

Revised Total Coliform Rule: A Quick Reference Guide

Overview of the Rule

Title*	Revised Total Coliform Rule (RTCR) 78 FR 10269, February 13, 2013, Vol. 78, No. 30
Purpose	Increase public health protection through the reduction of potential pathways of entry for fecal contamination into distribution systems.
General Description	The RTCR establishes a maximum contaminant level (MCL) for <i>E. coli</i> and uses <i>E. coli</i> and total coliforms to initiate a "find and fix" approach to address fecal contamination that could enter into the distribution system. It requires public water systems (PWSs) to perform assessments to identify sanitary defects and subsequently take action to correct them.
Utilities Covered	The RTCR applies to all PWSs.

* This document provides a summary of federal drinking water requirements; to ensure full compliance, please consult the federal regulations at 40 CFR 141 and any approved state requirements.

Public Health Benefits

Implementation of the RTCR will result in:

- ▶ A decrease in the pathways by which fecal contamination can enter the drinking water distribution system.
- ▶ Reduction in fecal contamination *should* reduce the potential risk from all waterborne pathogens including bacteria, viruses, parasitic protozoa, and their associated illnesses.

Critical Deadlines and Requirements

For Public Water Systems

Before April 1, 2016	<ul style="list-style-type: none"> ▶ PWSs must develop a written sample siting plan that identifies the system's sample collection schedule and all sample sites, including sites for routine and repeat monitoring. ▶ PWSs monitoring quarterly or annually must also identify additional routine monitoring sites in their sample siting plans. ▶ Sample siting plans are subject to state review and revision.
Beginning April 1, 2016	PWSs must comply with the RTCR requirements unless the state selects an earlier implementation date.

For State Drinking Water Agencies

By February 13, 2015	<p>State submits final primacy program revision package to the EPA Region, including:</p> <ul style="list-style-type: none"> ▶ Adopted State Regulations. ▶ Regulation Crosswalk. ▶ 40 CFR 142.10 Primacy Update Checklist. ▶ 40 CFR 142.14 and 142.15 Reporting and Recordkeeping. ▶ 40 CFR 142.16 Special Primacy Requirements. ▶ Attorney General's Enforceability Certification. <p>NOTE: EPA regulations allow states until February 13, 2015, for this submittal. An extension of up to 2 years may be requested by the state.</p>
Before February 13, 2015	<p>State must submit a primacy program revision extension request if it does not plan to submit the final primacy program revision package by February 13, 2015. The state extension request is submitted to the EPA Region including all of the information required in 40 CFR 142.12(b):</p> <ul style="list-style-type: none"> ▶ A schedule (not to exceed 2 years) for the submission of the final primacy program revision package. ▶ Justification that meets the federal requirements for an extension request. ▶ Confirmation that the state is implementing the RTCR within its scope of its current authorities and capabilities. ▶ An approved workload agreement with the EPA Region.
No later than February 13, 2017	For states with an approved extension, submit complete and final program revision package by the agreed upon extension date.

What are the Major Provisions?

Routine Sampling Requirements

- ▶ Total coliform samples must be collected by PWSs at sites which are representative of water quality throughout the distribution system according to a written sample siting plan subject to state review and revision.
- ▶ For PWSs collecting more than one sample per month, collect total coliform samples at regular intervals throughout the month, except that ground water systems serving 4,900 or fewer people may collect all required samples on a single day if the samples are taken from different sites.





Routine Sampling Requirements (cont.)

- ▶ Each total coliform-positive (TC+) routine sample must be tested for the presence of *E. coli*.
- ▶ If any TC+ sample is also *E. coli*-positive (EC+), then the EC+ sample result must be reported to the state by the end of the day that the PWS is notified.
- ▶ If any routine sample is TC+, repeat samples are required.
 - PWSs on quarterly or annual monitoring must take a minimum of three additional routine samples (known as additional routine monitoring) the month following a TC+ routine or repeat sample.
- ▶ Reduced monitoring may be available for PWSs using only ground water and serving 1,000 or fewer persons that meet certain additional PWS criteria.

