

Preparing for Revisions to the Total Coliform Rule (RTCR)

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Intent and Focus of This Presentation

- **How can the Partnership help to prepare you for RTCR?**
- **How will this preparation help you to not only meet the intent of the Rule, but to help you optimize water quality in the distribution system?**

Revised Total Coliform Rule - Implications

- Will most likely impact all Operations in some way or form

RTCR



Total Coliform Rule Revisions (RTCR)

- Revised monitoring for the presence of microbial contamination.
- Revised approach for addressing problems (source, treatment and distribution)
 - ✓ Compliance due date – **April 1, 2016**

Rule Provisions:

1. Establishes an MCL of zero for **E. Coli**
2. Eliminates the current MCL for total coliform, replacing it with a treatment technique for coliform that requires **assessments** and corrective action

Three major objectives:

1. Evaluate the effectiveness of your treatment process
2. Evaluate distribution system integrity
3. Evaluate the presence of microbial contamination (not just coliform)



Differences between TCR and RTCR

Item	TCR	RTCR
MCL (Non-Acute)	<ul style="list-style-type: none"> • Violation: >5.0% of samples total coliform positive (systems collecting > 40 samples/month) • Violation: 2 positive total coliform positives (systems collecting < 40 samples/month) ➤ Tier 2 Public Notice required 	<p>-None-</p>
Triggers and Assessments (Treatment Technique)	<p>-None-</p>	<ul style="list-style-type: none"> • Triggers – based on current definition of the Non-acute MCL, described above: Requires Assessment and correction of observed sanitary defects when triggered • Violation: Failure to perform assessment • Violation: Failure to correct sanitary defects • Violation: Failure to meet schedule to correct a sanitary defect

Current TCR violation is replaced with Treatment Technique and the requirement to perform an Assessment

Differences between TCR and RTCR (cont.)

Item	TCR	RTCR
<p>MCL (Acute)</p>	<ul style="list-style-type: none"> • Violation: Routine and repeat sample from a TCR sample site are positive – and at least one sample is positive for <i>E. coli</i> or fecal coliform <ul style="list-style-type: none"> ➤ Tier 1 Public Notice required ➤ Consult w/ primacy agency within 24hrs 	<ul style="list-style-type: none"> • Violation: Routine and repeat sample from a TCR sample site are positive and at least one sample is positive for E. coli • Violation: PWS fails to take required repeat sample following a routine <i>E. coli</i> positive <ul style="list-style-type: none"> ➤ Consult with primacy agency within 24hrs ➤ Perform a Level 2 Assessment with corrective actions, as needed ➤ Resume monthly monitoring if you are on a reduced monitoring schedule

Key Elements of the Revised Total Coliform Rule

- “Find and Fix” Assessments (30 day reporting requirement)
- Seasonal systems must develop state approved start-up procedures
- PADEP is setting some strict provisions, like:
 - Minimum disinfectant levels in the distribution system (0.2 mg/L free / 0.2 mg/L total) – What about DBPs ?
 - One hour reporting for e-coli positive samples
- System will transition to new rule at their current monitoring frequency



Key Elements of the Revised Total Coliform Rule

SAMPLING

- Provides flexibility in the location of sites for repeat samples and allows the use of dedicated sampling stations
- Places emphasis on sampling plan (Ex. flow modeling to determine upstream / downstream sites at different times of the day)
- Sample Plans must include upstream/downstream sites addresses, or an SOP describing how you will obtain them in the event of a coliform positive (State discretion)
- Systems must collect total coliform samples at regular time intervals throughout the month (Exception: ground water systems serving <4,900 persons can collect all required samples on a single day)



Key Elements of the Revised Total Coliform Rule

SAMPLING (cont.)

Systems must collect total coliform samples at sites which are representative of water throughout the distribution system – even the “bad” spots!

This means all required RTCR samples cannot be collected from only one portion of your system. If only one monthly sample is required, more than one sampling location will be approved, and the sites will alternate.

Examples of representative locations are:

- First service connection
- Finished water storage facilities (separate Rule?)
- Interconnections with other water systems
- Areas of high water age
- Areas with previous coliform detections (main repairs)
- Different pressure zones



RTCR Assessments (“Find and Fix”)

Assessments – Level 1 and Level 2:

- Level 1 and Level 2 assessments consider many different elements. The depth of consideration of those elements differ, based on the **severity of the trigger that initiated the assessment...**
- Triggering a Level 2 assessment implies that a contamination event may be more complicated and pose a greater risk. Therefore, a more detailed examination of the system, its monitoring program and results, and its operational practices will be required.



RTCR Assessments (cont.)



