

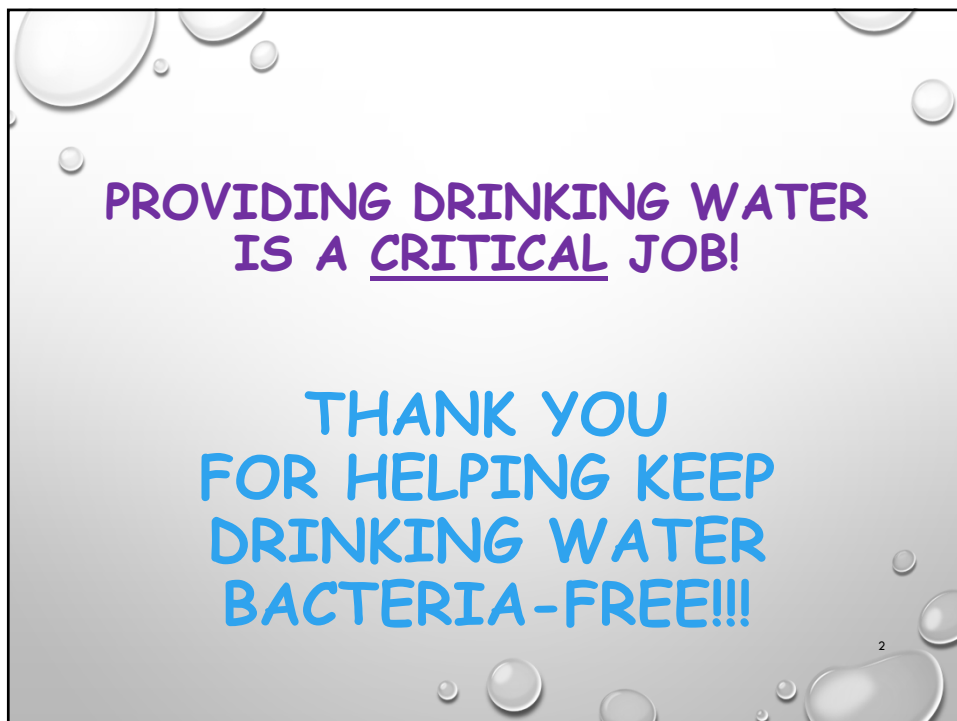
**REVISED TOTAL COLIFORM RULE (RTCR)
CHALLENGES IN EPA REGION 8**

JUNE 24, 2020

WYOMING ASSOCIATION OF RURAL WATER SYSTEMS (WARWS)
EPA RULE TRAINING

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**PROVIDING DRINKING WATER
IS A CRITICAL JOB!**

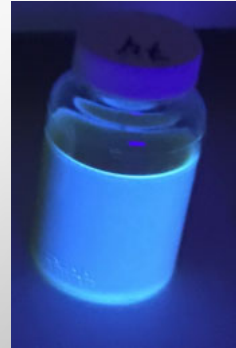
**THANK YOU
FOR HELPING KEEP
DRINKING WATER
BACTERIA-FREE!!!**

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OVERVIEW

- Revised Total Coliform Rule (RTCR) in a Nutshell
- RTCR Implementation Challenges during COVID-19
- Monthly & Triggered Monitoring
 - Sample Types
 - Important Information to Remember
- Assessments & Corrective Action
- Violations (TT & MCL)



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REVISED TOTAL COLIFORM RULE (IN A NUTSHELL)

- Revised rule went into effect in April 2016.
- **All** water systems are required to have a Sample Siting Plan.
- **All** Region 8 water systems are required to monitor for total coliforms (TC) **monthly**.
- Sample results are due to EPA by the 10th of the **following** month.
- For every routine TC+, system must collect 3 repeat samples and a TR GWR sample (if applicable) within 24 hours.

