

REVISED TOTAL COLIFORM RULE: ARE YOU READY FOR THE NEW REGULATIONS?



- 1. Current Total Coliform Rule (TCR) Major Provisions
- 2. Revised Total Coliform Rule (RTCR) History
- **3. Core Elements of the RTCR**
- 4. Comparison of RTCR vs. Current TCR
- 5. Planned Guidance Materials



- Published in 1989, effective in 1990
- Only microbial drinking water regulation that applies to all PWSs
- Rule objectives:
 - Determine the integrity of the distribution system
 - Evaluate the effectiveness of treatment
 - Signal possible presence of fecal contamination
- Regular monitoring used to determine success in meeting water quality goals
- No requirement for Assessment or Corrective Actions



CURRENT TCR - MONITORING REQUIREMENTS

- Sampling varies based on system type/population
- Sampling at representative sites throughout the Distribution Systems
- Repeat/Additional Routine samples required based on Routine sampling results
- <u>All</u> Routine/Repeat samples count toward compliance



CURRENT TCR MONITORING REQUIREMENTS

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.					



CURRENT TCR - TOTAL COLIFORM MCL VIOLATIONS

- Non-acute (monthly) violation
 - More than 5.0% of samples collected are TC(+) For a system collecting at least 40 samples per month
 - Population \geq 33,001
- Two or MORE samples are TC (+) For a system collecting fewer than 40 samples per month
 - Population $\leq 33,000$



Current TCR - Total Coliform MCL Violations

- Acute Violation
 - Any fecal or *E. coli* (+) Repeat sample, or any TC (+) Repeat sample following a fecal or *E. coli* (+) Routine sample
 - The system has an *E. coli/*fecal (+) Repeat sample following a TC (+) Routine sample
 - The system has a TC (+) Repeat sample following an *E.* coli/fecal (+) Routine sample
 - When the system fails to test for *E. coli/*fecal when any sample tests (+) for TC it is considered to be positive for *E.* coli/fecal
 - Public Notice (PN) required within 24 hours



REVISED TOTAL COLIFORM RULE (RTCR)

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- Proposed RTCR July 14, 2010
- Final RTCR signed By EPA Administrator Lisa Jackson in December 2012
- Final RTCR published February 13, 2013
- Rule goes into effect April 1, 2016



- Who does the RTCR Apply to?
 - RTCR applies to all PWSs providing water to the public.
 - There is no grandfathering or waivers of this rule.
 - If you are a Public Water System, you will be required to comply with all aspects of this rule.



- New provisions that take effect on April 1, 2016 include:
 - Monitoring for Total Coliform and E.coli (no change for New Mexico)
 - All PWSs must continue to monitor according to a written sample siting plan.
 - Sampling Plans will require specific elements such as identifying routine AND repeat sampling locations.
 - Assessments and corrective action if the PWS identifies a vulnerability to coliform contamination
 - *E. coli* MCL violations (i.e., replaces TCR's acute MCL with an *E. coli* MCL)
 - Total coliform TT requirements (i.e., replaces TCR's total coliform MCL violations)
 - PN requirements for *E. coli* MCL violations



- All Public Water Systems
 - Monitoring for Total Coliform and E.coli (no change for New Mexico)
 - No reduced monitoring will be allowed in New Mexico. Water systems that are currently sampling quarterly will now be required to sample monthly.
 - All PWSs must monitor according to a written sample siting plan.
 - Sampling Plans will require specific elements such as identifying routine AND repeat sampling locations.



- All Public Water Systems
 - Assessments and corrective action if the PWS identifies a vulnerability to coliform contamination
 - *E. coli* MCL violations (i.e., replaces TCR's acute MCL with an *E. coli* MCL)
 - Total coliform TT requirements (i.e., replaces TCR's total coliform MCL violations)
 - PN requirements for *E. coli* MCL violations



- Seasonal Public Water Systems
 - Must complete a State Approved Startup Procedure prior to opening for the season.
 - Must sample on a Monthly basis rather than on a quarterly basis



