EPA Lunch and Learn for Region 8 Laboratories

Webinar Part 1

03/13/2025

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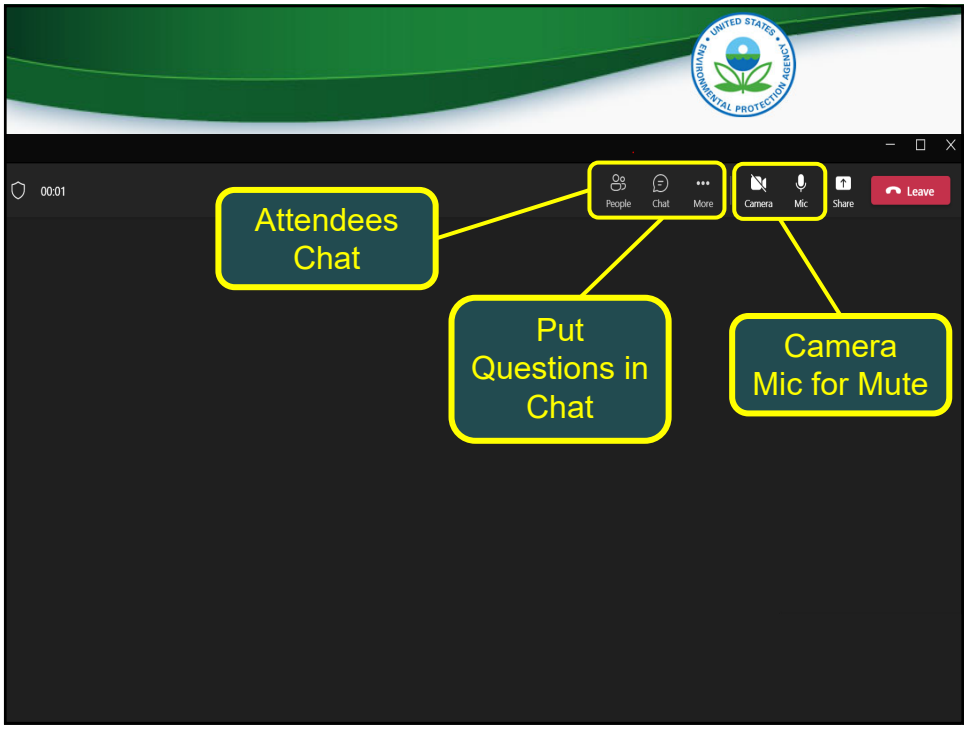


Agenda

- **Relationship between EPA and Labs**
- **Data Integrity**
- **Sending Results to EPA**
- **Analytical Report Information**
- **Holding Times**
- **Revised Total Coliform Rule**
- **Chlorine Residuals**
- **Ground Water Rule – Triggered Sampling**
- **Disinfection Byproducts Rule**
- **Questions**

This webinar will provide information that applies to the following National Primary Drinking Water Regulations:

Revised Total Coliform Rule (RTCR), Ground Water Rule (GWR), Chlorine Residuals, and Disinfection Byproducts

Relationship between EPA and Labs

- EPA regulates public water systems.
- EPA certifies states and labs to analyze certain contaminants.
- If there is a problem with accurate information transferred from the lab to EPA, the water system will get a violation, not the lab → unhappy customers and consumers
- Chain of Custody (i.e., Sample Info. Form, Request Form, etc.). Please include with PDF lab report!
- Transferring information from the chain of custody / sample form to the analytical report
- Revising analytical reports

Relationship between EPA and Labs

Reporting Results – Prompt Notifications

When a laboratory is responsible, either by contract or State policy, to report sample results which would indicate a system is out of compliance, **the laboratory must (141.23(a)(4)(i)) promptly notify the proper authority so that the authority can request the water utility to resample from the same sampling location(s)** immediately[1].

