REVISED TOTAL COLIFORM RULE (RTCR) IMPLEMENTATION CHALLENGES

APRIL 30, 2019

MIDWEST ASSISTANCE PROGRAM

EPA RULE TRAINING

OVERVIEW

• Revised Total Coliform Rule (RTCR) in a Nutshell
• RTCR Implementation Challenges
• Monitoring
  • Sample Siting Plans
  • Sample Types
  • Important Information to Remember
• Seasonal Systems
• “What If” Scenarios?
• Assessments & Corrective Action
• Violations (TT & MCL)
• Data – Drinking Water Watch and R8DWU@epa.gov
ELEMENTS OF RTCR

1) Monitoring
2) Contaminant Levels (MCLG & MCL)
3) Assessment and Corrective Action
4) Reporting and Record Keeping
5) Violations and Public Notification

REVISED TOTAL COLIFORM RULE (IN A NUTSHELL)

- Revised rule went into effect in April 2016.
- All Region 8 systems required to monitor monthly due by the 10th of the following month.
- All water systems were required to complete a Sample Siting Plan by April 1, 2016.
- Before serving water to the public, seasonal systems MUST complete a Seasonal Startup Checklist and certify to EPA it was completed, EVERY YEAR.
- For every TC+, system must collect 3 repeat samples and a TR GWR sample (if applicable) within 24 hours.
REVISED TOTAL COLIFORM RULE (IN A NUTSHELL)

• If system has two or more TC+s in one monitoring period a Level 1 Assessment is triggered.

• Multiple Level 1 Assessments in a rolling 12-months become a Level 2 Assessment.

• One of the ways an *E. coli* MCL violation is triggered is when there is coordinated EC+ and TC+ in a distribution system.

• Treatment technique violations are triggered when a required action is not completed on time.

• Reporting violations may be triggered if a sample result is late.

• Public Notification is required with any violation.

TRUE OR FALSE: MCL VIOLATIONS ARE THE ONLY TYPES OF VIOLATIONS ASSOCIATED WITH THE RTCR.

HOW THE REVISED TOTAL COLIFORM RULE (RTCR) PROTECTS PUBLIC HEALTH

• Coliforms are used as indicator organisms for potential pathogenic contamination.

• If a sample is TC+, you must instruct your lab to further analyze the sample for *E. coli* (fecal coliform is no longer allowed under RTCR).

• Find and fix the problem!
RTCR IMPLEMENTATION CHALLENGES

• Labeling samples – The RTCR site name must include the actual location where the sample was collected. SP0# is not an acceptable sample site for total coliform samples.

• Incomplete Chain of Custody – If there is no PWSID on a chain of custody EPA will not accept the result. Other items often missing include the sample date, sample time, and sample type (routine, repeat, or special).

• Operator Education – not knowing sampling requirements (i.e., Seasonal Startup Checklist) doesn’t excuse a violation.

• Change in Seasonal Schedule – PWS changes schedule without informing EPA (i.e., early seasonal closure).
RTCR IMPLEMENTATION CHALLENGES

• **Sampling Schedule** – systems are waiting to the end of the week or month to collect samples.

• **Reporting Results Late to EPA** – be clear with your lab about who is sending results to EPA and when. What if you have to take repeat samples? Who sends those results?

• **Sample Holding Time** – if the sample is not analyzed within 30 hours of collection, the lab will reject your sample.

• **Non-certified Labs** – if a non-certified lab is used, EPA will reject the sample result. There is a list of certified labs on the Region 8 EPA website.

• **Frozen samples** – ask your lab to include a bottle of de-ionized water with your sample bottles.

MONITORING

A. SAMPLE SITING PLANS

B. RTCR AND GWR SAMPLE TYPES

C. HAND PUMPS
MONITORING: SAMPLE SITING PLANS

Ensure you are monitoring all parts of your water system. The plan **must** include:

- Routine sample location(s) (for each month)
- List potential repeat sample site locations
- List GWR source location, if necessary
- Include a map of your distribution system (not just buildings but transmission lines, water mains etc.).