Assessment Triggers:

- The PWS must conduct a **Level 1 assessment** if:
 - For systems collecting **40 or more samples per month**, the PWS exceeds 5.0% total coliform-positive samples for the month; or
 - For systems collecting **fewer than 40 samples per month**, the PWS has two or more total coliform-positive samples in the same month; or
 - The PWS fails to take every required repeat sample after any single routine total coliform-positive sample
- The PWS must ensure that a **Level 2 assessment** is conducted either by the State or a State-approved party (which could include a qualified PWS employee) if:
 - The PWS has an E. coli MCL violation
 - The PWS has a second Level 1 trigger within a rolling 12-month period, or in 2 consecutive yrs for systems on annual monitoring

Additional Information and Requirements

Level 1 and Level 2 Assessments

- A Level 1 Assessment should be largely a desktop exercise
- A Level 2 Assessment will most likely entail fieldwork and more detailed analysis than a Level 1 – unless it is clearly a sampling issue
- Report due to state within 30 days of being notified of exceeding the trigger

EPA Level 1 Assessment

1. Have any of the following occurred at relevant facilities prior to the collection of TC samples?

- any **interruptions in the treatment process**
- any reported loss of pressure events (pressure < 5 psi)
- operation and maintenance activities that could have total coliform
- **reported vandalism and/or unauthorized access** to facilities
- visible indicators of unsanitary conditions reported
- any **fire fighting event**, flushing operation, sheared hydrant, etc.
- any other water quality parameters measured where results were unusual
- any sites with **low or inadequate disinfectant residual** or sites where it is difficult to maintain a residual



2. Have there been any recent operational changes to the system?

- sources introduced
- **treatment or operational changes**
- potential sources of contamination

EPA Level 1 Assessment

3. Evaluate sample site.

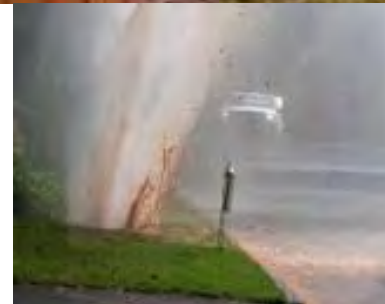
- condition or location of tap
- regular use of connection

4. Sample protocol followed and reviewed.

- flush tap
- remove aerator
- no swivel
- fresh sample bottles
- sample storage acceptable

5. Distribution System

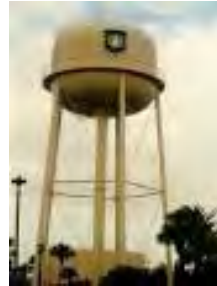
- system pressure
- cross connection
- pump station
- air relief valves
- fire hydrants or blow off
- breaks
- repairs



EPA Level 1 Assessment

6. Storage Tank

- screens
- **security**
- access opening
- condition of tank
- vent
- drain overflow
- pressure tank
- O&M



7. Treatment Process

- **interruptions**
- POE/POU
- softeners
- O&M



8. Source - Well

- **sanitary seal**
- vent screened
- air gap
- cross connection
- security
- pump to waste line



9. Source - Spring

- condition of spring development
- condition of spring box
- security

10. Source - Surface Water Supply

- **heavy rainfall**
- rapid snowmelt



What Facilities and Operations Should Be Doing to be Certain That They are Prepared for the RTCR