A laboratory should be downgraded to "provisionally certified" status for a contaminant or group of contaminants for any of the following reasons: **Failure to report compliance data to the public water system or the State drinking water program in a timely manner, thereby preventing compliance with Federal or State regulations and endangering public health. Data which may cause the system to exceed an MCL should be reported as soon as possible**[2].

For the RTCR and GWR, laboratories must **promptly notify the proper authority** of a positive total coliform, fecal coliform, or *E. coli* result, **so that appropriate follow-up actions (e.g., collection of repeat samples) can be** conducted[3].

1 – EPA's Manual for the Certification of Laboratories Analyzing Drinking Water. Fifth Edition. EPA 815-R-05-004. Ch. 4, p. 10; And 40 CFR 141.23(a)(4)(i))
2 - EPA's Manual for the Certification of Laboratories Analyzing Drinking Water. Fifth Edition. EPA 815-R-05-004. Ch. 3, p. 7
3 - EPA's Manual for the Certification of Laboratories Analyzing Drinking Water. Fifth Edition. EPA 815-R-05-004. Ch. 5, p. 32

Relationship between EPA and Labs

Legal Defensibility

Compliance monitoring data should be made **legally defensible** by keeping thorough and accurate records.[1]

Data Integrity (Fraud Detection / Deterrence)

2006 OIG Report: "Promising Techniques Identified to Improve Drinking Water Laboratory Integrity and Reduce Public Health Risks"[2]

- Laboratories are encouraged to have an **ethics policy** and implement a **fraud detection and deterrence policy/program**
- Areas of concern: inappropriate procedures, laboratory fraud, **data quality**, laboratory integrity

Prohibited practices include:

- Fabrication, falsification, or misrepresentation of data;
- Improper clock setting (time traveling) or **improper date/time recording**;
- Unwarranted manipulation of samples, software, or analytical conditions;
- Misrepresenting or misreporting QC samples;
- Improper calibrations;
- Concealing a known analytical or sample problem;
- Concealing a known improper or unethical behavior or action; and
- **Failing to report the occurrence of a prohibited practice or known improper or unethical act to the appropriate laboratory or contract representative, or to an appropriate government official**.

1 – EPA's Manual for the Certification of Laboratories Analyzing Drinking Water. Fifth Edition. EPA 815-R-05-004. Sec. 8.1
2 – Supplement 1 to EPA's Manual for the Certification of Laboratories Analyzing Drinking Water. Fifth Edition. EPA 815-R-05-004.

Relationship between EPA and Labs

Amended Reports – Best Management Practices

- Thoroughly document any changes made to sampling information: time, date, who requested the changes.
- Changes in this information could put a PWS in or out of compliance
- Consider an SOP on how changes are made
- Make sure "Amended Report" is clearly displayed in the report

Sampling Records: Data should be recorded in ink with any changes lined through such that the original entry is visible. Data may also be kept electronically. **Changes need to be initialed and dated.** The following information should be readily available:
8.3.1 **Date, location** (including name of utility and PWSS ID #), site within the system, **time** of sampling, name, organization and phone number of the sampler, and analyses required;
8.3.2 **Identification of the sample** as to whether it is a routine distribution system sample, check sample, raw or finished water sample, repeat or confirmation sample or other special purpose sample;
8.3.3 Date of **receipt** of the sample;
8.3.4 Sample volume/weight, container type, preservation and holding time and **condition on receipt**;
8.3.5 **pH and disinfectant residual** at time of sampling (if required) (from plant records);
8.3.6 Transportation and delivery of the sample (person/carrier, conditions).
EPA's Manual for the Certification of Laboratories Analyzing Drinking Water. Fifth Edition. EPA 815-R-05-004. Sec. 8.3

Sending Results to EPA

- It is ultimately the PWSs responsibility to make sure EPA receives lab results.
- Some labs offer a service to send EPA results on behalf of the PWS. Some labs use the Compliance Monitoring Data Portal (CMDP) to upload results directly to the EPA database. In either case, if the result is late, the PWS gets the violation.
- Please include the chain of custody with all results sent to EPA.
- Two ways for EPA to receive sample results:
  - Email: R8DWU@epa.gov
  - New Fax: 303-312-7517 (**as of 02/2025**)

