Agenda

• Revised Total Coliform Rule (RTCR) Overview
• Routine Sampling Requirements
• Repeat Sampling Requirements
• Monitoring Plan Requirements
• Assessments and Corrective Action
  o Level 1 Assessments
  o Level 2 Assessments
  o Corrective Action
• U.S. EPA Rule – 40 CFR Part 141 Subpart Y
• Only microbial drinking water regulation that applies to all public water systems (PWSs)
• The RTCR uses *E. coli* as an indicator of fecal contamination, rather than fecal coliforms
• The RTCR requires Public Notification (PN) when an *E. coli* MCL violation occurs: failure to conduct an assessment, failure to take corrective action, and failure to perform required testing.
RTCR Overview

• Monthly total coliform MCL replaced with Treatment Technique Trigger (TT). Under this TT requirement, total coliforms (TC) serve as an indicator of a potential pathway of contamination into the distribution system.

• Establishes Escherichia coli (E. coli) MCL

• E. Coli MCL violation occurs with any of these sampling result combinations

<table>
<thead>
<tr>
<th>ROUTINE</th>
<th>REPEAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC+</td>
<td>TC+</td>
</tr>
<tr>
<td>TC+</td>
<td>EC+</td>
</tr>
<tr>
<td>EC+</td>
<td>Any missing repeat sample</td>
</tr>
<tr>
<td>TC+</td>
<td>TC+ (but no E. coli analyzed)</td>
</tr>
</tbody>
</table>
Monitoring

- Results of all ROUTINE and REPEAT sampling included in determination of whether an Assessment is triggered.

- Failure to take every required repeat sample after any TC+

- ≥ 40 Routine Samples → > 5.0% TC+
- < 40 Routine Samples → ≥ 2 TC+ → Level 1 Assessment
Monitoring

- Results of all ROUTINE and REPEAT sampling included in determination of whether an Assessment is triggered.

2<sup>nd</sup> Level 1 Assessment

*E. coli* MCL violation

Level 2 Assessment
RTCR Sampling Requirements
Routine Sampling Requirements

- PWSs must collect routine TC samples at sites representative of water quality throughout distribution system according to written sample siting plan.
- PWSs collecting > 1 routine TC sample/month must collect samples at regular intervals throughout month.
  - Exception: PWSs using only ground water and serving ≤ 4,900 persons may collect all samples on single day if samples are taken from different sites.
- Each TC-positive (TC+) routine sample must be tested for EC.
- PWS must report each EC-positive (EC+) result to Department by end of day PWS learns of EC+.

The RTCR uses *E. coli* as an indicator of fecal contamination, rather than fecal coliforms.
Routine Sampling Requirements

- Sampling frequency for all community water systems (CWSs), non-community water systems (NCWSs) that are Subpart H systems, and NCWSs serving > 1,000 persons “Subpart H are responsible for complying with all applicable State rules and Federal regulations”

- Monthly TC samples based on population

<table>
<thead>
<tr>
<th>Population</th>
<th>Minimum Samples/Month</th>
<th>Population</th>
<th>Minimum Samples/Month</th>
<th>Population</th>
<th>Minimum Samples/Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1,000</td>
<td>1</td>
<td>21,501-25,000</td>
<td>25</td>
<td>450,001-600,000</td>
<td>210</td>
</tr>
<tr>
<td>1,001-2,500</td>
<td>2</td>
<td>25,001-33,000</td>
<td>30</td>
<td>600,001-780,000</td>
<td>240</td>
</tr>
<tr>
<td>2,501-3,300</td>
<td>3</td>
<td>33,001-41,000</td>
<td>40</td>
<td>780,001-970,000</td>
<td>270</td>
</tr>
<tr>
<td>3,301-4,100</td>
<td>4</td>
<td>41,001-50,000</td>
<td>50</td>
<td>970,001-1,230,000</td>
<td>300</td>
</tr>
<tr>
<td>4,101-4,900</td>
<td>5</td>
<td>50,001-59,000</td>
<td>60</td>
<td>1,230,001-1,520,000</td>
<td>330</td>
</tr>
<tr>
<td>4,901-5,800</td>
<td>6</td>
<td>59,001-70,000</td>
<td>70</td>
<td>1,520,001-1,850,000</td>
<td>360</td>
</tr>
<tr>
<td>5,801-6,700</td>
<td>7</td>
<td>70,001-83,000</td>
<td>80</td>
<td>1,850,001-2,270,000</td>
<td>390</td>
</tr>
<tr>
<td>6,701-7,600</td>
<td>8</td>
<td>83,001-96,000</td>
<td>90</td>
<td>2,270,001-3,020,000</td>
<td>420</td>
</tr>
<tr>
<td>7,601-8,500</td>
<td>9</td>
<td>96,001-130,000</td>
<td>100</td>
<td>3,020,001-3,960,000</td>
<td>450</td>
</tr>
<tr>
<td>8,501-12,900</td>
<td>10</td>
<td>130,001-220,000</td>
<td>120</td>
<td>≥ 3,960,001</td>
<td>480</td>
</tr>
<tr>
<td>12,901-17,200</td>
<td>15</td>
<td>220,001-320,000</td>
<td>150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17,201-21,500</td>
<td>20</td>
<td>320,001-450,000</td>
<td>180</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Change

