (pool chlorine at 70%) may prove more successful.

If several unsuccessful attempts have been made at chlorination, it may be necessary to install a continuous disinfection system such as a chlorinator or ultra-violet light system. It is unlikely that the groundwater is contaminated, but the well, if improperly constructed, may be funneling contaminants from surface water down into the groundwater.