

Groundwater Rule Supplement for PWS Bacterial Sampling Plan

Ground Water Rule (GWR)

The Groundwater Rule applies to all public water supply systems (PWSs) that use groundwater, including consecutive systems, who do not combine all of their groundwater with surface water or with groundwater under the direct influence of surface water prior to treatment and who do not provide at least 4-log virus inactivation and/or removal at or before the first customer. These systems are required to collect source water samples when a routine Total Coliform Rule (TCR) sample tests positive for bacteria.

Triggered Source Water Monitoring Plan

The following document describes the recommended additions to your bacterial sampling plan in order to help ensure that the correct source(s) is sampled without collecting unnecessary samples. The purpose of the triggered source water monitoring plan is for the system to have a step-by-step plan in place that identifies which sources (wells) must be sampled in response to a routine total coliform-positive sample at any given sampling site. It is important that the plan be readily available to water system personnel responsible for sample collection, since triggered source water samples must be collected within 24 hours of learning of the positive routine sample result. A written triggered source water monitoring plan may be helpful to your system for any of the following reasons:

- If a system is part of a network of wholesale and consecutive systems, the triggered source water monitoring plan would provide direction as to whom should be notified and who should collect fecal indicator source water samples under different routine total coliform-positive sample scenarios.
- If the operation of the system is divided so that the distribution system is operated and maintained by different staff than those who operate and maintain the sources and their related treatment, the plan would provide direction to all staff involved.
- If sample collection for the system is conducted by staff other than the operators (e.g., a commercial laboratory), a written plan would help the system and laboratory staff ensure that the proper locations are sampled.
- A written, accessible sampling plan will prevent in-house communication errors and the chance of inadequate or inaccurate sampling.
- A written plan could help assure communication among staff and delineate roles for conducting distribution system and source water sampling.

A triggered source water monitoring plan should include the following minimum elements:

1. Add the following to your existing bacterial sampling plan distribution system map or create a separate map for these items:
 - Pressure zone boundaries in the distribution system, if separate pressure zones exist.
 - TCR routine monitoring locations, distinctly labeled.
 - Entry points of all sources, distinctly labeled, with the contributing sources (wells) clearly identified.
 - Entry points and status of any interconnections to or from other systems.
 - Storage tanks / reservoirs locations and seasonal operational changes if any.
 - Pressure regulation facilities (reducing stations).
 - Other infrastructure that may affect pressure and/or flow in the distribution system.
 - Booster pump stations.
 - Critical valves, particularly those used to hydraulically separate portions of the system.
2. The source type and level of treatment provided for each source/point of entry and whether it is seasonal, emergency, ground water, surface water, a wholesale supply, etc.
3. The source(s) serving each TCR routine monitoring location and the basis for the determination (e.g., system hydraulics, operation, water quality data, etc.)

4. For wholesale systems, the consecutive systems served and, if applicable, the sources serving each consecutive system.
5. For consecutive systems, the wholesale system providing water to each sampling location.
6. Any changes or variations expected in the monitoring plan such as the use of seasonal sources, rotating sources, etc.

The triggered source water monitoring plan can be a stand-alone, independent document or the system may incorporate it as part of its bacteria sample siting plan. Incorporating it as part of the bacteria sample siting plan may be useful because of the direct relationship that exists between TCR and GWR. In addition, many systems might need to create a multi-scenario monitoring plan to reflect the variety of ways in which their systems are operated throughout the year. For example, a system that uses a well field only during certain months to meet high demand may need to have one monitoring plan for those months and another monitoring plan for the others. However, where there is uncertainty of which wells are in use, a conservative approach should be used in which all potential sources are included.

The following pages may be added after the list of monthly sampling sites in your current bacteria sampling plan.

Items in blue may or may not be needed for your system and may be deleted if not needed.

SECTION 2 – GROUNDWATER RULE

PWS has IDNR approved treatment in place to provide 4-log inactivation/removal of viruses and is completing the required treatment technique monitoring. Therefore, the following source water sampling is not required unless the 4-log treatment technique was not in place at the time of TCR sample collection.