Systems serving ≤ 1,000 persons will take 1 sample/month instead of 2 samples/month.
Routine Sampling Requirements

• Criteria for reduced/annual sampling

  • **NCWS** has clean compliance history for at least 12 months
    • Clean compliance history = no violations of microbiological MCLs, RTCR TT requirements, or TCR/RTCR monitoring requirements

  • **Most recent sanitary survey shows…**
    • NCWS is free of sanitary defects or has corrected all such defects;
    • NCWS has protected water source; and
    • NCWS meets DEP construction standards

  • **DEP has conducted annual site visit within last 12 months, and NCWS has corrected all identified sanitary defects**
    • NCWS may substitute annual voluntary Level 2 Assessment for DEP annual site visit

• The Department is not allowing reduced monitoring for community water systems under RTCR
Routine Sampling Requirements

- Additional routine sampling

  - NCWSs sampling quarterly or annually must take 3 additional routine TC samples during month following any TC+ routine sample.

Changes

Only NCWSs sampling quarterly or annually, instead of all PWSs collecting fewer than 5 routine TC samples/month, will be required to collect additional routine TC samples during the month following a TC+ routine sample. Also, only 3, instead of 5, additional routine TC samples will be required.
Repeat Sampling Requirements

• If any routine sample is TC+, PWS must collect set of 3 repeat TC samples within 24 hours of being notified of TC+
  - 1 repeat sample from same tap where original TC+ sample was taken
  - 1 repeat sample at tap within 5 service connections upstream
  - 1 repeat sample at tap within 5 service connections downstream

• PWSs may propose alternative repeat sampling sites

• If repeat sample is TC+…
  - Sample must be analyzed for EC
    - If sample is EC+, PWS must notify DEP by end of day PWS learns of EC+
  - PWS must collect another set of 3 repeat samples unless an assessment has been triggered

Change: Transient non-community water systems taking quarterly routine TC samples no longer must take 4 repeat samples after a TC+ routine sample

Change: PWSs must continue repeat sampling until an assessment has been triggered instead of until a microbiological MCL violation occurs
Monitoring Plan Requirements
## TCR vs RTCR Requirements

<table>
<thead>
<tr>
<th>Total Coliform Rule (TCR)</th>
<th>Revised Total Coliform Rule (RTCR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• TC MCLG of zero</td>
<td>• No MCL/MCLG for TC</td>
</tr>
<tr>
<td>• TC monthly MCL based on the number of TC+ samples in a month</td>
<td>• Confirmed TC+ triggers investigation and corrective action</td>
</tr>
<tr>
<td>• <em>E. coli</em>/fecal coliform acute MCL based on EC+/FC+ samples</td>
<td>• <em>E. coli</em> MCL based on TC/<em>E. coli</em> monitoring results (Fecal coliform is no longer used)</td>
</tr>
<tr>
<td>• Public Notification:</td>
<td>• Public Notification:</td>
</tr>
<tr>
<td>Non-acute MCLs</td>
<td><em>E. coli</em> MCLs</td>
</tr>
<tr>
<td><em>E. coli</em> or fecal MCLs</td>
<td>Failure to perform required testing</td>
</tr>
<tr>
<td>Failure to perform required testing</td>
<td>Required for failure to conduct assessment</td>
</tr>
</tbody>
</table>