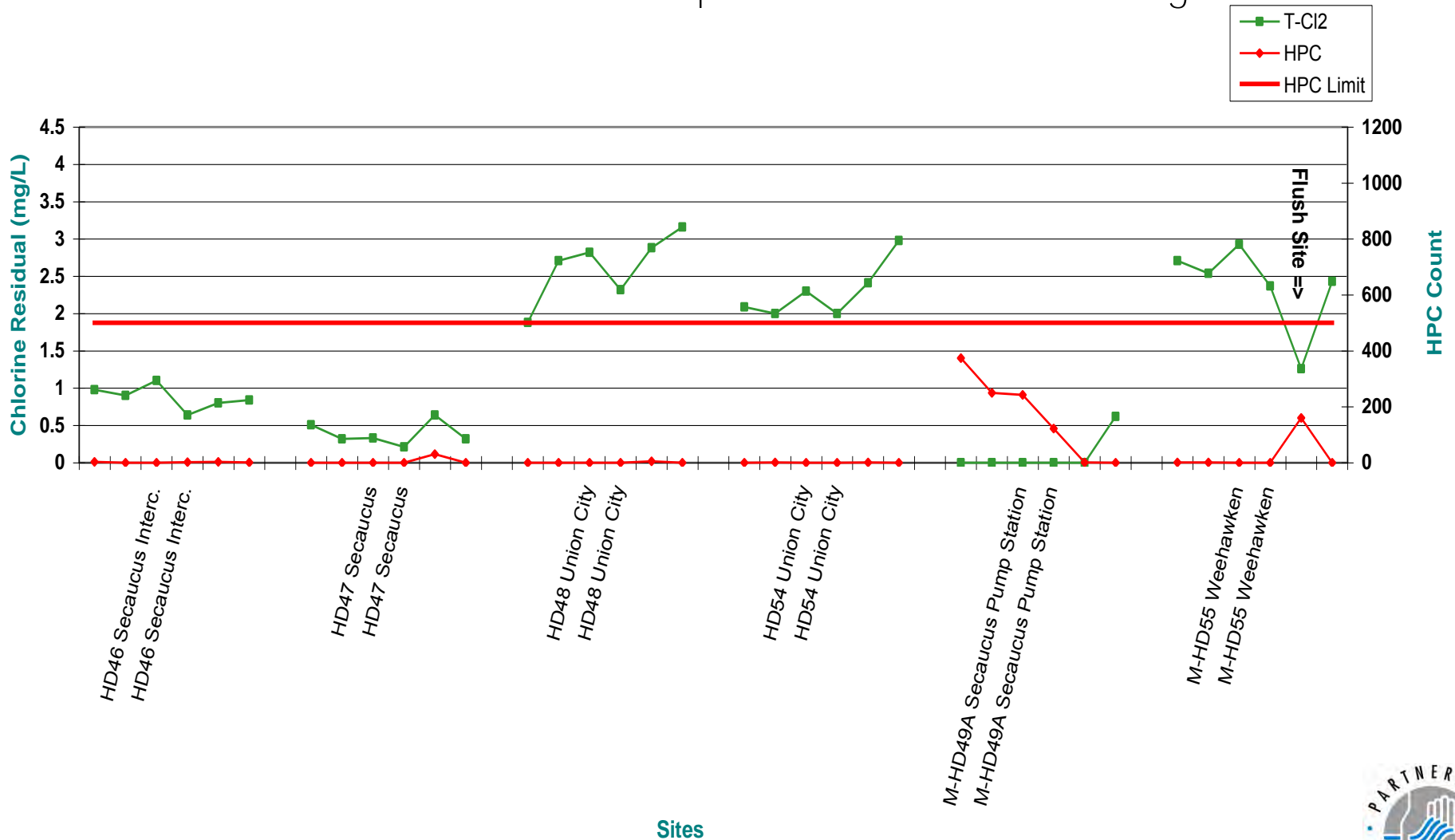
○ Distribution System Assessment

Evaluate current coliform compliance, and distribution system vulnerability:

- What is your current status with regards to existing TCR compliance?
- Are there areas of the distribution system that are vulnerable to bacteriological problems? Are you currently sampling these areas?
 - Low chlorine residuals (raise Cl₂ and raise DBPs?)
 - High HPCs (Heterotrophic Plate Counts)
 - Nitrification
 - Problem dead ends / storage tank maintenance
 - Cross Connection / Backflow issues (or potential/developing issues)
 - When you have main breaks or replacements, do you have trouble getting a clean coliform sample (used to place main back I/S)?
- Start thinking about hydraulic modeling for upstream/downstream determination

Chlorine Residual / Bacteriological Quality Monitoring Tool

Ex. New Jersey Distribution System South Quadrant
Chlorine Residuals and Heterotrophic Plate Count Monitoring



What Facilities and Operations Should Be Doing to be Certain That They are Prepared for the RTCR (cont.)

○ Managing Concerns

- Talk to your State Regulator (NJ already requiring a Level 1 Assessment)
 - Ensure that you know the vulnerable areas of your distribution system
 - Identify and correct sanitary defects, and SWTR and GWR deficiencies
 - Ensure that you have an effective Cross Connection Control Plan in place
 - Review and evaluate laboratory practices and interaction with subcontract lab
 - Strengthen operator training to ensure that effective plans are in place
 - Educate Operations and Mgmt about what revised TCR means to them
 - Spreadsheet Questionnaire and Sample Collector TCR Site Checklist
- Cost of remediation and/or capital improvements (if required) – plan early!
- Cleaning and lining problem areas of the distribution system
 - Looping of dead ends
 - Backflow prevention plans
 - Flushing program in place
 - Chlorine booster stations

Information and Resources – RTCR

- EPA Website – Total Coliform Rule Revisions
 - http://water.epa.gov/lawsregs/rulesregs/sdwa/tcr/regulation_revisions.cfm
- MADEP Level 1 Assessment Form:
 - <http://www.mass.gov/eea/agencies/massdep/water/drinking/coliform-bacteria-level-1-assessment-form.html>

Spreadsheet Questionnaire for Internal Assessment of our Facilities & Sample Collector TCR Site Checklist

Link to Questionnaire:

Link to Sample Collector Checklist:

For copies contact: keith.cartnick@unitedwater.com

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Thanks!