Revised Total Coliform Rule and Assessments

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Office of Drinking Water Mission

We work with others to protect the health of the people of Washington State by ensuring safe and reliable drinking water.
Revised Total Coliform Rule (RTCR)

- Started April 1, 2016
- Applies to all water systems
Transitioned from TCR to RTCR

Transitioned to the RTCR with the monitoring frequency that was in effect on March 31, 2016, under the TCR.
Increased Public Health Protection

- The RTCR maintains and strengthens the purposes of the TCR
  - Monitoring for microbial contamination
  - Determining the integrity of the distribution system
  - Evaluating the effectiveness of treatment
  - Reducing pathways of microbial contamination into the distribution system
  - Finding and fixing
New Terms

- Assessment
- Assessor
- Best Management Practices
- Corrective action – find and fix
- Defect (issue)
- *E. coli Maximum Contaminant Level (MCL)*
- Follow Up (Additional Routine)
- Level 1 assessment
- Level 2 assessment
- Performance Measures
- Sample siting plans (Coliform Monitoring Plan)
- Sanitary defect (issue)
- Seasonal water system
- Start-up procedure
- TCR – RTCR transition
- Treatment Technique Violation
- Treatment Technique Trigger
- ?
Biggest Change

- Assessment - An examination or investigation of the water system when there is a treatment technique trigger or an *E. coli* MCL
  - How and where did coliform enter into the water system

- Two types:
  - Level 1 – basic
  - Level 2 – more comprehensive
Total Coliform Bacteria

- Research shows many organisms detected by total coliform methods are:
  - Not of fecal origin
  - Do not have any direct public health implication
- Total coliform is still a useful indicator that a pathway exists for contamination
- **New** Non-acute MCL and notification requirement replaced by Treatment Technique Trigger (TTT)
Key

- TC- (absent – satisfactory)
- TC+EC- (total coliform-present and *E. coli* absent)
- TC+EC+ (total coliform-present and *E. coli-present*)
Coliform Monitoring Plan

- Update Coliform Monitoring Plans
- DOH Publication #331-036 – Preparing a Coliform Monitoring Plan: For Large or Multiple Source Systems
- DOH Publication #331-240 – Preparing a Coliform Monitoring Plan: For Systems with One Source of Supply
- Sites may include a customer’s premise, designated sampling station, or other compliance sampling station
- Site of TC+ routine sample, site within five active connections downstream, and site within five active connections upstream
- New Can specify fixed alternative locations or criteria for selecting repeat sites on a situational basis by having a Standard Operating Procedure (SOP)
- Are subject to state review and revision
Routine Samples

- No change from the TCR
- Follow number and frequency on WFI
Repeat Samples

- **New** All systems collect three repeat samples for every TC+ routine sample

- Must collect within 24 hours – state may extend
Failure to Collect All Repeat Samples

- **New** Failure to collect three repeat samples after every TC+EC- routine triggers a Level 1 assessment (TTT)

- **New** Failure to collect three repeat samples after an TC+EC+ routine triggers a Level 2 assessment (*E. coli* MCL)
Groundwater Rule and the RTCR

- **New** No longer a Groundwater Rule repeat sample (GWRR)
- All Groundwater Rule samples
  - Raw
  - *E. coli* sample for the GWR
  - List the DOH source number (SO ___)
- Separates RTCR and GWR for compliance purposes
NEW Treatment Technique Trigger (TTT) for Total Coliform

When do you have a treatment technique trigger?

- Systems that collect 40 or more routine samples a month - greater than 5.0 percent of routine and repeat samples are TC+EC-
- Systems that collect fewer than 40 routine samples a month - two or more routine / repeat samples are TC+EC-
- Three repeat samples not collected for every TC+EC- routine sample
- Public notification for total coliform-present samples not required (Nonacute MCL notification)
E. Coli MCL

- **New** E. coli MCL (same as Acute MCL)

- **New** Failure to collect three repeat samples for a TC+EC+ routine

- 24-hour notification still required

- **New** Level 2 Assessment required
Following Month

- **New** Sample monthly – no increase the month after a TC+ routine sample (no longer required to collect at least 5 routine)

- **New** NTNC or TNC If not monthly – collect three follow-up samples the following month or scheduled routine
New Seasonal Water System

- New type of non-community water system (NTNC / TNC)
- Starts up/shuts down at the beginning/end of each operating season and the water lines are depressurized
- Prior to providing water follow state-approved start-up procedure
- Must certify to ODW that procedures followed prior to providing water
keep it simple
Assessments are Not New

- TCR – ODW always recommended you “find and fix” to resolve a coliform problem
- RTCR – Will require a formal response of “find and fix” by doing an assessment
Suggested Steps in Assessment Process