Emailing Lab Results to EPA

Criteria to Submit Results to R8DWU@epa.gov:

1. Include the PWS ID# in the subject line of the e-mail.
2. Include the correct keyword or abbreviation for the documentation being submitted in the subject line of the e-mail (see the table on the next slide).
3. More than one type of documentation can be submitted in the same e-mail as long as the subject line of the e-mail contains the correct keyword or abbreviation for each type of document being submitted. Each keyword should be separated by a comma. For example, if an e-mail contains both nitrates and total coliform, results; the e-mail subject could be: “WY560xxxx NO3, RTCR”.

- Follow-up results: please send follow-up results from an MCL exceedance or a TC+ immediately.

R8DWU Documentation Keyword List

Type of Documentation	Required Keywords Example E-mail Subject	Example E-mail Subject Line
Revised Total Coliform Rule (RTCR) Results - Tribal	“Tribal BACT” or “Tribal BAC-T” or “BACT 08” or “Tribal RTCR” or “RTCR 08”	BACT 083890000 or RTCR 084690000
Revised Total Coliform Rule (RTCR) Results - Wyoming	“Wyoming BACT” or “WY BACT” or “WY RTCR” or “RTCR WY”	WY5600000 WY BACT
Disinfection Byproduct (DBP) Results (TTHM or HAA5)	“DBP” or “TTHM” or “HAA5”	WY5600000 TTHM
DBP Precursor Results (Total Organic Carbon and/or alkalinity and/or UV absorbance)	“TOC” or “TOCA” or “Precurs or” or “SUVA”	WY5600000 TOC
Information about how to send data for all the other EPA drinking water regulations is found at: https://www.epa.gov/region8-waterops/how-submit-sample-results-r8dwu		

Analytical Report

- PWS ID Number
- PWS Name
- Lab Sample ID Number
- Sample Collection Date and Time
- Lab Received Date and Time
- Analysis Start Date and Time
- Sample Type for RTCR and GWR (Routine, Repeat, Special, Triggered)
- Sample Location and Description (Facility Code/Sampling Point, kitchen faucet, DIST/DIST)
- Analytical Results and Units
- Analytical Techniques/Methods
- Method Detection Limits
- Chlorine Residual
- Received Temperature (special situations)
- Chain-of-Custody, Requisition Form, or Intake Form
- Important Notes and Observations
- Revision information, if needed

Chain-of-Custody, Requisition Form, or Intake Form

- If not already included, EPA recommends adding an option for the user to mark sample types as routine, special, repeat, or confirmation.
- Not specifying sample type can have ramifications for the PWS and lead to violations, more sampling, or inspections.

Sample Collection and Hold Times

- Total coliform = **30 hours**
- TTHM = 14 days **(receiving temperature ≤ 10 °C)**
- HAA5 = 9, 14, or 28 days (based on vial type and volume collected) **(receiving temperature ≤ 10 °C)**
- TOC, alkalinity, SUVA = 28, 14, and 2 days, respectively

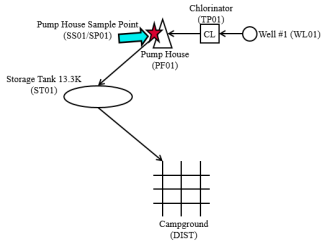
SAMPLE LOCATIONS FOR DIFFERENT RULES

PWSs are required to indicate on the lab's chain of custody (or equivalent) where they sampled.

Nitrate:
SP01 – Restroom Sink

Total Coliform:
DIST - Restroom Sink

Forever Snowy National Forest
PWS ID # WY5600000
GW/NC



Sample Points (SP) shown on the schematic are **ONLY** for Nitrates, RADs, IOCs, SOCs, and VOCs. If you sample for other contaminants, please refer to your individual Site Sampling or Monitoring Plans.