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REVISED TOTAL COLIFORM RULE (IN A NUTSHELL)

- A Level 1 Assessment may be triggered if a water system has two or more TC+s in one monitoring period (month).
- Multiple Level 1 Assessments in a rolling 12-month period become a Level 2 Assessment.
- The most common way an *E. coli* (EC) MCL violation occurs is when there are both confirmed EC and/or TC in the 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 received late.
- Public Notification is required with all violations.

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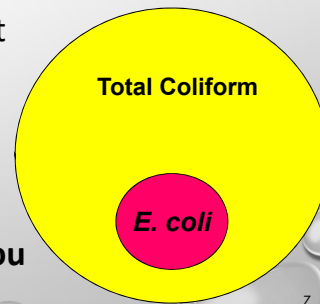
E. Coli Waterborne Disease Outbreaks

- **Total coliforms** are **common in** ambient **water** and may be **injured** by ... water treatments like **chlorine disinfection**.
- **Fecal** contamination ... can cause a variety of **illnesses**, including acute gastrointestinal illness with **diarrhea**, **abdominal discomfort**, **nausea**, **vomiting**, and other symptoms.
- The CDC defines a **waterborne disease outbreak** as occurring when at **least 2 persons** experience a **similar illness** after ingesting a specific **drinking water**... (Kramer *et al.* 1996).
- Often **Underreported** because a fecal test is required. How often do you go to the doctor when your stomach is upset?

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

- Total coliforms are used as indicator organisms for potential contamination.
- *E. coli* is one type of bacteria found in total coliforms, it almost always originates in human or animal guts.
- 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).
- **If any REPEAT samples in the distribution system are positive, you must find and fix the problem!**



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RTCR IMPLEMENTATION COMPLICATIONS DURING COVID-19

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RTCR IMPLEMENTATION DURING COVID-19

- **Accessing Sample Sites** – What if you can't access the location on the Sample Siting Plan?
 - Go to a nearby location
 - Use an outdoor faucet that you have thoroughly cleaned and disinfected
 - Email Jamie and list where the sample was supposed to be collected, where it was collected and why it was collected there.
- **System closed** - What if your system is closed for a calendar month? Or a seasonal system is not opening in 2020?
- **Re-opening during COVID** - Information on Maintaining or Restoring Water Quality in Buildings With Low or No Use

<https://www.epa.gov/coronavirus/information-maintaining-or-restoring-water-quality-buildings-low-or-no-use>

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RTCR IMPLEMENTATION CHALLENGES

- **Labeling samples** – The RTCR site name must include the actual location where the sample was collected. SPO# is not an acceptable sample site for total coliform samples.
- **Incomplete Chain of Custody (Sample Form)** – If there is no PWSID on the lab form then EPA will not accept the result. Other items often missing include the sample date, sample time, and sample type (routine, repeat, or special purpose).
- **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 Siting Plans** – Not knowing where the plan is or not following it.

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**MONTHLY & TRIGGERED
MONITORING**

**Revised Total Coliform Rule (RTCR)
&
Ground Water Rule (GWR)
Sample Types**

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**MONITORING:
RTCR AND GWR SAMPLE LABELING
INSTRUCTIONS**

Revised Total Coliform Rule Sample Types:

- Routine
- Repeat
- Special Purpose

Ground Water Rule (GWR) Sample Type:

- Triggered Ground Water Rule Source Sample

RTCR & GWR Sample Labeling Instructions <https://www.epa.gov/region8-waterops/rtrcr-and-gwr-sample-labeling-instructions>

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MONITORING: RTCR LAB SAMPLING FORM (CHAIN OF CUSTODY)

**WY and Tribal Revised Total Coliform Rule (RTCR)
LABORATORY SAMPLE FORM**

Sampler(s) Section (For field sampler use only):
 Reminder: Collect RTCR samples every month. If you have a total coliform positive or an E. Coli-positive, you must collect three (3) REPEAT samples according to your Sample Siting Plan. For each positive ROUTINE sample, you must collect REPEAT samples from: 1) the same site as the positive ROUTINE sample, 2) a REPEAT sample from a site within 5 taps upstream from the positive sample, and 3) a REPEAT sample from a site within 5 taps downstream from the positive sample. You must also collect a ground water source sample from any wells or springs in use at the time the positive ROUTINE sample was collected. This is the triggered GWR sample. Write the correct Sample Point Code on the form below (e.g., DIST), which may be found in the yearly Monitoring and Reporting Requirements and the address where the sample was taken. Chlorine Residuals are required on routine and repeat samples.
 You cannot use RTCR samples as a GWR source sample, or vice versa.

