

Texas Commission On Environmental Quality

**EPA Federal
Revised Total Coliform Rule (RTCR)**

Overview



TCEQ
Office of Water

Water Supply
Division

TCEQ
Environmental
Trade Fair &
Conference

May 16 - 17,
2017





TCEQ Public Drinking Water Section

James Beauchamp, Special Assistant

RTCR Rule Project Manager/RTCR Team Leader

Water Supply Division/Drinking Water Standards Section

James.Beauchamp@tceq.texas.gov or

(512) 239-6174

Additional contact information

TCRDATA@tceq.texas.gov or DWA WG@tceq.texas.gov or

(512) 239-4691





Overview

- 1.0 - RTCR Introduction
- 2.0 - Sample Siting Plans
- 3.0 - Major Provisions – Routine/Repeat Sampling & SOPs
- 4.0 - Assessments and Corrective Action
- 5.0 - Elements of Assessments
- 6.0 - Nitrification Action Plans (NAP)
- 7.0 - Major Violations – E. coli MCL/TT/M&R/PN/BWN
- 8.0 - Key Points for Public Water Systems to Remember
- 9.0 - TCEQ Technical Assistance
- 10.0 - TCEQ Draft RTCR Rulemaking Timeline



1.0 - RTCR Introduction

The TCEQ has developed a new rule package in order to adopt the federal **Revised Total Coliform Rule (RTCR)** into Title 30 Title Texas Administrative Code (TAC), Chapter 290.

The federal **RTCR** affects **ALL** Public Water Systems (PWSs) and was effective on

April 1, 2016





1.1 - RTCR Introduction

The **RTCR** establishes:

- a maximum contaminant level (**MCL**) for *E. coli*
- a “**find and fix**” approach (**assessments**) to address fecal contamination that could enter into the distribution system
- **treatment technique violations** for certain conditions

The **RTCR** requires PWSs to:

- develop a **Sample Siting Plan** that lists all routine/repeat and groundwater microbial sample sites and a sample schedule
- perform **assessments**, identify **sanitary defects (find)**, and take **corrective action** for any **identified sanitary defects (fix)**
- complete and certify **state-approved start-up procedures** for **seasonal** public water systems





2.0 - Sample Siting Plans

Critical Deadlines and Requirements

40 CFR §141.853

- **All PWSs** must have **developed** a written **Sample Siting Plan** that identifies coliform sampling sites and a sample collection schedule that are representative of water throughout the distribution system by **March 31, 2016**.
- **PWSs** must **collect** coliform samples at sites which are representative of water quality throughout the distribution system according to a **written Sample Siting Plan**.
- **Sample Siting Plans** are subject to state review and revision.





2.1 - Sample Siting Plans

Critical Deadlines and Requirements

40 CFR §141.853

- **Monitoring** may take place at a:
 - customer's premise;
 - dedicated sampling station; or
 - designated compliance sampling location.
- **Sample Siting Plans** must identify:
 - **routine** coliform sampling sites;
 - **repeat** coliform sampling sites;
 - **sample collection schedule**;
 - **groundwater wells** for compliance with the Ground Water Rule; and
 - if the wells are intended for use as a **repeat** monitoring site
 - Triggered Source Monitoring Plans (TSMP) submitted separately





2.2 - Sample Siting Plans

Critical Deadlines and Requirements

Representative Sample Location Criteria

At a minimum, PWSs should apply the following when selecting RTCR sample locations:

- source locations;
- treatment/including primary and booster disinfection facilities;
- residual disinfectant levels;
- hydraulic conditions, valve locations, water storage;
- high, medium, and low water use areas; and
- water age