**New**
3 situations where plans must be **SUBMITTED** to Department:

- Alternative repeat locations
- Seasonal systems on reduced monitoring
- Ground Water Rule dual purpose samples

2 situations where plan must be **APPROVED** by Department:

- Seasonal systems on reduced monitoring
- Ground Water Rule dual purpose samples
Monitoring Plan Components

Sampling Locations
- Must be representative of water throughout the distribution system
- Routine and repeat monitoring locations must be identified (may continue to use 5 up/downstream)
- Must show all applicable GWR monitoring sites

Sample Collection Schedule
- Samples must be collected at regular time intervals throughout the month
- Systems serving ≤ 4,900 may collect all samples on a single day if taken from different sites
Sampling Locations

Monitoring plan must include locations for:

- Routine samples
- Repeat samples (SOP for this will work)
- GWR samples
  - Sampling locations for dual-purpose samples must be noted and approved

Monitoring may take place at:

- Customer’s premises, or
- Dedicated sampling station, or
- Other designated compliance sampling location
Assessments and Corrective Action
Assessments and Corrective Action

• **Assessment = evaluation to identify…**
  - Possible defects in distribution system TC sampling practices
  - Possible sanitary defects

• **Sanitary defect = defect that…**
  - Could provide pathway for entry of microbial contamination into distribution system
  - Is indicative of failure, or imminent failure, of barrier in place

• **Two levels of assessments based on severity or frequency of problem**
  - Level 1 Assessment
  - Level 2 Assessment
• Level 1 Assessments
  • Performed by PWS owner or operator
  • Basic examination of source water, treatment, distribution system, and relevant operational practices

• Triggers
  • PWS taking < 40 samples/month has 2 or more TC+ routine/repeat samples in same month
  • PWS taking ≥ 40 samples/month has > 5.0% TC+ routine/repeat samples in same month
  • PWS fails to take every required repeat sample after any TC+ routine/repeat sample
• Level 2 Assessments

• Level 2 assessments must be conducted by a party approved by the state, a third party, or the utility where the system has staff or management with the required certification or qualifications specified by the state.

• The system must also comply with any expedited actions or additional actions required by the state in the case of an *E. coli* MCL violation.

• Triggers
  • *EC* MCL violation
  • 2nd Level 1 Assessment triggered within rolling 12-month period
  • PWS conducting annual sampling triggers Level 1 Assessment in 2 consecutive years
Assessments and Corrective Action

• PWSs must describe on form for each assessment…
  • Any sanitary defects found
  • Corrective actions completed
  • Proposed schedule for any corrective actions not already completed

• PWSs must submit assessment form to DEP within 30 days after learning assessment is required

• DEP will…
  • Review assessment form
  • Consult with PWS, and approve any schedule for corrective action, case-by-case as necessary

• PWS must notify DEP when each scheduled corrective action is completed
Level 1 Assessments

• Have any of the following occurred prior to collection of TC samples?
  • Treatment interruption
  • Pressure loss event (< 20 psi)
  • Operation & Maintenance activities that could introduce TC
  • Vandalism/unauthorized access to facility
  • Visible indication of unsanitary conditions
  • Fire, flushing, damaged hydrants, etc.

• Have there been any recent operational changes to the system?
  • Evaluate Sample Site
  • Sample Protocol
Level 1 Assessments

- Distribution System Evaluation
- Storage Tanks
- Treatment Process
- Source
  - Well
  - Surface water
  - Wholesaler
- Disinfection system
Level 2 Assessments

• Have any of the following occurred prior to collection of TC samples?
  • Treatment interruption
  • Pressure loss event (< 20 psi)
  • O&M activities that could introduce TC
  • Vandalism/unauthorized access to facility
  • Visible indication of unsanitary conditions
  • Fire, flushing, damaged hydrants, etc.

• Recent treatment or operational changes

• Evaluate Sample Site
• Sample Protocol
• Distribution System
Level 2 Assessments

- Storage Tanks
- Treatment Process
- Source
  - Well, surface water, purchase
- Disinfection
- Environmental Events
  - Hurricane, tornado, flood, etc.
Contact Information

If you have any questions, please contact:

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