RTCR SAMPLING REQUIREMENTS

Population Served	Minimum Number of Samples per Month	Population Served	Minimum Number of Samples
1,001 to 2,500	2	70,001 to 83,000	80
2,501 to 3,300	3	83,001 to 96,000	90
3,301 to 4,100	4	96,001 to 130,000	100
4,101 to 4,900	5	130,001 to 220,000	120
4,901 to 5,800	6	220,001 to 320,000	150
5,801 to 6,700	7	320,001 to 450,000	180
6,701 to 7,600	8	450,001 to 600,000	210
7,601 to 8,500	9	600,001 to 780,000	240
8,501 to 12,900	10	780,001 to 970,000	270



- Why is Reduced Monitoring (Quarterly) not being allowed in New Mexico?
 - The requirements for reduced monitoring within the RTCR made it very difficult to obtain, track, and maintain those reduced schedules.
 - Some of those were:
 - Minimum of 12 months clean compliance history
 - Sanitary Survey with no deficiencies
 - Annual Site visits from NMED (Or annual Level 2 Assessment)
 - Cross-Connection control program approved by the State
 - Continuous disinfection
 - 4-Log Removal or inactivation of viruses



- All PWSs in New Mexico will be required to update their Sampling Plans
 - The PWS must design its sample siting plan to identify repeat sampling at locations that best verify and determine the extent of potential contamination of the distribution system. The state has the discretion to modify the sample siting plan as necessary.
 - Monthly sample site verifications between Chainof-Custody location information compared to site plan location designations

RTCR SAMPLING PLANS

- All PWSs in New Mexico will be required to update their Sampling Plans
 - At a minimum sampling plans must contain the following:
 - Name of PWS
 - Name and Contact Information for all important contacts at PWS (Administrative Contact, Operator, Sampler, Emergency Contact)
 - Routine Sampling Locations that are representative of the entire distribution system
 - Pre-Identified repeat monitoring locations
 - Map of the entire distribution system



- What happens when a routine sample is either Total Coliform or E.Coli Positive?
 - All systems are required to collect repeat sampling
 - Repeat sampling will be limited to three repeat samples per routine positive result. (Plus triggered source sampling to comply with the Ground Water Rule)
 - Repeat Samples do not have to be collected within 5 connections upstream or downstream.
 - RTCR Allows for alternative repeat sampling locations if a PWS believes that that those alternative locations are representative of pathways for contamination of the distribution system
 - Sampling from alternative locations must be approved by NMED-DWB Prior to repeat sampling event.



- What happens when a routine sample is either Total Coliform or E.Coli Positive?
 - If one or more repeat samples are TC+, the PWS must collect an additional set of repeat samples within 24 hours of being notified of the repeat sample's TC+ result
 - The PWS must continue to take additional sets of repeat samples until either total coliforms are not detected in one complete set of repeat samples, or the PWS determines that a coliform TT trigger has been exceeded as a result of a TC+ repeat sample and the PWS has notified the state
 - No additional sampling required the month after a TC+ or EC+ Result



- What Violations are triggered by RTCR sampling events?
 - A PWS is in violation of the E.Coli MCL if:
 - A PWS has an EC+ repeat sample following a TC+ routine sample
 - A PWS has a TC+ repeat sample following an EC+ routine sample
 - A PWS fails to take all required repeat samples following an EC+ routine sample
 - E.Coli MCLs require the PWS to issue a Tier 1 public notice which includes a Boil Water Advisory



- The RTCR requires systems to investigate and correct any "sanitary defects" found whenever monitoring results show a system may be vulnerable to contamination.
 - There are two levels of assessments depending on the severity and frequency of contamination
 - Sanitary defect: "a defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place"



- A Level 1 trigger is:
 - >5% total coliform positive if taking 40 or more samples/month (TT);
 - 2 or more total coliform positive samples if taking <40 samples/month (TT); or
 - A failure to take all required repeat samples.
- A Level 2 trigger is:
 - E. coli Maximum Contaminant Level (MCL) violation; or
 - E. coli monitoring violation; or
 - Two Level 1 triggers within a rolling 12 month period



- Who will be approved to conduct assessments?
 - Level 1 Assessments
 - In New Mexico, the following levels of operators will automatically be approved to conduct RTCR Level 1 Assessments:
 - Small Water Advanced
 - Water Level 3
 - Water Level 4



- Who will be approved to conduct assessments?
 - Level 2 Assessments
 - In New Mexico, the following levels of operators will automatically be approved to conduct RTCR Level 2 Assessments:
 - Water Level 3
 - Water Level 4
 - For those operators who are not automatically approved, attending an 8 hour RTCR training course developed by NMED will provide you approval for Level 1 & Level 2 Assessments



- Who will be approved to conduct assessments?
 - If a PWS does not have an operator on staff that is approved to conduct Level 1 or 2 Assessments, the PWS will be required to contract an approved assessor to conduct the assessment and report the findings to NMED.