2.3 - Sample Siting Plans

Critical Deadlines and Requirements

Sample Siting Plan Map Requirements

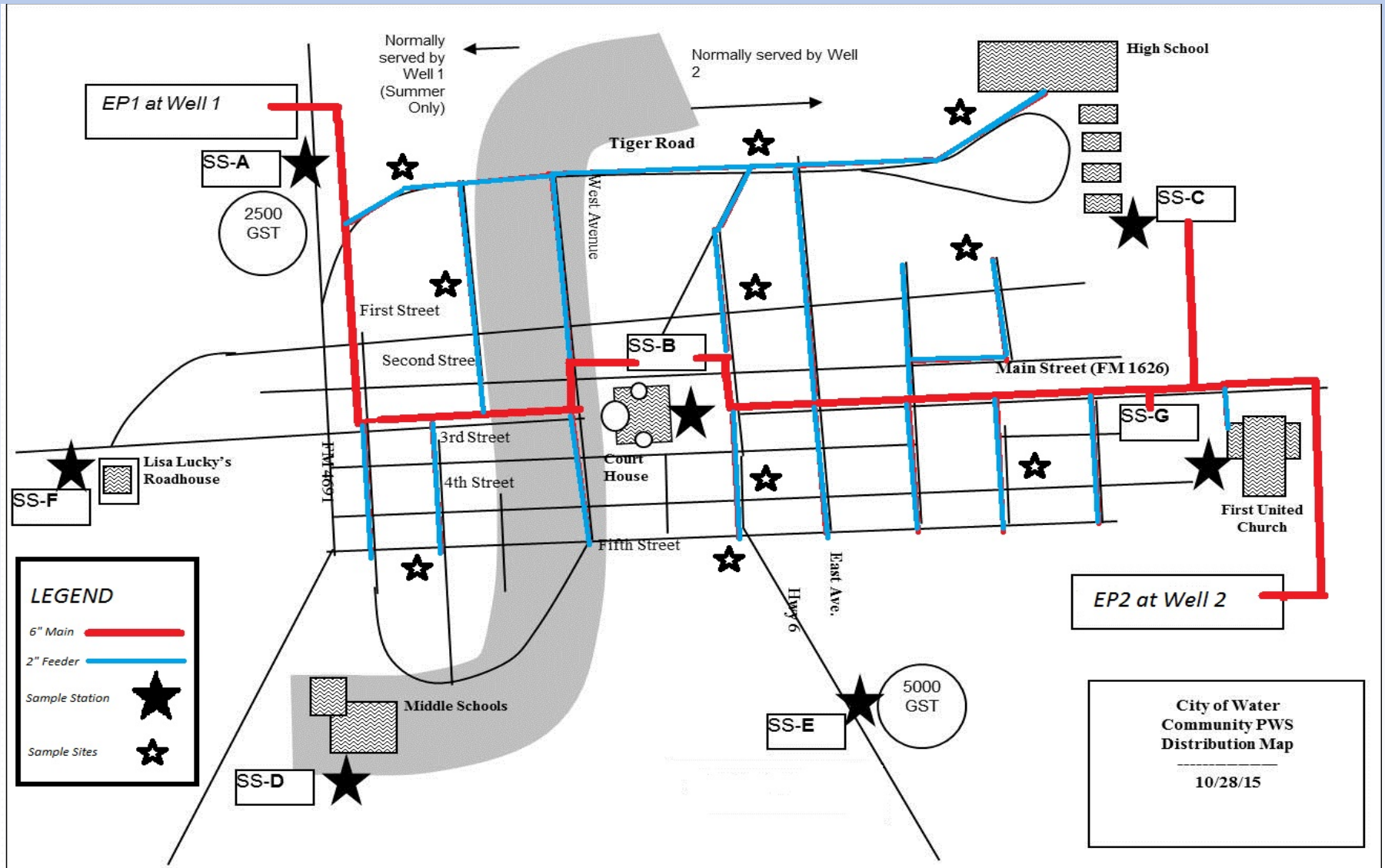
The Sample Siting Plan map must contain the following **applicable** location information:

- **“Routine” (OR)** RTCR Sample Sites (**Repeat** sites not required);
- **Distribution water mains and sizes;**
- **Entry Point Source Locations** (*e.g., well source and/or surface water or groundwater under the influence (GUI) water treatment entry points into the distribution system, interconnection with other systems*);
- ***Water Storage Facilities;**
- ***Pressure Plane Boundaries.**