PWS info →

Public Water System (PWS) Name:		Sampler's Name:	
PWS Identification Number (PWSID):		Cell Phone Number:	
PWS Street Address:	City:	State:	Zip Code:
Comment:			

Chlorine Residual →

Sample Collection		Sample Point Address: (Found on your Sample Siting Plan)	Chlorine Residual (circle one) Total or Free mg/L	RTCR Sample Type - Check One		
Date	Time			ROUTINE - First set of required samples collected during a month.	REPEATS - samples required AFTER any routine sample is positive.	SPECIAL - In a non-compliance sample that may be collected, for example, to determine if disinfection is adequate after pipe replacement or repair or to find a source of contamination. It is also used for the seasonal Startup Checklist required sampling and daily sampling required by an Emergency Administrative Order. It cannot be used to determine compliance with the maximum contaminant level.
				<input type="checkbox"/> Routine	<input type="checkbox"/> Repeat	<input type="checkbox"/> Special
				<input type="checkbox"/> Routine	<input type="checkbox"/> Repeat	<input type="checkbox"/> Special
				<input type="checkbox"/> Routine	<input type="checkbox"/> Repeat	<input type="checkbox"/> Special
				<input type="checkbox"/> Routine	<input type="checkbox"/> Repeat	<input type="checkbox"/> Special

Sample info →


Sampler(s) name (Print): _____ Sampler(s) signature: _____ Date signed: _____

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MONITORING: ROUTINE SAMPLES

- All water systems must collect routine total coliform samples each month they serve water to the public.
 - The number of samples required under the 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.
- Most systems that disinfect are required to collect a field measurement of **free or total chlorine residual** at the time the Routine or Repeat RTCR sample is collected.



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MONITORING: REPEAT SAMPLES

- Repeats need to be taken ASAP after a TC+ routine sample result (ideally within 24 hours*).
- After an ***E. coli + (EC+)***, repeat samples **MUST** be taken within 24-Hours.
- Take repeat samples **before** shock chlorinating the system or taking other corrective measures. Otherwise you are just masking the problem!
- Collect a set of three (3) repeat samples for each (1) routine TC+. All repeats must be collected on the same day.



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

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MONITORING:

