

FAQ - Private Water System Inspections and Water Sampling Requirements

Ohio Administrative Code (OAC) 3701-28-04

December 2012

Water Sampling

Question:

1. What are acceptable bacteria results under the new private water system standards?

E. coli is the indicator of the sanitary condition of a private water system. Therefore, *E. coli* reported as less than one or as undetected in the 100 ml water sample is acceptable. The total coliform standard is different for private wells and private water systems that use continuous disinfection. Private water wells are legally acceptable with a water sample total coliform result of up to 4 colonies. Private water systems that are required to use continuous disinfection must have a water sample result with no detection of total coliform to be acceptable for use. The required absence of total coliform for private water systems that use continuous disinfection is an indication that the disinfection system is functioning properly. Immune compromised people should always disinfect their water regardless of the sample result from raw well water.

The water sample should not be reported safe or not safe. If the water result has an acceptable level of indicator organisms, the sample result should be reported that it is compliance for the bacteria sanitary indicators and meets the bacteria standards for private water well construction.

Question:

2. Why did the Ohio Department of Health change the total coliform standard for private water wells?

When the Ohio private water system rules first became effective in the early 80s the acceptable total coliform standard for private water systems was less than 4 CFUs (colony forming units). In the early 90s the total coliform standard was changed for private water systems by the Ohio Department of Health (not the Ohio EPA) from less than 4 CFUs to less than one. The Ohio Department of Health made the change because of the new availability of the MMO-MUG presence-absence test and to be consistent with EPA public water standards. For public water systems, the absence of total coliform is a good indication that water treatment is working and that the constant chemical residual in the distribution lines is providing treated water to the point of use. This was the primary reason presence-absence was used for public water. However, a water well environment is not sterile and the presence-absence total coliform standard is not regarded by most groundwater experts as a good indication of

the sanitary condition of a water well. In a review of documents by the World Health Organization and other well microbiology experts, it was emphasized that total coliform are not regarded as good indicators of the actual disease causing potential of well water. After years of experience with dealing with water wells in the Private Water System Program, extensive discussion and consultation with groundwater well microbiology experts, review of World Health Organization and US Geological Survey, and other documents it was determined that total coliform is not good indicator of the sanitary condition of a well, but more of the cleanliness of a well environment due to construction or degradation. There was some consideration into removing the total coliform standard for private water wells and to consider only E. coli as the bacteria health based standard. However, ODH decided to continue to use a total coliform standard of 4 CFUs or less for well construction. This number was decided on for private wells in Ohio based on the past ODH standard, information from USGS study of water wells, well microbiology experts, and discussion with Ohio EPA and US EPA.

*From April 1, 2011 until December 31, 2011 for new or altered **private water wells** it is acceptable to analyze and report the initial water sample that is required to be collected as part of a health department permit as presence-absence. If the water sample is reported as total coliform positive on the first sample, then all subsequent samples collected from the private water well shall be analyzed and reported as a colony count.*

*Beginning January 1, 2012 **all private** (not public) water **well** samples that are required to be collected as part of a health department permit shall be reported as a colony count. Private water systems that use continuous disinfection, and water from hauled water storage tanks (which require a disinfectant residual) can be reported as a colony count, or presence-absence, but must still have total coliform result of less than one for an acceptable sample.*

The acceptable total coliform enumeration methods that laboratories may use are membrane filter, multiple tube, and or Quanti-Tray with Ohio EPA certification or accreditation with the National Environmental Laboratory Accreditation Program (NELAP) or Quanti-Tray with ODH approval.

Question:

3. How often am I required to sample my private water system?

Answer:

*For one, two and three family homes water sampling for bacteria and nitrates is required on private water systems (well, cistern, spring, pond, and hauled water storage tank) as part of a new permit or alteration permit. Probably, just once in the life of the system. A new point well may be required to be sampled twice, in opposite seasons, if the well point is **not** connected to a continuous disinfection system. For permit approval purposes, private water systems are only sampled for bacteria quality and nitrates. After*

a permit has been approved and closed out by a local health district no other sampling is required by the Private Water Rules. After the initial samples it is up to the owner of one, two and three family homes to monitor the condition of their own water system.

Small hotels and bed and breakfast operations which use private water system (not public water systems) and were not previously required to have periodic water samples are now required to have an annual water sample collected and reported to the local health district in which they are located in accordance with OAC Rule 3701-28-03 (Z). Some private water systems that require routine sampling regulated under other Ohio Administrative Code Chapters are cross referenced in OAC Rule 3701-28-03 (Z) such as a small manufactured home park.

