The Linkage Between the Ground Water and Total Coliform Rules

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This Meeting's Presentations

Objectives

Provisions

The Linkage Between the Ground Water and Total Coliform Rules

System compliance

Improvement

Research

Presentation Objectives

- What are the relevant provisions of the GWR?
- What PWSs are covered by the GWR?
- How does the GWR link to the TCR?
- How does the GWR address the TCR objectives?

Overview of the Ground Water Rule

- Provides for increased protection against microbial pathogens in public water systems that use ground water sources
- Builds on the Total Coliform Rule in addressing microbial contamination
- Builds on existing State Sanitary Survey programs
- Uses targeted, risk-based approach to identify high risk systems that are required to take corrective actions
- Compliance begins December 2009

Overview of the Ground Water Rule

- Applies to all PWS serving ground water
- Does <u>not</u> apply to systems that combine all their ground water with:
  - surface water, prior to treatment
  - groundwater under the influence of surface water, prior to treatment

Systems Subject to Ground Water Rule

	Number of Public Water Systems	Total Population Served (Millions)
Community Water Systems	42,361	100.4
Non-Transient, Non-Community Water Systems	18,908	5.1
Transient Non-Community Water Systems	86,061	8.7
TOTAL	**147,300**	**114.2**

Majority of Systems Subject to the GWR are Small Systems

- 86,747 serve fewer than 100 people (59% of Total PWS served by GW)
  - 12,843 CWS (30% of Total CWS served by GW)
  - 9,456 NTNCWS (50% of Total NTNCWS served by GW)
  - 64,448 TNCWS (75% of Total TNCWS served by GW)

GWR Elements

- Sanitary Surveys
- Triggered source water monitoring
- Corrective action
- Compliance monitoring if treatment provided
  - 4 log removal/inactivation of viruses

GWR Sanitary Survey Requirements
(Guidance expected January 2008)

- Conduct every 3 years for CWS; 5 years for NCWS (and some CWSs)
- Evaluate 8 minimum* elements
  1. Source
  2. treatment
  3. distribution system
  4. finished water storage
  5. pumps, pump facilities, and controls
  6. monitoring, reporting, and data verification
  7. system management and operation
  8. operator compliance with State requirements
- Identify significant deficiencies

*States are required to evaluate all of the 8 minimum elements that are applicable to that systems

Purpose of Triggered Monitoring is to Identify Source Water Contamination

- Applicable only to systems that do <u>not</u> provide and monitor for 4-log inactivation/removal of viruses
- A fecal indicator source water sample is triggered by a total coliform-positive sample collected under the TCR
  - At least one GW source sample for each TC positive
  - Link source waters to TC sampling sites to allow systems to locate potential sources of contamination
- State can allow exceptions to triggered monitoring if TC positive directly relates to the distribution system
  - As determined by the State or based upon State-specified criteria)

States Can Select from Three Indicators for Source Water Monitoring

- PWS must collect source water sample within 24 hours of TC positive and analyze for one of three State-selected fecal indicators:
  - *E. coli* , Enterococci, or Coliphage
  - Most appropriate indicator may vary from State to State or site to site, e.g. hydrogeology and type of contamination

Need for Corrective Action May "Cascade" Through Repeat Monitoring

If the source sample is fecal indicator-positive

Take corrective action (State option)

Or collect 5 additional source samples (State option)

If any of the 5 additional samples is fecal indicator- positive, PWS must take corrective action approved by the State.

Elements of Corrective Action

- If the State determines corrective action is warranted, then:
  - The system must take corrective action with 120 days or on a State approved schedule
- Corrective action approaches include the following:
  - eliminate source of contamination
  - correct significant deficiency
  - provide alternate source of water
  - 4-log inactivation and/or removal of viruses

How Does the GWR Link To the TCR?

- A TC positive from TCR monitoring is one pathway to begin evaluation of source water corrective action in the GWR
- Sanitary Survey requirements under the GWR are more comprehensive than under the TCR
  - Applies to all systems in the GWR
  - More specific scope

How does the GWR Address TCR Objectives?

OBJECTIVE	PROVISIONS	RULE
Evaluate the effectiveness of treatment	**Treatment process monitoring (4 log)** **Sanitary surveys** (Coliform monitoring*)	**GWR** **GWR** (TCR)
Determine the integrity of the distribution system	**Sanitary surveys** (Coliform monitoring*)	**GWR** (TCR)
Indicate possible fecal contamination	**Groundwater source sampling (only if there is a TC+ sample from TCR)** **Sanitary surveys** (TC+ sample analysis for *E. coli* / fecal coliform)	**GWR** **GWR** (TCR)

* For small systems, sanitary surveys can replace some TC monitoring.

Potential Distribution System Risks in GW Systems Remain

- While GWR requires corrective action for fecal contamination at the source, it does not require corrective action for fecal contamination in the distribution system
- While the TCR requires repeat monitoring and public notification associated with TC+, EC+, or FC+ attributed to the distribution system, the rule does not specify condition leading to corrective action.
- The above concerns may not apply to most transient non-community water systems since they have limited distribution systems
- Optional best management practices may be implemented at the discretion of the state
- Unlike surface water systems, the majority of GW systems do not disinfect