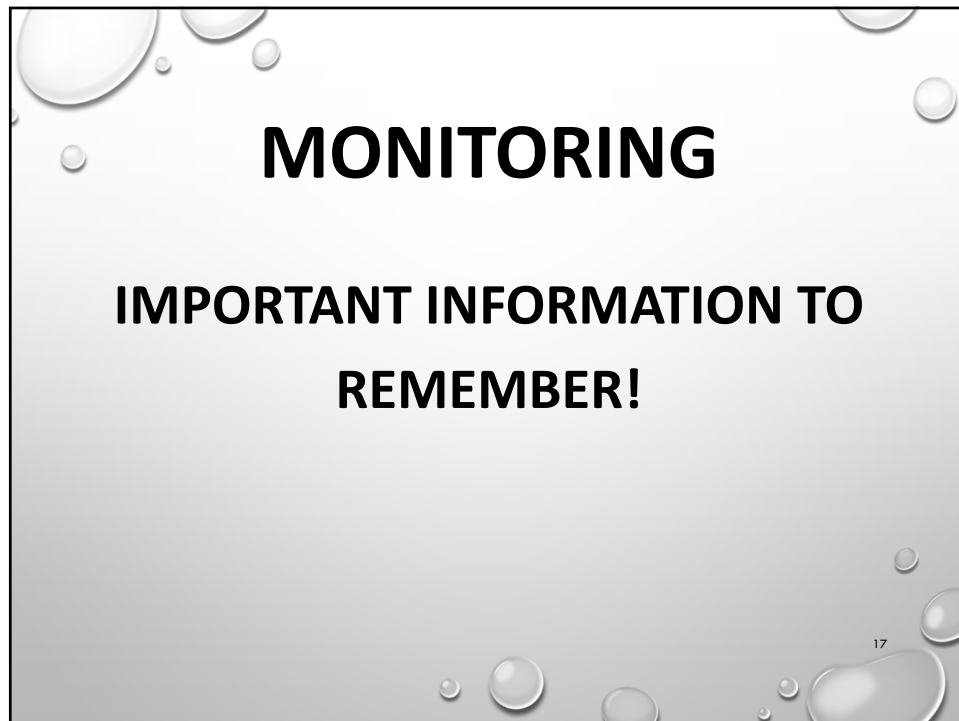
SPECIAL PURPOSE SAMPLES



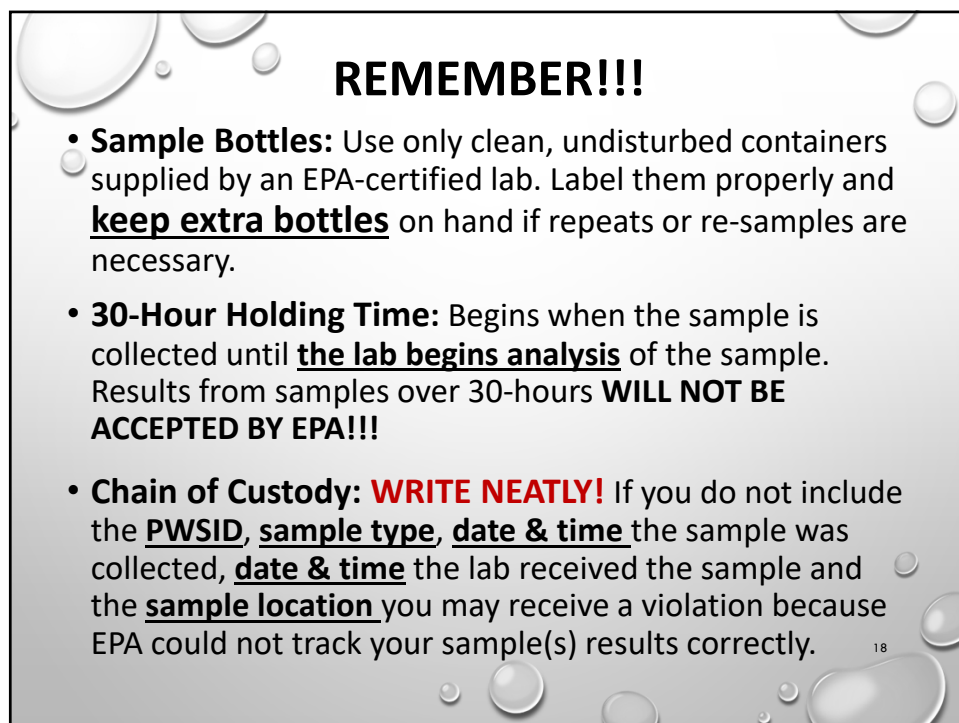
- ➔ Special Purpose samples are helpful for evaluating system processes, to see if your system is working properly.
- ➔ Samples labeled as Special Purpose can not and will not count towards monthly compliance.
- ➔ Special Purpose samples cannot be changed to ROUTINE samples **after** they are analyzed.
- ➔ However, even if you are doing work on the system you are required to collect a monthly compliance sample (ROUTINE), if you mark it "special purpose" you **will** receive a monitoring violation.

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ASSESSMENTS AND CORRECTIVE ACTIONS

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PURPOSE OF ASSESSMENTS

- **Find and fix the problem!**
- The 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.
- A **sanitary defect** is an issue that could provide a path for microbial contaminants to enter the distribution system **OR** indicates a failure in a protective barrier that is already in place.