- Work with ODW
- Identify assessment team member(s)
- Review assessment template
- Gather available data and information
- Identify data and information gaps
- Conduct the field investigation
- Complete and submit assessment
- Develop follow-up work plan
Assessment Elements

- Atypical events that might affect water quality in the distribution system such as power outages, loss of pressure, heavy rains, etc.
- Changes in distribution system maintenance and operation that could affect distributed water quality, including water storage
- Source and treatment considerations that could affect distribution water quality
- Existing water quality monitoring data
- Inadequate sample sites, sampling protocol, and sample processing
- Others, depending on the size and complexity of the system
# Level 1 Assessment

<table>
<thead>
<tr>
<th>Routine and Repeat Samples</th>
<th>Required Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Treatment Technique Triggers</strong></td>
<td></td>
</tr>
<tr>
<td>Systems that collect 40 or more routine samples a month and greater than 5.0 percent of routines/repeats are total coliform-present (TCR Non-Acute MCL)</td>
<td>Level 1</td>
</tr>
<tr>
<td>Systems that collect fewer than 40 routine samples a month and two or more routine/repeats are total coliform-present (TCR Non-Acute MCL)</td>
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</tr>
<tr>
<td>Failure to collect three repeat samples for a TC+EC- routine sample</td>
<td>Level 1</td>
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</table>
Level 1 Assessment for a Treatment Technique Trigger (TTT)

- Basic examination of source, treatment, distribution system, and relevant operational practices
- Self-assessment – owner, manager, or someone familiar with the water system
- Look for issues (sanitary defects and defects) that could allow or cause contamination – pathway
- ODW will provide a Level 1 assessment template to use
- Assessment due to ODW within 30 days of being triggered
- System must comply with any expedited or additional actions required by ODW
- Either ODW, system, or assessor can request a consultation to discuss the situation
## Level 2 Assessment

<table>
<thead>
<tr>
<th>Sample Results</th>
<th>Required Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>E. coli</strong> MCL (TCR Acute MCL)</td>
<td>Level 2</td>
</tr>
<tr>
<td><strong>E. coli</strong> MCL – Three repeat samples not collected for <em>every TC+EC</em> routine sample</td>
<td>Level 2</td>
</tr>
<tr>
<td>TC+ repeat sample and not analyzed for <em>E. coli</em></td>
<td>Level 2</td>
</tr>
<tr>
<td><strong>Second Level 1 (TTT) in a rolling 12 months</strong></td>
<td>Level 2</td>
</tr>
<tr>
<td>If ODW determines the reason for the first TTT and it was fully corrected</td>
<td>Reset?</td>
</tr>
</tbody>
</table>

*Note: TTT stands for Three Triggers Triggered.*
Level 2 Assessment for Total Coliform-Present Samples

- More comprehensive examination of source, treatment, distribution, and relevant operational practices – may require multiple experts
- Qualified person – professional engineer, WDM2 or above
- Look for issues (sanitary defects and defects) that could allow or cause contamination – pathway
- ODW will provide a Level 2 assessment template
- Completed assessment due to ODW within 30 days of being triggered
- System must comply with any expedited or additional actions required by ODW
- Either ODW, system, or assessor can request a consultation to discuss the situation
E. Coli MCL Level 2 Assessments

- High Public health concern – ODW or Local Health Department will continue doing SPI
- For small uncomplicated systems SPI may qualify as a level 2 assessment
- Larger or more complicated systems must have an engineer or WDM 2 or above do assessment
- May require the water system to call in experts to assist with resolving the problem
- System must comply with any expedited or additional actions required by ODW
‘Find and Fix’
Incident Investigation – How Did Coliform Get into the Water System?

- Look for:

  - Sanitary defect – an identified pathway for microbial contamination to enter into the distribution system or failure or imminent failure of a barrier that is already in place

  - Defect – an issue that is not a pathway, such as improper sample collection technique

  - Referred to as issues
Find and Fix

During an assessment inspect the entire water system as there may be multiple issues

- Source
- Treatment
- Storage
- Distribution

- Find – identify the pathway that allowed coliform bacteria to enter the distribution system
- Fix – corrective action to remove the pathway
- May not identify an issue
Common Corrective Actions

- Well maintenance or repair
- Replacement or repair of distribution system
- Storage facility maintenance – replacing screens, hatch seal, sealing cracks, cleaning
- Restoring adequate pressure
- Disinfection
- Resolve cross connections
- Training on proper sample collection technique
What Do You Do With An Assessment?
Level 1 and Level 2 Assessments