Level 1

- Conducted by an approved assessor
- Primarily a simple exercise of reviewing your system for operational changes that may have caused the Coliform positive results
- Reviews protocols and monitoring results
- Assessment Form Developed by NMED-DWB is basically a "Yes" / "No" questionnaire
- Must be completed and reported to NMED within 30 days of trigger

• Level 2

- Conducted by an approved assessor
- Much more effort involved
- Field inspections are likely
- Assessment Form Developed by NMED-DWB is a more intensive form that requires much more investigation than a Level 1 Assessment.
- Must be completed and reported to NMED within 30 days of trigger



 Level 1 assessment is an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the system triggered the assessment



Minimum elements include

- Review and identification of atypical events that could affect distributed water quality or indicate that distributed water quality was impaired
- Changes in distribution system maintenance and operation that could affect distributed water quality (including water storage)
- Source and treatment considerations that could have affected distributed water quality, where appropriate (e.g., whether a ground water system is disinfected)
- Existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing.

LEVEL 2 ASSESSMENT -DEFINITION

 Level 2 assessment is an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the system triggered the assessment.



- A Level 2 assessment provides a more detailed examination of the system (including the system's monitoring and operational practices) than does a Level 1 assessment through the use of more comprehensive investigation and review of available information
- Additional internal and external resources, and other relevant practices
- It is conducted by an individual approved by the State, which may include the system operator



Minimum elements include

- Detailed Review and identification of atypical events that could affect distributed water quality or indicate that distributed water quality was impaired
- Detailed Review of changes in distribution system maintenance and operation that could affect distributed water quality (including water storage);
- Detailed review of source and treatment considerations that could have affected the distributed water quality, where appropriate (e.g., whether a ground water system is disinfected);
- Detailed review of existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing.
- The system must comply with any expedited actions or additional actions required by the State in the case of an E. coli MCL violation.



SANITARY DEFECTS

"Sanitary defect is a defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place."

Examples of sanitary defects could include:

- Cross connection
- Breakdown in treatment
- Source problems (e.g., defective well seal or casing)
- Improper disinfection of main repairs or other appurtenances being returned to service







REVISED TOTAL COLIFORM RULE (RTCR)



CURRENT TCR

REVIEW

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Current TCR

Sections 141.52 (MCLGs), 141.63 (MCLs)

- TC MCLG of zero
- TC monthly MCL based on the number of TC+ samples in a month
 - For a system collecting at least 40 samples per month, more than 5.0% of samples collected are TC(+)
 - For a system collecting fewer than 40 samples per month, no more than one sample is TC(+)

Sections 141.52 (MCLGs), 141.63 (MCLs), 141.859 (TT)

• No MCLG for TC

RTCR

- TC triggers Assessment and Corrective Action (A/CA). [No TC MCL]
 - For a system collecting at least 40 samples per month, more than 5.0% of samples collected are TC(+)
 - For a system collecting fewer than 40 samples per month, no more than one sample is TC(+)





Current TCR	RTCR
 Sections 141.52 (MCLGs), 141.63 (MCLs) Fecal coliform/<i>E. coli</i> MCLG of zero Fecal coliform/<i>E. coli</i> acute MCL based on FC/EC + samples 	 Sections 141.52 (MCLGs), 141.63 (MCLs), 141.859 (TT) E. coli MCLG of zero Acute MCL based on TC/E. coli monitoring results (Fecal coliform is no longer used)



TCR VS RTCR SAMPLING SCHEDULES

Current TCR	RTCR
 Based on Population Allows for Reduced Monitoring of some systems 	 Sections 141.854(c), 141.854(d), 141.855(c) Most systems continue on their current TCR monitoring schedule Systems currently on quarterly sampling will now be required to collect monthly samples Monitoring schedules will be evaluated by the State during each sanitary survey to determine if the monitoring frequency is appropriate.