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PURPOSE OF ASSESSMENTS

The type of Assessment triggered is dependent on the severity and frequency of the problem:

- **Level 1 Assessment** - a basic assessment completed by the PWS.
- **Level 2 Assessment** - a more detailed assessment conducted by an EPA-approved third party.
- Failure to complete an Assessment and/or correct a sanitary defect is a **treatment technique (TT) violation**.

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LEVEL 1 and LEVEL 2 ASSESSMENTS

Assessments are organized to review the following issues:

- **Atypical events** that may affect water quality in the distribution system (like flooding);
- **Changes in distribution system** maintenance and operation that may affect water quality in the distribution system, including water storage (like a line break or dead bird in the storage tank);
- **Source and treatment considerations** that impact water quality in the distribution system, where appropriate (like a broken chlorination pump);
- Problems with **sample sites, sampling protocol, and sample processing** (like collecting wastewater samples first).

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Assessments vs. Sanitary Surveys Sanitary Defects vs. Significant Deficiencies

- **Level 2 Assessments** are triggered by an *E. Coli* MCL Violation or multiple Level 1 Assessments within a rolling 12-month period.
 - The positive results represent potential acute health considerations and require a quick turn-around time to complete the required corrective actions and report them back to the EPA. The issues identified are called “**Sanitary Defects.**”
- **Sanitary Surveys** are conducted at regular intervals at water systems.
 - Surveys represent a routine review of your water system’s ability to produce, potable water. The survey strives to identify any facilities or practices which could compromise the quality of water provided to the consumer, called “**Significant Deficiencies.**”

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Issues Identified in L1 Assessments in 2018 & 2019

75 percent of systems that triggered a Level 1 Assessment in 2018 & 2019 had no disinfection.

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Issues Identified in Level 2 Assessments

76 percent (42 out of the 55) of water systems that triggered a Level 2 Assessment in Wyoming from April 2016 through September 2019 had no disinfection installed.

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VIOLATIONS

(TREATMENT TECHNIQUE and MCL)

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TREATMENT TECHNIQUE VIOLATION

- A treatment technique violation happens when an action (other than monitoring) is required and not done. Some examples include:
 - A Level 1 Assessment is not completed and sent to the EPA, or
 - A system fails to complete the corrective action for a sanitary defect identified in an Assessment.
- Tier 2 public notification is required within 30 days when a treatment technique violation occurs.

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E. COLI MCL VIOLATION

E. coli MCL Violation Description	
Routine sample	← AND → Repeat sample
(1) TC+	EC+
(2) EC+	TC+
(3) EC+	Fails to take <u>all</u> required repeat samples
(4) TC+	TC+ (but not analyzed for <i>E. coli</i>)

40 CFR 141.63 & 141.860(a)

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***E. COLI* (EC) MCL VIOLATION REQUIREMENTS:**

YOU MUST Notify EPA within 24 hours.

- Because it's related to an *EC+* you may be required to issue a boil water advisory and provide an alternative source of water.
- Hand deliver public notification.
- An Emergency Administrative Order (EAO) may be issued by the EPA Enforcement Division.

Within 30 days, complete the following requirements:

- ✓ Participate in a Level 2 Assessment
- ✓ "Find and fix" all sanitary defects identified by EPA

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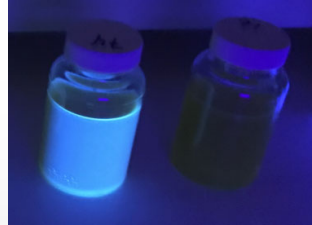
RESOURCES

- **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-unsafetotal-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** <https://www.epa.gov/region8-waterops/reporting-public-drinking-water-system-results-wyoming-and-tribal-epa-region-8>

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QUESTIONS?

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R8 website: <https://www.epa.gov/region8-waterops>

**Email sample results to R8DWU@epa.gov,
not to individual rule managers!**

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