****If a system has only one pressure plane or does not have any water storage facilities, please indicate this information on the map.***



2.4 - Sample Siting Plan Map - Example





2.5 - Sample Siting Plan - Template



Public Water System Revised Total Coliform Rule Sample Siting Plan

PWS Name	<input type="text"/>
PWS ID	<input type="text"/>
Date	<input type="text"/>

☐ System is submitting SOP to specify either alternative fixed locations or criteria for selecting repeat sampling sites on a situational basis other than collecting repeat samples at sites upstream and downstream of the original routine sampling site.

By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in this submittal:

Name (Printed)	<input type="text"/>	Title	<input type="text"/>
Signature	<input type="text"/>	Date	<input type="text"/>





2.6 - Sample Siting Plan - Template

~ Standard Operating Procedure (SOP) Alternative Repeat Sample Sites - A system that elects to specify either alternative fixed locations or criteria for selecting repeat sampling sites on a situational basis must develop and submit a written SOP for review and approval of alternative sample sites. (Please note: Systems that choose to pursue this repeat monitoring option must ensure that they check the "box" on Page 1 of this document. TCEQ will provide written notification to the system that their SOP has been approved.)

☐ Check if system is not a groundwater system serving 1,000 people or less

IV. Routine and Repeat Monitoring Location Table

RTCR Sample Siting Plan

Routine and Repeat Sampling Locations*

Original Routine (OR) Sample Site:

UPSite1:	DNSite1:
UPSite2:	DNSite2:
UPSite3:	DNSite3:
UPSite4:	DNSite4:
UPSite5:	DNSite5:

Original Routine (OR) Sample Site:

UPSite1:	DNSite1:
UPSite2:	DNSite2:
UPSite3:	DNSite3:
UPSite4:	DNSite4:
UPSite5:	DNSite5:

Original Routine (OR) Sample Site:

UPSite1:	DNSite1:
UPSite2:	DNSite2:
UPSite3:	DNSite3:
UPSite4:	DNSite4:
UPSite5:	DNSite5:

Original Routine (OR) Sample Site:

UPSite1:	DNSite1:
UPSite2:	DNSite2:
UPSite3:	DNSite3:
UPSite4:	DNSite4:
UPSite5:	DNSite5:





3.0 - Major Provisions

Routine Sampling

40 CFR §141.853

- PWSs must collect samples at **regular time intervals** throughout the month, except for:
- PWSs that use **only groundwater** and serve **4,900 or fewer people** may collect all required samples on a **single day** if they are taken from different sites.
- PWSs **may take more** than the minimum number of required **monthly routine** samples.
 - If so, PWSs must include the results of all samples in calculating whether a coliform treatment technique trigger has been exceeded only if the samples are taken in accordance with the Sample Siting Plan.





3.1 - Major Provisions

Routine Sampling

All PWSs must take at least the minimum number of required **routine** samples even if:

- The PWS has had an ***E. coli* MCL violation**
- OR
- has **exceeded** the **coliform treatment technique triggers**.





3.2 - Major Provisions

Routine Sampling

PWSs that collect fewer than five routine samples per month **(4,100 or less population):**

- will no longer be required to conduct increased **routine** monitoring **(5 samples)** the month following a total coliform-positive month.





3.3 - Major Provisions

Repeat Sampling

40 CFR §141.853

RTCR (new) - Repeat Sampling Locations

- PWSs must identify **repeat** monitoring locations in the **Sample Siting Plan**.





3.4 - Major Provisions

Repeat Sampling - Baseline

Within 24 hours of learning of a TC+ routine sample result, all PWSs must collect at least 3 repeat samples and analyze them for total coliform

One repeat sample must be collected from:

- the **same tap** as the original sample
- within five service connections upstream
- within five service connections downstream





3.5 - Major Provisions

Repeat Sampling

PWSs that collect only one routine sample per month **(1,000 or less population)**:

- will no longer be required to collect 4 repeat samples for each coliform-positive sample.