Question:

- 4. Can I have a water sample for total coliform analyzed and reported as presence-absence if it is not part of a health department private water system permit?**

Answer:

*Yes. Specifically the sampling and reporting requirement is tied in with a **private water system** new or alteration **permit** from a local health department. If the water sample is collected for purposes other than a health department permit, such as for a real-estate transaction or a private request not related to a permit, the private **well** standard is still 4 or less CFU of total coliform, but the reporting results can be either a total coliform count or presence-absence. The private water system standard for *E. coli* for all types of systems is reported as no detection, absence, or less than one to be acceptable.*

Question:

- 5. The measurement that our lab uses is MPN per 100ml. Does this meet the sample measurement as total coliform units?**

Answer:

For the purposes of the private water rules, the MPN (most probable number) value is considered the same as the CFU (colony forming unit). Therefore, a sample result reported as 3 MPN would be an acceptable total coliform result.

Question:

6. I obtained the water sample at 10:10 AM on 5-23-11 and the sample was analyzed on 5-24-11 at 2:35 PM. It is my understanding that this would not meet time requirements set by code (25 min. over), is this correct?

Answer:

Actually, that is not correct. The lab actually has 30 hours in which to conduct the analysis of the sample for total coliform and E. coli in accordance with Standard Methods 9060 B. The 28 hrs for transport in the rule allows the lab two hours prep time and eliminates sample deliveries coming in at the last second.

Rule 3701-28-04 (G)(10) states:

*All water samples to be tested for bacteria, shall be kept at a minimum of ten degrees Celsius in a closed container and **transported** to the laboratory within twenty-eight hours.*

Therefore, a sample collected at 10:10 AM can be analyzed by the lab no later than 4:10 PM (16:10) the following day. So the sample you collected was analyzed by the lab within the acceptable time-frame.

Question:

7. Does the local health department inspector have to measure the chlorine residual during an inspection and before collecting a water sample?

Answer:

*Yes. The health department inspector must always measure the chlorine residual (or other chemical residual) before collecting any water sample for a new or alteration permit. The local health department must have a chlorine test kit or chlorine test strips. It is strongly recommended that the local health district use a DPD test kit that can measure down to .1 ppm. Test strips are usually less accurate. Homeowner's whose water systems have a chemical (chlorine, iodine, or ozone) disinfection system installed on them should also be strongly encouraged to keep a test kit on site that is accurate enough to detect the low residuals of whatever disinfectant they are using. Water wells with no continuous disinfection should have **no chlorine** detected at the time a water sample is collected. All private water systems that utilize continuous chemical disinfection must have the required chemical (chlorine, iodine, or ozone) residual present at the time the water sample is collected.*

Question:

- 8. Does the local health department need to be sampling for turbidity for pond systems?**

Answer:

Local health departments do not need to take a water sample for turbidity unless there is a problem noted with the system. It is the responsibility of the contractor to make sure the water is treated to point that it is clear.

Inspections

Question:

- 9. Under the 2011 Private Water Systems Rules is the local health department inspector supposed to remove the cap of the well to check the vents and casing thickness during the final inspection on a private water system?**

No, the local health department inspector does not need to remove the well cap to check for vents and to determine if it is an approved well cap. The local health department inspector needs to determine the manufacturer of the well cap and that it is listed on Water System Council PAS Standard PAS-97(04). Well caps that meet this standard are insect and vermin proof. The inspector can feel for the vents and determine if they have a mesh on them. The inspector can also use an inspection mirror to view the vents.

*On steel cased wells, the inspector won't need to remove the well cap to measure the casing **unless** it is unmarked, purchase receipts are not available and/or he or she suspects the casing being used is incorrectly marked or appears to be too thin.*

As far as measuring casing, PVC is well marked and rarely falls outside of the established tolerances.

Question:

10. Which types of private water systems contractors do local health districts have to inspect every five years?

***Any** private water system contractor that does not drill or seal a private well is required to obtain an inspection **from a local health department** every 5 years. This includes private water system pump installers, pond, spring, cisterns, and hauled water storage tank excavators and installers, and water treatment (disinfection and filtration) contractors. The Ohio Department of Health will inspect well drillers and well sealers every five years.*