Pretend you are creating a map for someone to find a treasure that they will give entirely to you. You want that map to be as clear as possible so they can find the treasure each month.

**TRUE OR FALSE:** IT IS OK TO USE THE SCHEMATIC MAP THAT INDICATES THE NITRATE SAMPLING LOCATION FOR A SAMPLE SITING PLAN.

### UNACCEPTABLE SAMPLE SITING PLAN MAP

Entry Point - Sample Points (SP) shown on the schematic are **ONLY** for Nitrates, PADs, IOCs, SOCs, and VOCs. If you sample for other contaminants, please refer to your individual Site Sampling or Monitoring Plans.

Agreed to by: __________________________
Date: __________________________

Avengertown
WY5600000

Storage Tank (500K)
& Sampling Point (ST01)/(SP01)

Well #1 (WL01)

Avengertown Distribution (DIST 1)
## Monitoring: Sample Siting Plans

### RTCR Sample Siting Plan

RTCR Sample Siting Plan - Avengertown WY5600000

**Updated 04/25/2019**

<table>
<thead>
<tr>
<th>Month</th>
<th>Routine Sample Site</th>
<th>Repeat Sample Site</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>1. 123 Grut Dr.</td>
<td>(same as routine)</td>
<td>WL01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>189 Grut Dr.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>100 Grut Dr.</td>
<td></td>
</tr>
<tr>
<td>February</td>
<td>2. 562 Pepper Way</td>
<td>(same as routine)</td>
<td>WL01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>500 Pepper Way</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>575 Pepper Way</td>
<td></td>
</tr>
<tr>
<td>March</td>
<td>3. 2014 Thanos Blvd.</td>
<td>(same as routine)</td>
<td>WL01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2000 Thanos Blvd.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2050 Thanos Blvd.</td>
<td></td>
</tr>
<tr>
<td>April</td>
<td>1. 123 Grut Dr.</td>
<td>(same as routine)</td>
<td>WL01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>189 Grut Dr.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>100 Grut Dr.</td>
<td></td>
</tr>
<tr>
<td>May</td>
<td>2. 562 Pepper Way</td>
<td>(same as routine)</td>
<td>WL01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>500 Pepper Way</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>575 Pepper Way</td>
<td></td>
</tr>
</tbody>
</table>
Revised Total Coliform Rule (RTCR) Sample Types:
1. ROUTINE
2. REPEAT
3. SPECIAL

Ground Water Rule (GWR) Sample Type:
1. TG GWR SOURCE SAMPLE

RTCR AND GWR SAMPLE LABELING INSTRUCTIONS

EPA Region 8 Revised Total Coliform Rule and Ground Water Rule Sample Labeling Instructions

These instructions are specific to the Revised Total Coliform Rule (RTCR) and the Ground Water Rule triggered monitoring (TG GWR) samples ONLY. They do not pertain to samples collected for Nitrates, Chemicals, Lead, Copper or any other contaminants. ONLY RTCR and TG GWR.

There are 4 types of samples that may need to be collected under the RTCR and GWR.

1. Routine
2. Repeat
3. Special
4. Ground Water Rule – Triggered (TG GWR) – not applicable to surface water systems or those that only purchase water from another system.
RTCR MONITORING: ROUTINE SAMPLES

• All PWSs must collect routine total coliform samples each month they serve water to the public.
  
  • The number of samples collected for RTCR is dependent on the population served, and/or
  
  • The number of independent sources/distribution systems.
  
  • The chain of custody must clearly indicate that the sample is a ROUTINE sample.
  
  • If your system disinfects then a free or total chlorine residual is required from the site at the time the routine or repeat RTCR sample is collected.
RTCR MONITORING: REPEAT SAMPLES

- Repeats need to be taken ASAP after a TC+ routine sample result (ideally within 24 hours*).
- Repeats samples **MUST** be taken within 24-HOURS of notification of any **EC+**.
- Take repeats **before** shock chlorinating or taking other measures. Otherwise you are just masking the problem!
- Collect a set of three (3) repeat samples for each (1) routine TC+.

*The 24-hour requirement for repeats after a routine TC+ may be extended ONLY after approval by EPA.

