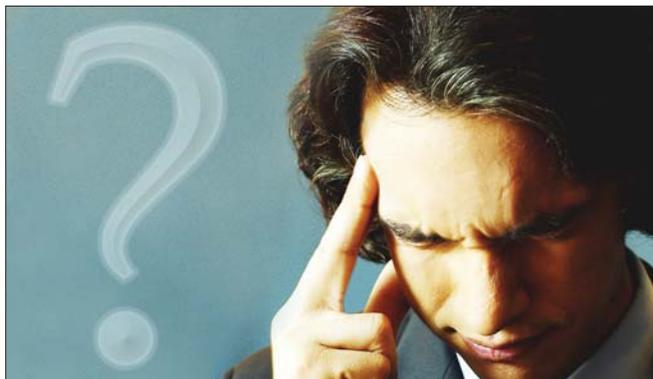


What Has Changed?



Jennifer Koenig, MRWA NTNC Technical Advisor/Trainer



Let's say that you are the operator of a groundwater system and you have just been notified by the Minnesota Department of Health that the water has tested positive for coliform bacteria. Your first thoughts probably include one of the following (or maybe something worse!):

"Oh great, that's just what I needed today!"

"The lab must have screwed up!"

"No way!"

"Oh great, that's just what I needed today!"

Once you have accepted that the water has tested positive for coliform bacteria, it's time to get to work! We talk about this situation at our small systems workshops. What is the first



thing you should ask yourself in this situation? (No, it's not *"Is it time to go home yet?"*) You should ask yourself ***"What has changed?"*** You may need to think back weeks or maybe even months about anything that could have possibly lead to the coliform bacteria problem.

When trying to determine the source of coliform bacteria, I like to start by looking at the source of water for the system. Take a look at the well. ***"What has changed?"*** (Hopefully you're looking at your well(s) on a daily basis.) Do you see any signs of damage to the well? Maybe a vehicle bumped into the well and caused some damage to the casing and/or the well cap. Do you see any signs that the well has been tampered with recently? (I can't stress enough that everyone should be checking the well(s) on a daily basis!) Were there any repairs made to the well recently? Was the well disinfected after the repairs? Has the water quality changed recently?

Let's discuss the distribution system. ***"What has changed?"*** Were there any water leaks recently? Were there any repairs



made to the distribution system? Did any new construction take place in the building? (Are there any cross connections as a result of the new construction? Was the system disinfected after the work?) Are there any "new" dead-ends in the system? An example of this would be a school classroom that has a water fixture that is no longer being used by students or staff. Because there is no water being used, there is stagnant water in that portion of the distribution system which could lead to a coliform bacteria problem.



Now, let's discuss any water treatment that you may have at your system. **"What has changed?"** Is it time for routine maintenance on the treatment units? Is it time to clean the inside of the brine tank? It can get awfully disgusting inside the brine tank if not maintained properly. Or, did you recently have work done on the treatment units? Maybe the cover for the brine tank was left off for a period of time and it's possible that the brine tank became contaminated. Is it time to clean out the sediment filters? Or, maybe you changed out the filter but you didn't follow the correct procedure and you may have contaminated the system.

What about your water storage? **"What has changed?"** Have you checked your bladder tanks to be sure that the bladder is still intact? These tanks aren't designed to have water above the bladder and you could have a coliform bacteria problem as a result. If you have an "air-over-water" style tank, is that still operating at about 2/3 water and 1/3 air? Have you done any work on the tank recently? Maybe the tank wasn't properly disinfected after the work.

Again, if you're ever in a situation where your system tests positive for coliform bacteria and you're not sure why, you should start by asking yourself, **"What has changed?"** I included a number of questions in this article to ask yourself if you're ever in this situation, but there are many additional questions that you could ask yourself about your water system. Take a look at your maintenance log, review your daily reports, and walk around and look at your water system and always ask yourself, **"What has changed?"**

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