3.6 - Major Provisions

Repeat Sampling

- PWSs **may propose alternative repeat monitoring locations** that are expected to better represent pathways of contamination into the distribution system.
- **Requires a written –**
 - **Standard Operating Procedure (SOP)**

RTCR – 40 CFR §141.853(a)(5)(i)





3.7 - Major Provisions

Standard Operating Procedure

PWSs may elect to specify either:

- **alternative fixed locations**; or
- **criteria** for **selecting repeat** sampling sites on a **situational basis** in an SOP in the PWS's **Sample Siting Plan**.

The PWS must design its SOP to focus the **repeat** samples at locations that best verify and determine the extent of potential contamination of the distribution system area **based on specific situations**.

- The State may modify the SOP or require alternative monitoring locations as needed.





3.8 - Major Provisions

Standard Operating Procedure *State Approval*

- The State may **review, revise, and approve**, as appropriate, alternative **repeat** monitoring locations proposed by PWSs.
- PWSs must demonstrate that the **Sample Siting Plan** remains representative of the water quality in the distribution system.
- The State may determine that **entry point** monitoring is effective to differentiate between potential source water and distribution system problems. **(e.g., Groundwater under the direct influence of Surface Water (GUI))**





3.9 - Major Provisions

Repeat Summary

All PWSs must **continue to collect** additional sets of repeat samples until **either**:

- **total coliforms are not detected** in **one** complete set of repeat samples
- **OR**
- the system **triggers an assessment**.

Note: If **an assessment trigger is exceeded** as a result of a **routine** samples being total coliform-positive, PWSs are required to conduct **only one round of repeat monitoring for each** total coliform-positive routine sample.





4.0 – Assessments and Corrective Actions

Level 1 and Level 2 Assessments

The RTCR requires PWSs that have an indication of coliform contamination as a result of **total coliform (TC) + samples OR *E. coli* MCL (EMCL) violations** to **assess the problem and take corrective action.**

TWO levels of assessments

- **Level 1** and **Level 2** - based on the severity or frequency of the problem.





4.1 - Assessments and Corrective Actions

Purpose of Level 1 and Level 2 Assessments

- To find Sanitary Defects at the PWS which:
- could provide a pathway of entry for microbial contamination into the distribution system; **OR**
- are indicative of a failure (existing or potential) of protective barriers against microbial contamination.





4.2 - Assessments and Corrective Actions

Examples of **Sanitary Defects** include but are not limited to:

- inadequate Sampling Protocol or Sample Site
- inadequate treatment or maintenance of residual disinfection levels
- low distribution system pressure
- no backflow protection/cross-connection control
- line breaks
- deteriorated water storage facilities or infrastructure





4.3 - Assessments and Corrective Actions

Deadline for Completing Assessments

40 CFR §141.859

A PWS must complete and submit a Level 1 or Level 2 assessment form to the State **within 30 days** after the system learns that it has exceeded a trigger.

- **Level 1 and 2 assessments** - PWSs must conduct or ensure that an assessment is conducted consistent with State requirements.
- **Level 2 assessments** - PWSs must comply with any expedited actions or additional actions required by the State in the case of an *E. coli* MCL violation.





4.4 - Assessments and Corrective Actions

Deadlines for Completing Corrective Actions (1)

Sanitary Defects identified during a **Level 1 or Level 2 Assessment** should be corrected as soon as possible.

The PWS **must** complete **corrective actions** by one of the following timeframes:

- No later than the time the assessment form is submitted to the state, which must be **within 30 days of triggering the assessment**, or
- **Within state-approved timeframe** which was proposed by the PWS in the assessment form.





4.5 - Assessments and Corrective Actions

Deadlines for Completing Corrective Actions (2)

40 CFR §141.859 – Level 1 and Level 2 Assessments

- The Assessment form may also note that **no Sanitary Defects** were identified.
- The Assessment form must be completed and submitted to the State **within 30 days** even if no Sanitary Defects were identified.