Agreed to by:_____
Date:_____

SCHEMATIC NOT TO SCALE
12/07/1999-A. Majewski
2/25/16-S. Bienzle

REVISED TOTAL COLIFORM RULE

Total Coliform Monitoring

- **ALL** EPA Region 8 public water systems are required to monitor for total coliform monthly.
- If a sample result is TC+ it MUST be analyzed for *E. coli* too (or it triggers further work by the PWS).
- When a system that disinfects collects a total coliform sample, they must also measure and report a free or total chlorine residual.
- The Code of Federal Regulations lists acceptable EPA methods for total coliform and *E. coli* analysis.
- When EPA gets an analytical report that says a sample was rejected, EPA assumes the lab contacted the PWS to notify them of the need to collect another routine sample. If another sample is not collected within the monitoring period, the PWS will get a monitoring violation.

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 of 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.

Public Water System (PWS) Name: Forever Snowy National Forest				**Sampler's Name:**		
PWS Identification Number (PWSID): WY5600000				**Cell Phone Number:**		
PWS Street Address:		**City:**		**State:**	**Zip Code:**	
Comments:						
Sample Collection Date	Time	**Sample Point Address** (Found on your Sample Siting Plan.)	**Chlorine Residual** (circle one) Total or Free mg/L	**RTCR Sample Type - Check One** **ROUTINE** - First set of required samples collected during a month. **REPEATS** – samples required AFTER any routine sample is positive. **SPECIAL** – Is 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.		
1/12/18	1203	kitchen sink – dist	0.2	☒ Routine	☐ Repeat	☐ Special
				☐ Routine	☐ Repeat	☐ Special
				☐ Routine	☐ Repeat	☐ Special
				☐ Routine	☐ Repeat	☐ Special
Sampler(s) name (Print):			**Sampler(s) signature:**			**Date signed:**

STEPS TO TAKE AFTER A TOTAL COLIFORM or *E. COLI* POSITIVE (TC+ or EC+) SAMPLE RESULT:

For the lab:

- **Call EPA immediately (Jamie Harris 303-312-6072)**
- **After hours / weekend number 303-312-6327**

For the Public Water System:

Within 24 hours of notification of the *routine* TC+ sample the PWS must:

1) **Collect Repeat Samples & Notify EPA of the TC+ and/or EC+**
2) **Collect Triggered GWR source sample(s), if they use a groundwater (e.g., well or spring) source.**

CHLORINE RESIDUALS

Chlorine Residuals

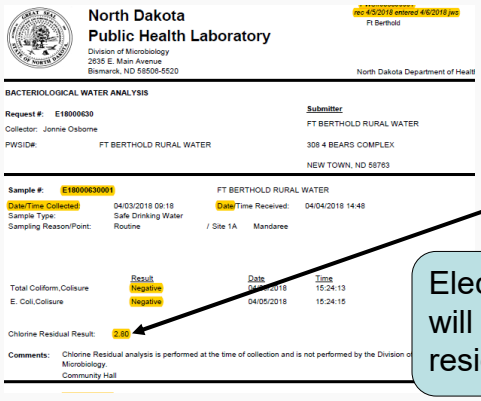
- *All systems that use a SW/GWUDI/SWP/GUP source and all GW Community, Non-Transient Non-Community Water Systems* adding chlorine disinfection **must measure a chlorine residual** at same time and location as Total Coliform Samples.
- GW Transient or GW non-chlorinating systems **do not have to report** a residual.

Lab may ask:

How would I know if it is supposed to be there?

Dependent on the chain of custody provided by the operator.

