

Is it the Water or is it the Sampling Site? Randy Hellbusch

About 11 years ago I wrote one of my first articles for Nebraska Rural Water Association on the importance of good bacti sample sites and sampling technique. I think it was titled "Sampling in the real world". Most water operators are aware of the importance of a proper site and procedure when taking a bacti sample but a little reinforcement never hurts. It is very easy to contaminate a coliform sample. Total coliform is all around and we need to do what we can to be sure that a positive sample is an accurate sample.

Drinking water samples taken for bacti. (coliform) analysis should be representative of the water in the distribution system. If you get positive total coliform results randomly and at various sites, you need to take a good hard look at your sampling sites. Many operators I know complain about the ability to find good sample sites.

So what makes for a bad sampling site? Location and type of faucet used are probably the biggest culprits. 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 sink increases the risk of microbiological contamination being present on and around the faucet because it is exposed to food daily. A dirty faucet or sink will almost always lead to a dirty sample.

Outside spigots are generally considered to be poor bacti. sampling sites. However, many operators routinely use outdoor sites and get along very well. The positives are that outside spigots are usually easily accessible, are not the swivel type, and are not exposed to dirty dishes or food scraps. The downside to sampling outside is weather conditions and dirt. Be sure your sample tap is well above the ground and protected from the wind if at all possible. A good rule of thumb is to never use an outside tap that is less than 12" above the ground.

In the real world, there are very few, if any ideal coliform sample sites. Some systems have installed sampling stations in strategic locations throughout the system. This seems to work fairly well. They are always accessible and you take the question of cleanliness out of the picture. There is still the factor of the weather elements. Some operators have placed dedicated sample taps in buildings that they know they have accessibility and cover the faucets between sampling dates to ensure they are used for nothing else. This is probably the most economical and sanitary method if you have the ability to obtain such sites.

The next step to ensuring the sample results aren't erroneous is proper sampling procedure. First, always make sure that your hands are clean. Wash your hands well with an antibacterial soap. Avoid any unnecessary touching of the faucet. Any sample site should always be disinfected prior to taking the sample. This can be done with bleach or rubbing alcohol. The preferred method seems to be to take a small sandwich bag with either the bleach or alcohol and place it over the faucet and force the contents into the

neck of the tap. Another method is to take a spray bottle and spray the faucet down inside and out. Always be sure to remove any aerators first.

Next, always flush the faucet. You want to sample the water from the water main, not the plumbing in the building you are sampling from. Let the faucet run full for at least five minutes. Then turn the water down so that you have a stream about the size of a pencil. Let the water run another minute or so.

Lastly, and I think maybe one of most important steps is to ensure that you don't contaminate the bottle. Do not open the bottle until you are absolutely ready to take the sample. Break the seal on the bottle, fill the bottle and immediately return the cap. Do not set the cap down or even turn it upside down.