(The above statement should be omitted if you do not have 4-log treatment in place)

TRIGGERED SAMPLING

- When notified of a total coliform-positive routine distribution system sample at least one groundwater source sample from each well in use at the time the total coliform-positive sample was collected or that reasonably could have contributed to the water in the sample must be collected. This is in addition to the distribution system repeat coliform bacteria monitoring samples.
- **Samples must be collected within 24 hours of being notified of the positive routine sample. If sampling cannot be completed within 24 hrs. IDNR must be contacted immediately.**
- The sample must be analyzed for the presence of one of the three fecal indicators: *E. coli*, coliphage, or enterococci.
- Consecutive Systems that are notified of a total coliform-positive routine distribution system sample that is located in an area of their system served by water purchased from a groundwater wholesale system must notify the wholesaler within 24 hours of the initial positive sample notification. This notification must be to the system that produced the water. The wholesale system must then conduct triggered source water monitoring unless it has 4-log treatment technique requirements in place.
- The IDNR may waive the triggered source water monitoring requirement if the system determines and documents, in writing, that the total coliform-positive routine sample is the result of a distribution system deficiency. Contact the IDNR within 24 hours of the initial notification to request approval to waive the triggered source water monitoring.
- The IDNR may invalidate a fecal indicator-positive groundwater source sample for very specific conditions. The PWS must collect another source water sample within 24 hours of being notified by the IDNR of its invalidation decision.

Sampling steps when triggered source water sampling is required:

1. Determine which source(s) were in use at the time the routine bacteria sample was collected or could have reasonably contributed to the water in the sample.
2. Collect a sample from each well determined to be in use or contributing to the sample following the same collection procedures as outlined in your bacterial sampling plan. Samples **must** be collected before any treatment. **Combined source samples are not permitted.**
3. The source water sample(s) must be labeled as Sample Type routine (RT), Facility ID as the well WL facility number (WL##), and Sampling Point ID as triggered (TG).

ADDITIONAL SAMPLING

- Five additional samples are to be collected from the source (well) when a triggered source water sample is fecal indicator-positive.
- The PWS may be required by IDNR to take corrective action instead of or before taking additional source water sampling. Consult with the IDNR within 24 hours to determine if corrective action is required instead of additional sampling.

Sampling steps when additional source water sampling is required:

1. Samples must be collected within 24 hours of being notified of the fecal indicator-positive sample. If sampling cannot be completed within 24 hrs. IDNR must be contacted immediately.

2. Contact the IDNR immediately to see if corrective action is required or the system is to take the additional source water samples.
3. Collect five additional source water samples from the same well(s) that tested positive, using the same indicator as used in triggered source water monitoring following the same collection procedures as outlined in your bacterial sampling plan. Samples **must** be collected before any treatment. The samples may be collected one after the other. **Combined source samples are not permitted.**
4. The source water sample(s) must be labeled as Sample Type routine (RT), Facility ID as the well WL facility number (WL##), and Sampling Point ID as additional (AD)).

_____ PWS uses the following groundwater sources or combination of sources:

	Source ID	Operation Schedule
1.		
2.		
3.		
4.		

Triggered Monitoring Plan

TCR Sample Site	Contributing Source(s)	Seasonal Considerations

The _____ PWS receives water from the following groundwater wholesaler(s). Therefore, we are required to notify them within 24 hours from our notification of a positive routine TCR sample.

System Name	Contact	Contact Phone

The _____ PWS is a wholesaler of water to the following consecutive water systems. Therefore, when we are notified that they have had a positive routine TCR sample, we as the wholesaler must collect triggered source water samples within 24 hours of being notified by the consecutive system.

System Name	Contact	Contact Phone

Other Contact Information:

Laboratory		
Primary Contact Name:	Phone:	After Hours Phone:

DNR Field Office # _____		
Primary Contact Name:	Phone:	After Hours Phone:

DNR Water Supply Operations Section		
Primary Contact Name:	Phone:	After Hours Phone:
		None

NOTIFICATION LOG	
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