Chlorine Residuals – **What does EPA need?**



North Dakota
Public Health Laboratory
Division of Microbiology
2635 E. Main Avenue
Bismarck, ND 58506-5520

BACTERIOLOGICAL WATER ANALYSIS

Request #: E18000630
Collector: Jonnie Osborne
PWSID#: FT BERTHOLD RURAL WATER
Submitter: FT BERTHOLD RURAL WATER
308 4 BEARS COMPLEX
NEW TOWN, ND 58763

Sample #: E18000630001 FT BERTHOLD RURAL WATER
Date/Time Collected: 04/03/2018 09:18
Sample Type: Safe Drinking Water
Sampling Reason/Point: Routine / Site 1A Mandaree
Date/Time Received: 04/04/2018 14:48

	Result	Date	Time
Total Coliform,Colisure	Negative	04/05/2018	15:24:13
E. Coli,Colisure	Negative	04/05/2018	15:24:15

Chlorine Residual Result: 2.80

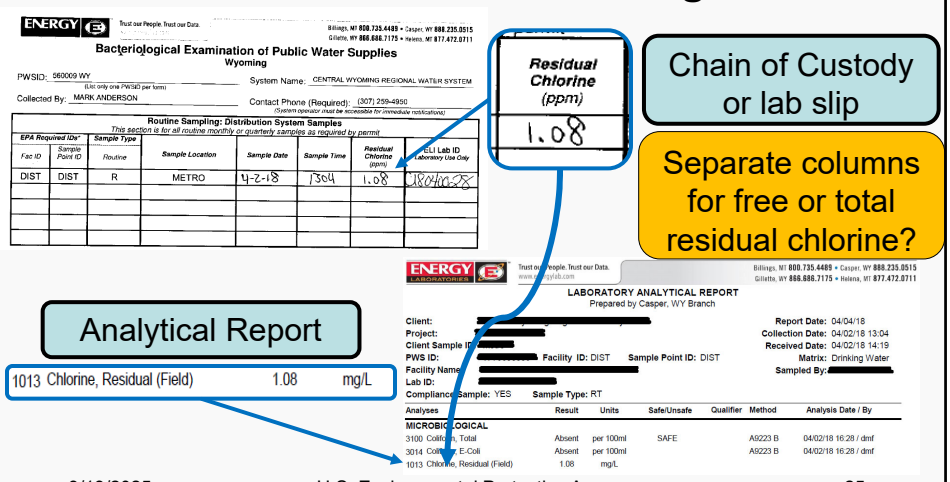
Comments: Chlorine Residual analysis is performed at the time of collection and is not performed by the Division of Microbiology.
Community Hall

Should indicate Free or Total

Chlorine Residual Result: 2.80

Electronic Data Interchange (EDI) will need to include the chlorine residual as well, if applicable.

Chlorine Residuals – **How to get it?**



Chlorine Residuals – **Responsibility**

- Water Systems are responsible for measuring and indicating free or total chlorine residual
- Water Systems must show the chain of custody or lab slip to demonstrate same time and location of Total Coliform Sample
- **Labs can help their clients avoid extra work**

TRIGGERED GROUND WATER RULE SOURCE SAMPLE

Triggered Source Water Monitoring

- Triggered source samples:
  - Collected and analyzed after routine Revised Total Coliform Rule (RTCR) TC+ or EC+ results at groundwater systems using wells or springs for source water.
  - Purpose is to determine if the groundwater is the source of coliform contamination.
  - Collected at same time as the repeat RTCR samples.
  - Must be collected from well(s) or spring(s) in use at time of the routine RTCR TC+ or EC+.
  - Must be collected from well(s) or spring(s) BEFORE any treatment (including chlorination).

TRIGGERED GROUNDWATER SOURCE SAMPLING FORM

Sampler(s) Section (For field sampler use only)

Reminder: Collect GWR source samples anytime you have a routine RTCR positive result. **Collect the same number of samples from each active groundwater source as the number of routine TC+ results received (e.g., if you have two routine TC+ results, you will need to collect two source water samples from *each* active groundwater source).** Write the correct Sample Point Code on the form below (e.g. GWR WL), which may be found in the yearly Monitoring and Reporting Requirements document sent to all systems. The GWR source samples are **in addition** to your RTCR repeat samples. You cannot use RTCR samples as a GWR source sample, or vice versa.