TRUE OR FALSE: YOU HAVE 5 DAYS TO COLLECT A REPEAT SAMPLE AFTER A TC+ RESULT.

RTCR MONITORING: SPECIAL SAMPLES

- Special samples during repairs will **NOT** count toward compliance if they are specified as “special” **before** they are analyzed.
- Only samples marked “special” will not count towards compliance (i.e., Seasonal startup sample).
- However, even if you are doing work on your system you are required to collect a compliance sample (ROUTINE), if you mark it “special” you will receive a monitoring violation.
MONITORING

IMPORTANT INFORMATION TO REMEMBER!

REMEMBER!!

- **Sample Bottles:** Use only clean, undisturbed containers supplied by a R8 certified lab. Label them properly and keep extra bottles on hand if repeats or re-samples are necessary.

- **30-Hour Holding Time:** Is from when sample is collected until the lab begins analysis of the sample. Samples over 30 hours WILL NOT BE ACCEPTED BY EPA!!

- **Chain of Custody:** If you do not include the PWSID, sample type (Routine, Repeat or Special), the date & time the sample was collected and the sample location you may receive a violation because EPA could not track your sample(s) results correctly.
HAND PUMPS

HAND PUMPS, SSPs and REPEAT SAMPLES

• What if there is no distribution system?
• On the sample siting plan (SSP) list the hand pump as the routine and repeat and source sample!
• After a TC+ or EC+, your four repeat samples will be collected in succession and labeled as 3 repeats and one TG GWR sample.
• This only applies if the well is not hooked up to anything else, it is just a hand pump (and maybe a storage tank).
SEASONAL SYSTEM STARTUP REQUIREMENTS

Systems that only serve water to the public for part of the year must:

• Complete all EPA-required seasonal system startup procedures prior to serving water to customers (including a “special” sample).

• Submit the Seasonal Startup Checklist before water is served to the public.

• Sample every month open, even if only a few days.

A “SPECIAL” START-UP SAMPLE CANNOT COUNT AS YOUR MONTHLY REQUIRED SAMPLE.
“WHAT IF”? SCENARIOS

FOLLOW-UP TO AN UNSAFE/TOTAL COLIFORM POSITIVE SAMPLE

STEPS TO TAKE AFTER A ROUTINE POSITIVE/UNSAFE TC+ TOTAL COLIFORM SAMPLE

1) Collect three (3) REPEAT samples in the distribution system for each positive sample WITHIN 24 HOURS OF NOTIFICATION OF THE ROUTINE TC+ SAMPLE RESULT mark the samples as RTCR repeats. Notify EPA of your TC+ by calling 1-800-227-8917, and ask to speak to the RTCR manager.

2) Collect your GWR source sample(s) if you use a ground water source (e.g., well or spring).

REMEMBER: ANYTIME YOU HAVE AN E. COLI POSITIVE (EC+) SAMPLE, CALL EPA IMMEDIATELY AT 1-800-227-8917 AND ASK TO SPEAK TO THE RTCP MANAGER.

For help labeling samples: https://www.epa.gov/region8-waterops/revised-total-coliform-rule.
## WHAT IF: RTCR SAMPLING EXAMPLES

A system collects 2 ROUTINE samples and both are TC+. Three (3) REPEATS are required at each ROUTINE TC+ site (six total). (If system subject to the GWR, 2 triggered GWR samples also required.)

<table>
<thead>
<tr>
<th>Scenario A) If all repeats are negative (TC-):</th>
</tr>
</thead>
<tbody>
<tr>
<td>• If the system collects fewer than 40 samples per month, a Level 1 Assessment is triggered.</td>
</tr>
<tr>
<td>• If the system collects more than 40 samples per month, no further action.</td>
</tr>
<tr>
<td>• Return to routine sampling next month.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scenario B) If any repeat sample is TC+:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• All systems trigger a Level 1 Assessment.</td>
</tr>
<tr>
<td>• No further repeats needed.</td>
</tr>
<tr>
<td>• Return to routine sampling next month.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scenario C) If any repeat sample is EC+:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Notify EPA immediately.</td>
</tr>
<tr>
<td>• Level 2 Assessment triggered.</td>
</tr>
<tr>
<td>• Acute <em>E. coli</em> MCL violation/Tier 1 PN required.</td>
</tr>
<tr>
<td>• Return to routine sampling next month.</td>
</tr>
</tbody>
</table>

## ASSESSMENTS AND CORRECTIVE ACTION
PURPOSE OF ASSESSMENTS

• Find and fix the problem!