Repeat Sampling Requirements

Within 24 hours of learning of a TC+ routine sample result, at least 3 repeat samples must be collected and analyzed for total coliform:	<ul style="list-style-type: none"> ▶ One repeat sample must be collected from the same tap as the original sample. ▶ One repeat sample must be collected from within five service connections upstream. ▶ One repeat sample must be collected from within five service connections downstream.
If one or more repeat sample is TC+:	<ul style="list-style-type: none"> ▶ The PWS may propose alternative repeat monitoring locations that are expected to better represent pathways of contamination into the distribution system. ▶ The TC+ sample must be analyzed for the presence of <i>E. coli</i>. ▶ If any repeat TC+ sample is also EC+, then the EC+ sample result must be reported to the state by the end of the day that the PWS is notified. ▶ The PWS must collect another set of repeat samples, unless an assessment has been triggered and the PWS has notified the state.

Assessments and Corrective Action

The RTCR requires PWSs that have an indication of coliform contamination (e.g., as a result of TC+ samples, *E. coli* MCL violations, performance failure) to assess the problem and take corrective action. There are two levels of assessments (i.e., Level 1 and Level 2) based on the severity or frequency of the problem.

Purpose of Level 1 and Level 2 Assessments	<p>To find sanitary defects at the PWS including:</p> <ul style="list-style-type: none"> ▶ Sanitary defects that could provide a pathway of entry for microbial contamination, or ▶ Sanitary defects that indicate failure (existing or potential) of protective barriers against microbial contamination. <p><i>Guidance on how to conduct Level 1 and Level 2 Assessments and how to correct sanitary defects found during the Assessments can be found at:</i> http://water.epa.gov/lawsregs/rulesregs/sdwa/tcr/regulation_revisions.cfm.</p>
Deadline for Completing Corrective Actions	<p>When sanitary defects are identified during a Level 1 or Level 2 Assessment, they should be corrected as soon as possible to protect public health. The PWS must complete corrective actions by one of the following timeframes:</p> <ul style="list-style-type: none"> ▶ 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 in the assessment form.

Level 1 Assessments

Conducting Level 1 Assessments	<ul style="list-style-type: none"> ▶ 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 within 30 days to the state.
Level 1 Assessment Triggers	<p>Level 1 Assessment is triggered if any one of the following occurs:</p> <ul style="list-style-type: none"> ▶ A PWS collecting fewer than 40 samples per month has 2 or more TC+ routine/repeat samples in the same month. ▶ A PWS collecting at least 40 samples per month has greater than 5.0 percent of the routine/repeat samples in the same month that are TC+. ▶ A PWS fails to take every required repeat sample after any single TC+ sample.

Level 2 Assessments

Conducting Level 2 Assessments	<ul style="list-style-type: none"> ▶ Performed by the state or state-approved entity each time a Level 2 Assessment is triggered. ▶ 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.
Level 2 Assessment Triggers	<p>Level 2 Assessment is triggered if any one of the following occurs:</p> <ul style="list-style-type: none"> ▶ A PWS incurs an <i>E. coli</i> MCL violation. ▶ A PWS has a second Level 1 Assessment within a rolling 12-month period. ▶ A PWS on state-approved annual monitoring has a Level 1 Assessment trigger in 2 consecutive years.



Seasonal System Provisions

The RTCR defines seasonal systems and specifies additional requirements for these types of PWSs:

- ▶ A seasonal system is defined as a non-community water system that is not operated as a PWS on a year-round basis and starts up and shuts down at the beginning and end of each operating season.