4.6 - Assessments and Corrective Actions

Deadlines for Completing Corrective Actions (3) 40 CFR §141.859

- **Consultation** - At any time during the assessment or corrective action phase, either the PWS or the State may request a consultation with the other party to determine the appropriate actions to be taken.
- The PWS may consult with the State on all relevant information that may impact on its ability to comply with a requirement, including the method of accomplishment and an appropriate timeframe.





4.7 - Assessments and Corrective Actions

Level 1 Assessment

Who Conducts Level 1?

- Performed by the **PWS owner or operator** each time a Level 1 Assessment is triggered.
- Upon trigger of a **Level 1 Assessment**, the Level 1 Assessment form must be submitted **to the state** **within 30 days**.





4.8 - Assessments and Corrective Actions

Level 1 Assessment Triggers

Level 1 Assessment is triggered if any one of the following occurs:

- A PWS collecting **fewer than 40 samples per month** has 2 or more TC+ routine and repeat samples in the same month.
- A PWS collecting **40 or more samples per month** has greater than 5.0 percent of the routine and repeat samples in the same month that are TC+.
- A PWS fails to take every required **repeat** sample after any single TC+ sample.





4.9 - Assessments and Corrective Actions

Level 2 Assessment

Who Conducts Level 2?

- Performed by the **State OR State-Approved Party** each time a Level 2 Assessment is triggered.
- The **PWS** may conduct Level 2 assessments if the **PWS** has staff or management with the certification or qualifications specified by the State unless otherwise directed by the State.
- The **PWS is responsible** for ensuring that the Level 2 Assessment is conducted regardless of the entity conducting the Level 2 Assessment.
- Upon trigger of a Level 2 Assessment, the Level 2 Assessment form **must be submitted within 30 days to the state.**





4.10 - Assessments and Corrective Actions

Level 2 Assessment Triggers

Level 2 Assessment is triggered if any one of the following occurs:

- A PWS incurs an ***E. coli* MCL violation**.
- A PWS has a **second Level 1 Assessment** within a rolling 12-month period,
- **unless** the State has determined a likely reason that the samples that caused the first Level 1 treatment technique trigger were total coliform-positive and has established that the PWS has corrected the problem.
- If the State determines that a PWS is not required to conduct a Level 2 assessment based on the occurrence of a second Level 1A within a rolling 12-month period, **the PWS is still required to conduct an L1A.**
(40 CFR §141.859)





4.11 - Assessments and Corrective Actions

Example of Level 1 and Level 2 Assessor Qualifications

- An understanding of the objectives and structure of the RTRC
- Familiar with bacteriological sampling practices
- A working knowledge of how to interpret:
 - Distribution system water quality data
 - Distribution system operational data
 - Source of supply data
- An understanding of disinfection practices and treatment changes
- Operator certification level appropriate to PWS type/size





4.12 - Assessments and Corrective Actions

Title 30 TAC §290.109(c)(3)(A)(i) – (iii)

Level 1 and Level 2 Assessor Qualifications

Level 1 and Level 2 assessments shall be conducted and completed by:

- the **PWS**;
- **licensed operators** as required under §290.46(e); or
- **other parties** approved by the TCEQ.

The PWS, licensed operators, and other parties approved by the TCEQ shall have also completed training as required by the TCEQ upon notice to the public water system in writing.





4.13 - Assessments and Corrective Actions

Other parties approved by the TCEQ include, but not limited to:

- **backflow prevention assembly testers and CSIs;**
- **plumbing inspectors and water supply protection specialists;**
- **licensed professional engineers** (Tx Board of P.E.s);
- **circuit riders** or **technical assistance providers** under contract with the TCEQ /or government agency approved by TCEQ; or
- **utility supervisor or manager supported by various utility staff or other individuals.**





4.14 - Assessments and Corrective Actions

Title 30 TAC §290.109(c)(3)(A)(iii)

- **Assessors who have conducted Level 1 assessments** which were determined by the executive director to be **insufficient or inadequate** may be required to **complete additional training or obtain certifications** as prescribed by the TCEQ.





