

How Sanitary

is your bacteriological sampling site?

By **Heather Shaw** • New Hampshire Rural Water Association

Many of the water samples that fail a total coliform bacteria test fail because of sampling error, not because the water is actually contaminated. To ensure that this does not happen to you, follow the seven steps provided in this article.

Drinking water samples taken for microbiological analysis need to be representative of the water in the distribution system. If your system detects positive total coliform randomly and inconsistently at various sites, then you should closely inspect the sample sites. Many systems have poor sampling sites for obtaining a representative bacteriological sample.

So what makes for a bad sampling site? The location and type of faucet used can cause erroneous sampling results. Swivel type faucets should be avoided as routine sample sites as much as possible, regardless of their location, because they can collect debris around the neck. A swivel faucet in a kitchen prep sink increases the risk of microbiological contamination being present on and around the faucet because it is exposed to food daily. A dirty faucet can cause a dirty water sample.

Another situation to avoid is using a sample site that is less than 12 inches from the ground. Such a faucet increases the amount of handling and maneuvering of the sample bottle in order to simply fill it. The more the bottle is exposed to handling and outside

Step 1 - Do Not Rinse Out Bottle

The liquid in the bottle is meant to be there and will not contaminate your sample. Don't rinse your sample bottle.



Step 2 - Remove Faucet Screen

Remove screen, hoses, or aerators from the end of the faucet.



Step 3 - Disinfect The Faucet

Disinfect the faucet by dipping the end in a cap full of bleach before running the water or clean it with a new gauze pad.



Step 4 - Run Cold Water

To ensure that the water you are sampling has not been sitting in the pipes or tanks for a long time, run cold water from the faucet for at least 5 minutes.



Step 5 - Turn The Water Down

Turn the water down so it does not splash, then fill the bottle only to the shoulder.



Step 6 - Screw The Cap On Tight

Take special care not to touch the inside of the cap or bottle and screw the cap onto the bottle tightly.



Step 7 - Fill Out The Paperwork

Fill all of the paperwork and mail it to the lab with the filled bottle. Be sure to keep a copy of the paperwork as well.



factors, the higher the possibility is for total coliform to enter the sample. Also, a sample tap close to the ground increases the likelihood of water (which may now contain total coliform) back splashing into the sample bottle.

Outside spigots (sill cocks) are generally considered to be poor bacteriological sampling sites, but in fact they can be quite sanitary. Usually outside spigots are more than 12 inches above the ground,

are easy to access, are not swivel type, and are not exposed to debris and food. In addition, outside spigots can be easily disinfected.

If your sampling site is not ideal for sampling bacteria, what do you do about it? If you have an alternative site in the same building as your routine sampling site that is better suited for sampling bacteria, contact the state regulatory agency and request that your

routine sample site be changed to the better site. Usually there is no problem in making a change such as this, since you are still sampling the water in the same building; the state wants to make sure you are sampling the system and not the site itself.

If all your sample sites are "poor" ones, then sampling procedure is your next step to making sure you do not get an erroneous sample result. Keep the sample site as clean as possible all the time. Disinfect a suspect sample site before taking the sample. Either spray down or wipe the sample site with alcohol or diluted bleach and/or by heating the site with a propane torch (heating works well on campsite taps). Always remove any adapters and aerators before disinfecting.

Before taking a sample, make sure your hands are clean. (Purell anti-bacterial hand gel works well.) Avoid touching the faucets as much as possible. Turn on the cold water and let the water run at a high flow rate for a minimum of five minutes (or even longer for faucets that are used infrequently) to flush the faucet.

Once you have flushed the site, turn the water flow down so that the stream coming out of the faucet is about the diameter of a pencil. Turning the flow down will stop water from back splashing into the sample bottle. Take your sample bottle, break the sanitary seal, and remove the cover, making sure not to set it down or to turn the cover upside down while holding it. Fill your sample bottle to the marked line, and immediately put the cap back on the bottle.

Remember that total coliform is all around us, and it is very easy to contaminate a sample by not following the proper procedure. Clean sample sites and good sampling procedures will almost guarantee a good representative sample of the water system and not an evaluation of your sample site.💧

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