TCR VS RTCR SAMPLING PLAN

Current TCR Sample sites that are representative of the Distribution System are required to be

identified

 Detailed instructions on sampling procedures

RTCR

- New Sampling Plans required
- Routine and Repeat sampling locations must be identified as well as addresses or locations
- Routine sampling must be rotated through ALL sampling locations throughout the year
- Detailed instructions on routine and repeat sampling procedures
- Detailed map indicating routine and repeat sampling locations as well as drinking water sources and other facilites



TCR VS RTCR REPEAT MONITORING

Current TCR	RTCR
 Section 141.21(b)(1)-(4) PWS serving ≤1,000 must take 4 <u>Repeat</u> samples for every TC(+) routine sample 	 Section 141.858, 141.402(a)(2)(iv) All systems must collect a minimum of 3 repeat samples per positive routine result Systems that collect >40 routine samples per month must continue to collect report.
	continue to collect repeat samples until a completely clean set has been achieved OR a Treatment Technique Violation has occurred (> 5% positive)



TCR vs RTCR Repeat Monitoring Ground Water Rule

Current TCR	RTCR
No Change!	No Change!
 GW PWS must still take <u>additional</u> source sample(s) to comply with the GWR 	 GW PWS must still take <u>additional</u> source sample(s) to comply with the GWR



TCR VS RTCR ADDITIONAL ROUTINE MONITORING

Current TCR	RTCR	
Section 141.21(b)(5) • PWS taking < 5 <u>Routine</u> samples per month must take at least 5 Additional <u>Routine</u> samples in the month after a TC(+) sample.	 Section 141.854(j), 141.855(f) For the PWSs taking at least 1 sample per month, the Additional Routine sample requirement is eliminated Take normal number of routine samples the month following a TC or EC positive result 	





Current TCR	RTCR
 Sections 141.52 (MCLGs), 141.63 (MCLs) Public Notification (PN) required for MCL violations 	 Sections 141.52 (MCLGs), 141.63 (MCLs), 141.859 (TT) PN Not required for TC (+) results Required for a Treatment Technique violation (failure to conduct Assessment or take Corrective Action) Required for <i>E. coli A</i>cute MCL violations





Current TCR	RTCR	
None	Section 141.859	
required	Triggers:	
	Violation of the RTCR MCL for <i>E. coli</i>	
	 The system has an <i>E. coli</i> (+) Repeat sample following a TC (+) Routine sample. 	
	 The system has a TC (+) Repeat sample following an <i>E. coli</i> (+) Routine sample. 	
	 The system fails to take all required Repeat samples following an <i>E. coli</i> (+) Routine sample. 	
	 The system fails to <u>test</u> for <i>E. coli</i> when any Repeat sample tests (+) for TC. 	
	 Two Level 1 triggers in a rolling 12 month period 	



Current TCR	RTCR
None	Section 141.859
required	Level 2 Assessment:
	 Conducted by a party approved by the State (could be the PWS if qualified and approved by the State); (or qualified certified operators)
	 A more in-depth examination of the system and its monitoring and operational practices



ASSESSMENT ELEMENTS – LEVELS 1 AND 2

Current TCR	RTCR
None	Section 141.859
required	 Atypical events that may affect distributed water quality or indicate that distributed water quality was impaired
	 Changes in distribution system maintenance and operation that may affect distributed water quality, including water storage
	 Source and treatment considerations that bear on distributed water quality
	 Existing water quality monitoring data
	 Inadequacies in sample sites, sampling protocol, and sample processing

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TYPICAL CAUSES FOR COLIFORM POSITIVE RESULTS

Cause	
Contaminated sample tap	
On-premise plumbing, piping, or water treatment devices at sample site location	
Cross-connection	
Water main installation or repair	
Interruption of treatment	
Contamination of water supply (e.g., well or spring)	
Challenging water treatment conditions	
Loss of distribution system pressure	
Inadequate maintenance of storage tank	
Sampling protocol error	



CORRECTIVE ACTION

Current TCR	RTCR
None	Section 141.859
required	 The PWS must correct <u>all</u> "sanitary defects" found during the Assessment
	 "Sanitary defects" and Corrective Actions must be described in the Assessment form the PWS must submit to the State within 30 days of the Assessment trigger
	 A timetable for any Corrective Actions not already completed must also be in the form. The State will determine a schedule after consulting with the PWS
	 The form may also indicate that no "sanitary defects" were found, <u>Due diligence exercised</u>
	The State determines if the Assessment is sufficient