5.0 – Elements of Assessments Summary

At a minimum, an **ASSESSOR** must ensure that the **ASSESSMENT** includes review and identification of:

- **Inadequacies** in sample sites, sampling protocol, and sample processing
- **Atypical events** that may affect distributed water quality or indicate that distributed water quality was impaired
- **Changes in distribution system Operations and Maintenance** that may affect distributed water quality, including water storage
- **Source and treatment considerations** that impact distributed water quality
- **Existing water quality monitoring data**

40 CFR 141.859(b)(2)





6.0 – Nitrification Action Plans (NAP)

§290.46. Minimum Acceptable Operating Practices for Public Drinking Water Systems.

(z) Nitrification Action Plan (NAP). Any water system distributing chloraminated water must create a NAP. The system must create a written NAP that:

- (1) contains the system-specific plan for monitoring free ammonia, monochloramine, total chlorine, nitrite, and nitrate levels;
- (2) contains system-specific action levels of the above monitored chemicals where action must be taken;
- (3) contains specific corrective actions to be taken if the action levels are exceeded; and
- (4) is maintained as part of the system's monitoring plan in §290.121 of this title.

Adopted November 18, 2015

Effective December 10, 2015





7.0 – Major Violations

E. coli Maximum Contaminant Level (MCL) Violation

- A PWS will receive an ***E. coli* MCL violation** when there is any combination of an *E. coli* + sample result with a routine **OR** repeat Total Coliform + **OR** *E. coli* + sample result.





7.1 - Major Violations

E. coli Maximum Contaminant Level (MCL)

E. coli MCL Violation Occurs with the Following Sample Result Combination

Routine	Repeat
EC+	TC+
EC+	Any missing sample
EC+	EC+
TC+	EC+
TC+	TC+ (but no <i>E. coli</i> analysis)





7.2 - Major Violations

E. coli Maximum Contaminant Level (MCL) Violation

- **Public Notice (PN)** - An *E. coli* MCL violation requires a PWS to issue a PN under 30 TAC §290.122(a)(1) for acute violations or situations.
- **Boil Water Notice (BWN)** - An *E. coli* MCL violation requires a PWS to issue a BWN under 30 TAC §290.122(a)(2)(A) for acute microbiological or turbidity violation.





7.3 - Major Violations

Treatment Technique Violation

- Failure to conduct a **Level 1 or Level 2** Assessment within 30 days of a trigger.
- Failure to **correct all sanitary defects** from a Level 1 or Level 2 Assessment **within 30 days** of a trigger or in accordance with the state-approved timeframe.
- Failure of a **seasonal system** to complete **state-approved start-up procedures** prior to serving water to the public.





7.4 - Monitoring(M) & Reporting(R) Violations

TCR	RTCR
M&R violation (tracked together as 1 violation type)	<ul style="list-style-type: none">• Monitoring violations and Reporting violations will be tracked separately as 2 different violation types• Newly specified M/R violations:<ul style="list-style-type: none">– M - Failure to take every required routine or additional routine sample in a compliance period.– M - Failure to analyze for <i>E. coli</i> following a TC+ routine sample.– R - Failure to submit a monitoring report or completed assessment form after monitoring or conducting assessment correctly/timely.– R - Failure to notify the state following an <i>E. coli</i> + sample.– R - Failure to submit certification of completion of state-approved start-up procedure by a seasonal system.



7.5 - Public Notice for MCL-TT-M&R Violations

TCR	RTCR	
TC MCL violation/acute MCL: FC+ or <i>E.coli</i> +	<i>E. coli</i> MCL violations (24 hours)	Tier 1
Monthly TC MCL violation	Treatment technique (TT) violations (30 days)	Tier 2
M&R (tracked as 1 violation type)	Monitoring (Annual/or elevated to T1 or T2)	Tier 3
	Reporting (Annual/or elevated to T1 or T2)	Tier 3