- Due to ODW within 30 days of when system learned assessment was triggered

- Includes:
  - Issues (sanitary defects and defects) identified during assessment or none identified
  - Corrections – what you did to fix and when did you fix. Also send pictures, receipts, and other documentation
  - Issues not corrected – develop a Corrective Action Plan
    - Description of issues not corrected and anticipated date of correction

- ODW will review:
  - Determine if assessment is sufficient
  - Review Corrective Action Plan – is the timetable acceptable

- Either ODW, system, or assessor can request a consultation to discuss the situation
Projected SWRO

- Level 1 TTT – 110
- Level 2 TTT – 25
- Level 2 *E. coli* MCL – 10
- No repeats – 10
- Fewer than three repeats? Unknown
WHAT TO LOOK AT
AND WHAT TO LOOK FOR TO GET Results
Best Management Practices

Best technology, treatment techniques, or procedures available for preventing contamination

- Appropriate well location and construction
- Proper operation and maintenance
- Good operation and maintenance of disinfection facilities
- Operator trained on sample collection technique
- Good selection of sample sites
Be Proactive

- Routinely check out your water system and find and fix
- Anticipate that a TTT or *E. coli* MCL could occur anytime you collect routine and repeat samples
- Your goal is to always provide good quality and quantity of water
RTCR Violations
# Ways to Have an *E. Coli MCL* Violation

<table>
<thead>
<tr>
<th>Routine Sample Result</th>
<th>Repeat Sample Result</th>
<th>Assessment</th>
<th>Public Notification Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC+EC+</td>
<td>TC+EC- or TC+EC+</td>
<td>Level 2</td>
<td>Tier 1 – within 24 hours</td>
</tr>
<tr>
<td></td>
<td><em>E. coli MCL</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TC+EC-</td>
<td>TC+EC+</td>
<td>Level 2</td>
<td>Tier 1 – within 24 hours</td>
</tr>
<tr>
<td></td>
<td><em>E. coli MCL</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TC+EC+</td>
<td>Failure to collect ALL repeat samples <em>E. coli MCL</em></td>
<td>Level 2</td>
<td>Tier 1 – within 24 hours</td>
</tr>
<tr>
<td>TC+ repeat but no <em>E. coli</em> analysis <em>E. coli MCL</em></td>
<td>Level 2</td>
<td>Tier 1 – within 24 hours</td>
<td></td>
</tr>
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## Treatment Technique Violations

<table>
<thead>
<tr>
<th>Any of the Following Situations</th>
<th>Public Notification</th>
</tr>
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<tbody>
<tr>
<td>Failure of a system to conduct a required Level 1 or Level 2 assessment within 30 days of learning of the TT trigger</td>
<td>Tier 2 – within 30 days</td>
</tr>
<tr>
<td>Failure of a system to correct any sanitary defect identified in a Level 1 or Level 2 assessment within 30 days of learning of the trigger or in accordance with a corrective action plan/schedule approved by ODW</td>
<td>Tier 2 – within 30 days</td>
</tr>
<tr>
<td>Failure of a seasonal system to complete state-approved start-up procedure prior to serving water to the public</td>
<td>Tier 2 – within 30 days</td>
</tr>
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</table>
### Monitoring & Reporting Violations

<table>
<thead>
<tr>
<th>System Fails to Do</th>
<th>Public Notification</th>
</tr>
</thead>
<tbody>
<tr>
<td>(M) Collect every routine</td>
<td>Tier 3 – no later than 12 months</td>
</tr>
<tr>
<td>(M) TC+ routine not analyzed for <em>E. coli</em></td>
<td>Tier 3 – no later than 12 months</td>
</tr>
<tr>
<td>(R) Submit a monitoring report or completed assessment form after a system properly conducts monitoring or assessment within 30 days of learning of the trigger</td>
<td>Tier 3 – no later than 12 months</td>
</tr>
<tr>
<td>(R) Notify the state following an EC+ sample by end of next business day (call 1-877-481-4901 evenings and holidays)</td>
<td>Tier 3 – no later than 12 months</td>
</tr>
<tr>
<td>(R) Submit a certification of state-approved start-up procedures by a seasonal system</td>
<td>Tier 3 – no later than 12 months</td>
</tr>
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</table>
## RTCR Information

### What’s Available

<table>
<thead>
<tr>
<th>Revised Total Coliform Rule</th>
<th>New WEBSITE</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Revised Total Coliform Rule DOH PUB #331-556</th>
<th>(brochure)</th>
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<table>
<thead>
<tr>
<th>H2Ops</th>
<th>November 2015 Revised Total Coliform Rule</th>
</tr>
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<table>
<thead>
<tr>
<th>Currently working on draft regulation</th>
<th>will be available for comment soon</th>
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| Many RTCR updated publications available on our website |
Questions about the RTCR

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