Systems that conduct a thorough assessment

- Become more familiar with their system
- Often identify and correct other problems maybe not associated with the Coliform Positive Result
- Are less likely to repeat the MCL violation the next month



TCR VS RTCR SEASONAL SYSTEMS

Current TCR	RTCR
 Seasonal PWS has the same requirements as other systems of the same size and type 	 Section 141.851, 141.854(i), 141.856(a)(4), 141.857(a)(4) Seasonal PWS must demonstrate completion of a State-approved start up procedure:(Certify)

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TCR VS RTCR TIER 1 PUBLIC NOTIFICATION

Current TCR	RTCR
Section 141.63, Subpart O, Subpart Q • Violation of EC/FC MCL – acute violation, Tier 1 PN	 Violations - Section 141.860(a) PN – Sections 141.202, 203, 204, and Appendices A and B CCR – Section 141.153 and Appendix A Violation of EC MCL – Tier 1 PN 1. The system has an <i>E. coli</i> (+) Repeat sample following a TC (+) Routine sample. 2. The system has a TC (+) Repeat sample following an <i>E. coli</i> (+) Routine sample. 3. The system fails to take all required Repeat samples following an <i>E. coli</i> (+) Routine sample.



TCR VS RTCR TIER 2 PUBLIC NOTIFICATIONS

Current TCR	RTCR
Section 141.63, Subpart O, Subpart Q • Violation of monthly TC MCL – Tier 2 PN	 Violations - Section 141.860(b) PN – Sections 141.202, 203, 204, and Appendices A and B CCR – Section 141.153 and Appendix A
	• Monthly TC MCL violation is dropped – triggers Assessment and Corrective Action (A/CA) instead
	 A TT violation occurs when
	 A PWS fails to conduct required Assessment or Corrective Action within 30 days of trigger notification – Tier 2 PN
	 A seasonal system fails to complete a State- approved start-up procedure prior to serving water to the public – Tier 2 PN



TCR VS RTCR TIER 3PUBLIC NOTIFICATION

Current TCR	RTCR
 Section 141.63, Subpart O, Subpart Q M&R violation – Tier 3 PN PWS must notify State re: single EC/FC (+) result. 	 Violations - Section 141.860(c) & (d) PN – Sections 141.202, 203, 204, and Appendices A and B CCR – Section 141.153 and Appendix A
	Monitoring violation
	• Failure to take every required (ALL) Routine samples
	 Failure to report all sample results within required timeframes
	• Tier 3 PN M&R violations will be tracked separately –
	 Monitoring is a separate violation and
	 Reporting is a separate violation
	 PN/CCR Language - TC health effects language changed to reflect failure to conduct Assessment or Corrective Action
	PWS must notify State re: single EC (+) result



MONITORING/REPORTING SEPARATED

TCR	RTCR
M&R violation – Tier 3 PN	 M&R violations will be tracked separately – Both require Tier 3 PN Newly specified M&R violations: Failure to take every required routine or additional routine sample in a compliance period Failure to submit a monitoring report or completed assessment form after monitoring or conducting assessment correctly/timely Failure to notify the State following an <i>E. coli</i> (+) sample Failure to submit certification of completion of State-approved start-up procedure by a seasonal system



TCR VS RTCR CONSUMER CONFIDENCE REPORT

RTCR

L	CR	

Mandatory health effects language for TC and *E. coli*

•CCR must contain information related to highest monthly TC results (number or percentage) and the total number of fecal positive (*E. coli*) samples •TC health effects language changed to reflect nature of TC as an indicator and, if appropriate, the failure to conduct assessments or corrective action

•CCR must contain information about the number of assessments required and corrective actions taken, and, if appropriate, the number of assessments and corrective actions not completed





WHAT YOU SHOULD BE DOING NOW

- Start Updating Sampling Plans
- Familiarize yourself with Assessments and the assessment process
- Determine who will conduct your assessments
- Get certified to do your own assessments
- Seasonal Systems familiarize yourself with startup procedures



QUESTIONS?





FOR FURTHER INFORMATION PLEASE CONTACT

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