7.6 - PN for L1 and L2 Recordkeeping Violation

Public Notice for Failure to Maintain L1 and L2 Assessment Documentation

- **Recordkeeping** - PWSs must maintain any assessment form and documentation of sanitary defects and corrective actions completed as a result of assessments for a period not less than **five years** after completion. (*40 CFR §141.861(b) - RTCR*)
- **Public Notice** - PWSs must provide public notice for **Reporting** and **Recordkeeping** violations under the RTCR. (*§141.204(a) - Tier 3 Public Notice*)





8.0 - Key Points for PWSs

- **Adequately Assess** your distribution system and routine/repeat microbial sample sites while developing your **Sample Siting Plan** to assist in reducing TC + and EC + sample results.
- Find and correct **sanitary defects** as soon as you become aware of them:
- **to help reduce TC+ sample results**, which may trigger a **Level 1** Assessment.
- **to help reduce *E. coli* MCL violations**, which trigger a **Level 2** Assessment.





8.1 - Key Points for PWSs

Make sure to collect all **routine** and **repeat** samples as required

Timely and correct monitoring can help reduce triggering a Level 1 or Level 2 Assessment because:

- **Failure to conduct repeat monitoring** triggers a Level 1 Assessment.
- A **Level 1 Assessment triggered twice** within a rolling 12-month period triggers a Level 2 Assessment.





9.0 - TCEQ Technical Assistance

- TCEQ is providing training to TCEQ's Financial, Managerial, and Technical (FMT) contractor concerning **Level 1 assessment** requirements.
- TCEQ is making assistance available to PWSs that trigger a **Level 1 assessment** through TCEQ's FMT contractor.
- TCEQ is providing on-site technical assistance to PWSs that trigger a **Level 2 assessment**.





10.0 - TCEQ Draft Rule Making Timeline

- Public Comment Period-Start October 7, 2016
- Public Hearing Date/Time November 7, 2016
- Public Comment Period-End November 22, 2016
- Adoption Agenda March 8, 2017
- **Rule Effective Date** **March 30, 2017**
- **Published in Texas Register** **April 7, 2017**

Chapter 290 rules are available on TCEQ Website at:

<https://www.tceq.texas.gov/rules/indxpdf.html>





Questions?





RTCR Information

TCEQ's RTCR Website

<http://www.tceq.texas.gov/goto/RTCR>

Or

Search: TCEQ RTCR





RTCR Information

EPA's RTCR Guidance

can be found at:

http://water.epa.gov/lawsregs/rulesregs/sdwa/tcr/regulation_revisions.cfm





TCEQ Water Supply Division

James Beauchamp, Special Assistant - Drinking Water Standards Section
RTCR Rule Project Manager/RTCR Team Leader

James.Beauchamp@tceq.texas.gov or (512) 239-6174

Gary Chauvin, Manager - Drinking Water Standards Section

Gary.C Chauvin@tceq.texas.gov or (512) 239-1687

Joel Klumpp, Manager - Plan & Technical Review Section

Joel.Klumpp@tceq.texas.gov or (512) 239-4453

Michele Risko, Manager - Drinking Water Special Functions Section

Michele.Risko@tceq.texas.gov or (512) 239-1689

Additional contact information TCRDATA@tceq.texas.gov or

DWA WG@tceq.texas.gov or (512) 239-4691





TCEQ Public Drinking Water Standards Section RTCR Contacts

Jasmine Oliveira, RTCR Compliance Officer

Drinking Water Quality Team

Jasmine.Oliveira@tceq.texas.gov or (512) 239-6141

Nicole Larison, RTCR Compliance Officer

Drinking Water Quality Team

Nicole.Larison@tceq.texas.gov or (512) 239-6105





Contact Information

James Beauchamp

Texas Commission on Environmental Quality

Drinking Water Standards Section

(512) 239-6174

James.Beauchamp@tceq.texas.gov

or

TCRDATA@tceq.texas.gov

DWA WG@tceq.texas.gov

(512) 239-4691

TCEQ

Office of Water

**Water Supply
Division**

TCEQ

**Environmental
Trade Fair &
Conference**

**May 16 - 17,
2017**