• RTCR requires PWSs to investigate the entire water system when monitoring results show the system may be vulnerable to contamination and correct any “sanitary defects” identified.

• Level 1 Assessment - a basic Assessment (Level 1) completed by the PWS.

• Level 2 Assessment - a more detailed Assessment conducted with an EPA R8 approved third party.

• Failure to complete an Assessment and/or correct a sanitary defect is a treatment technique (TT) violation.

VIOLATIONS

(TREATMENT TECHNIQUE and MCL)
TREATMENT TECHNIQUE VIOLATION

• A treatment technique violation is incurred when a treatment technique trigger is left unaddressed. Some examples include:
  • A Level 1 Assessment is not completed and returned to EPA,
  • Failure to complete the corrective action identified in an Assessment,
  • Failure to complete a Seasonal Startup Checklist prior to opening for the season.

E. COLI MCL VIOLATIONS

<table>
<thead>
<tr>
<th>E. coli MCL Violation Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine sample</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>(1) TC+</td>
</tr>
<tr>
<td>(2) EC+</td>
</tr>
<tr>
<td>(3) EC+</td>
</tr>
<tr>
<td>(4) TC+</td>
</tr>
</tbody>
</table>
**E. coli MCL Violation Requirements:**

- **You must notify EPA within 24 hours.**
- If the MCL violation is related to an EC+ you may be required to issue a boil water alert and provide an alternative source of water.
- Hand deliver public notification.
- An Emergency Administrative Order (EAO) will be issued by the EPA Enforcement Division.
- **Within 30 days,** complete all of the following:
  - Complete and submit Level 2 Assessment form.
  - "Find and fix" all sanitary defects.

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**Drinking Water Watch**

Drinking Water Watch Online
https://sdwisr8.epa.gov/region8dwwpub/default.jsp

- No password needed.
- Check sample results for all reported analytes.
- Give EPA about a week to enter results after you received them from your lab.
- Check annual monitoring and reporting requirements.
- Send all data to R8DWU@epa.gov with the PWSID and contaminant in the subject line.
1. Include your PWS ID# in the subject line of the e-mail.

2. Include the correct keyword or abbreviation for the documentation being submitted in the subject line of the e-mail.

3. More than one type of documentation can be submitted in the same e-mail as long as the subject line of the e-mail contains the correct keyword or abbreviation for each type of document being submitted. Each keyword should be separated by a comma. For example, if an e-mail contains both nitrates, inorganic compounds (IOC), volatile organic compounds (VOC), and synthetic organic compounds (SOC) results; the e-mail subject could be: “WY5600000 NO3, IOC, VOC, SOC”.

4. Do not copy any EPA staff on the e-mail.
RESOURCES

• REVISED TOTAL COLIFORM RULE LAB SAMPLING FORM
  https://www.epa.gov/region8-waterops/revised-total-coliform-rule-lab-sampling-form

• RTCR AND GWR SAMPLE LABELING INSTRUCTIONS
  https://www.epa.gov/region8-waterops/rtcr-and-gwr-sample-labeling-instructions

• EPA REGION 8 DRINKING WATER UNIT TECH TIPS: FOLLOW-UP TO AN UNSAFE
  TOTAL COLIFORM POSITIVE SAMPLE
  https://www.epa.gov/region8-waterops/epa-region-8-drinking-water-unit-tech-tips-follow-un safetotal-coliform-positive

• BEST PRACTICES TO COLLECT A TOTAL COLIFORM WATER SAMPLE
  https://www.youtube.com/watch?v=k_l294gppak

• REPORTING PUBLIC DRINKING WATER SYSTEM RESULTS IN WYOMING AND
  TRIBAL EPA REGION 8

QUESTIONS?

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