Start-up Procedures for Seasonal Systems	<p>At the beginning of each operating period, before serving water to the public, seasonal water systems must:</p> <ul style="list-style-type: none"> ▶ Conduct state-approved start-up procedures. ▶ Certify completion of state-approved start-up procedures. ▶ An exemption from conducting state-approved start-up procedures may be available for seasonal systems that maintain pressure throughout the distribution system during non-operating periods.
	<p>Examples of state-approved start-up procedures, which need to be completed prior to serving water to the public, may include one or more of the following:</p> <ul style="list-style-type: none"> ▶ Disinfection. ▶ Distribution system flushing. ▶ Sampling for total coliform and <i>E. coli</i>. ▶ Site visit by state. ▶ Verification that any current or historical sanitary defects have been corrected.
Routine Monitoring for Seasonal Systems	<ul style="list-style-type: none"> ▶ The baseline monitoring frequency for seasonal systems is monthly. ▶ A reduced monitoring frequency may be available for seasonal systems that use ground water only and serve fewer than 1,000 persons.

Other Provisions for the State Drinking Water Agency

Special Monitoring Evaluation	<p>The state must perform a special monitoring evaluation at all ground water systems serving 1,000 or fewer persons during each sanitary survey to review the status of the PWS and to determine whether the sample sites and monitoring schedule need to be modified.</p>
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Major Violations

<i>E. coli</i> MCL Violation	<p>A PWS will receive an <i>E. coli</i> MCL violation when there is any combination of an EC+ sample result with a routine/repeat TC+ or EC+ sample result:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th colspan="2" style="background-color: #4F81BD; color: white; text-align: center;"><i>E. coli</i> MCL Violation Occurs with the Following Sample Result Combination</th> </tr> <tr> <th style="width: 50%; text-align: center; background-color: #4F81BD; color: white;">Routine</th> <th style="width: 50%; text-align: center; background-color: #4F81BD; color: white;">Repeat</th> </tr> <tr> <td style="text-align: center;">EC+</td> <td style="text-align: center;">TC+</td> </tr> <tr> <td style="text-align: center;">EC+</td> <td style="text-align: center;">Any missing sample</td> </tr> <tr> <td style="text-align: center;">EC+</td> <td style="text-align: center;">EC+</td> </tr> <tr> <td style="text-align: center;">TC+</td> <td style="text-align: center;">EC+</td> </tr> <tr> <td style="text-align: center;">TC+</td> <td style="text-align: center;">TC+ (but no <i>E. coli</i> analysis)</td> </tr> </table>	<i>E. coli</i> 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)
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Routine	Repeat														
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TC+	EC+														
TC+	TC+ (but no <i>E. coli</i> analysis)														
Treatment Technique Violation	<p>A PWS will receive a Treatment Technique violation when any of the following occur:</p> <ul style="list-style-type: none"> ▶ 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. 														

Key Points for Public Water Systems to Remember

<p>Find and correct sanitary defects as soon as you become aware of them.</p> <ul style="list-style-type: none"> ▶ This can help reduce <i>E. coli</i> MCL violations, which trigger a Level 2 Assessment. ▶ This can help reduce TC+ sample results, which may trigger a Level 1 Assessment. 	<p>Make sure to collect all routine and repeat samples as required.</p> <ul style="list-style-type: none"> ▶ Timely and correct monitoring can help reduce triggering a Level 1 or Level 2 Assessment because: <ul style="list-style-type: none"> – Failure to conduct repeat monitoring triggers a Level 1 Assessment. – A Level 1 Assessment triggered twice within a certain timeframe triggers a Level 2 Assessment.
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For additional information on the RTCR:
 Call the Safe Drinking Water Hotline at 1-800-426-4791; visit the EPA website at http://water.epa.gov/lawsregs/rulesregs/sdwa/tcr/regulation_revisions.cfm; or contact your state drinking water representative.



Public Water System ROUTINE Monitoring Frequencies

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

*Includes PWSs which have at least 15 service connections, but serve <25 people.

For additional information on the TCR

Call the Safe Drinking Water Hotline at 1-800-426-4791; visit the EPA web site at <http://water.epa.gov/drink>; or contact your state drinking water representative.