

## WHAT DOES UNSATISFACTORY MEAN?

An unsatisfactory drinking water test means that **coliform bacteria** are present in the sample. These bacteria are found commonly in the soil and their presence indicates that there has either been a breach in the water system or that the sample bottle was contaminated during the sampling process. The presence of coliform bacteria *may or may not* indicate the presence of organisms that can cause illness. It is not possible to test for all potentially disease-causing organisms, so coliform bacteria are used as an indicator organism. When coliform bacteria are detected, further testing is performed to determine if *E. coli* bacteria are also present. *E. coli* are fecal bacteria (commonly found in animal waste) and the lab slip will indicate either their presence or absence in the boxes in the UNSATISFACTORY section. **If *E. coli* are present, do not drink the water.** Use bottled water or boil the water for 5 minutes prior to use until the system can be properly disinfected.

## HOW COULD MY WELL OR WATER SYSTEM BECOME CONTAMINATED?

Due to the way they are constructed, hand-dug wells rarely have satisfactory water tests. Disinfection with chlorine bleach does not usually eliminate the problem. The only real solution is to have a disinfection system

installed (i.e., automatic chlorinator, ozone, or UV-light) or obtain a replacement water source. Water treatment systems vary in cost and it is wise to get several estimates.

For dug wells, drilled wells, or reservoirs, any opening in the top will allow the entry of insects, dirt, or water, which can contain bacteria. Vent holes in a well casing should be fitted with an inverted J-shaped pipe with a screen over the end. Access holes for pipes or wires should be sealed with clear silicone sealant. Openings for dug wells and reservoirs should also be sealed with silicone sealant.

When water lines are cut or wells opened for pump replacement, the possibility to introduce contamination exists. The entire water distribution system should be chlorinated after new construction or pump replacement.

Contamination can also result from a failed pressure tank bladder. In this situation, you will not necessarily detect any loss of pressure. The failed bladder can cause water to stagnate in the tank, which allows bacteria to grow. This is typically corrected by replacing the tank.

If all of the possible sources of contamination have been eliminated or addressed, then you should disinfect the well and water distribution system. Please refer to Mason County Public Health brochure **“How To Properly Disinfect Your Well”** before attempting to disinfect your water system.

## WHAT IF MY WATER SAMPLES STILL TEST UNSATISFACTORY?

If you have properly disinfected your well and contamination is still present, it is important to identify the source of the bacteria. You may need to carefully collect samples from several locations to determine where the bacterial contamination is first detected.

If you have a drilled well, there are several things to consider. As the first option, you may want to repeat the chlorination. It is possible that the first chlorination did not kill all bacteria present in the system. Other causes for bacteria surviving may be a bad pressure tank, a cracked or rusted-out well casing, leaking water lines or pipe fittings, incomplete disinfection of a reservoir, or even a contaminated aquifer.

Wells drilled prior to 1974 were not required to have a seal of bentonite clay installed between the well casing and the surrounding soil. With these earlier wells, it may be possible for surface water to percolate down the outside of the casing to the aquifer. Some well drillers offer a back-pressure chlorination service which may work if it is combined with the installation of a surface seal to prevent further contamination.

If it is possible to hear water dripping in the well casing, this may be an indication that the well casing has rusted out and water is seeping in close to the surface and introducing bacteria from the soil. If the pressure tank or well casing is suspected to be causing the problem, contact a licensed well driller to seek a solution.

Reservoirs, especially below-ground reservoirs, may become contaminated and require extra steps to disinfect properly. Cracks in concrete reservoirs can harbor bacteria that may be protected from chlorine bleach. As soon as the chlorine is reduced to sub-lethal levels, bacteria can begin to multiply and re-enter the water distribution system. If the reservoir is suspected to be the source of the contamination, then it will be necessary to empty, thoroughly clean, and disinfect the tank. At this time it is important to seal all cracks with an approved sealing material. It may be necessary to install an approved liner in the tank, or a new, above-ground tank. These situations may require the services of a professional.

The problem may also be due to a contaminated faucet. Either replacing the faucet or taking it apart and soaking it in bleach will eliminate the bacteria

**If you have questions regarding disinfection procedures or about obtaining a replacement water source, please call the Mason County Public Health.**



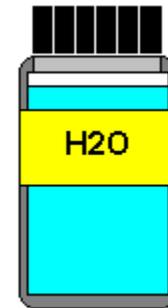
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### WHAT TO DO IF YOUR DRINKING WATER SAMPLE TEST IS UNSATISFACTORY



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PUBLIC HEALTH**