Public Water System (PWS) Name: Forever Snowy National Forest		Sampler's Name:	
PWS Identification Number (PWSID): WY5600000		Cell Phone Number:	
PWS Street Address:	City:	State:	Zip Code:

Comments: (List sources that were inactive or any other information regarding why all groundwater sources were not sampled)
WL04 was not running at the time of the TC+, the sample for WL02 & WL03 is combined before treatment.

Sample Collection Date	Sample Collection Time	Sample Point Code (Found in the yearly Monitoring and Reporting Requirements document in the GWR section.)	Groundwater Sample Type- Check One Triggered - 1st source sample(s) after being notified of a routine RTCR positive Additional Routines - Required 5 source samples after a GWR EC+ routine result Replacement- If a sample wasn't analyzed previously (e.g. over holding time)
1/14/2025	0900	WL01	☒ Triggered ☐ Additional Following EC+ ☐ Replacement
			☐ Triggered ☐ Additional Following EC+ ☐ Replacement
1/14/2025	0830	WL02 & WL03 Combo	☒ Triggered ☐ Additional Following EC+ ☐ Replacement
			☐ Triggered ☐ Additional Following EC+ ☐ Replacement
			☐ Triggered ☐ Additional Following EC+ ☐ Replacement

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

Laboratory Section (For laboratory use only):

DISINFECTANTS & DISINFECTION BYPRODUCTS RULES (DBPRs)

DBPRs

- DBPRs apply to all CWS and NTNCWs that use a primary or residual disinfectant other than UV light
- TNCs that use chlorine dioxide must comply with the MRDL for chlorine dioxide
- Subpart H systems (GWUDI or surface water) must comply with treatment technique for TOC that may react with disinfectants to form DBPS

DBPRs

- DBPR sampling frequency and locations are based on water age and population. Other factors like temperature, mixing, and disinfectant type and dosage and more impact DBP formation
- Because of this, it is critical that systems sample in the correct month at the correct location. If you are unsure of the location sampled, please check with the system

DBPRs

Dual VS Individual sampling for TTHM & HAA5:

- Based on source water type and population
- System should know which schedule they are on

- **Note**: Quarterly schedule is 90 days
- Ex. If system's peak historic month is September, they would sample:
  - March
  - June
  - September
  - December

DBPRs

- DBP samples consist of the following:

DBP	MCL
Total Trihalomethanes (TTHM)	0.080 mg/L
Haloacetic Acids (HAA5)	0.060 mg/L
Chlorite	1.0 mg/L
Bromate	0.010 mg/L

Note: any individual sampling result exceeding MCL is NOT an MCL violation; must increase monitoring. MCL is based on LRAA

Maximum Residual Disinfectant Levels (MRDLs)

Chlorine: free or total

Chloramine: Combined or total chlorine

Disinfectant	MRDL
Chlorine	4.0 mg/L (as Cl2)
Chloramines	4.0 mg/L (as Cl2)
Chlorine Dioxide*	0.8 mg/L (as ClO2)

*Adverse health effects based on short-term exposure

Compliance Monitoring Data Portal (CMDP)

- What is CMDP?
  - ✓ A change in submitting sample results to drinking water primacy agencies from paper to electronic.
- CMDP is CROMERR compliant!
  - ✓ CROMERR: CROss-Media Electronic Reporting Rule
  - ✓ This is the federal legal framework for electronic reporting.
- What does that mean to you?
  - ✓ Electronic reporting that meets federal law requirements.

EPA Resources

EPA Region 8 Drinking Water Website (Water Ops)
https://www.epa.gov/region8-waterops

EPA Region 8 Drinking Water Watch
https://sdwisdww.epa.gov/DWWR8WY/

EPA Region 8 Reporting Forms
https://www.epa.gov/region8-waterops/reporting-forms-drinking-water-systems-wyoming-and-tribal-lands-epa-region-8

GWR Chain of Custody
https://www.epa.gov/region8-waterops/wyoming-and-tribal-triggered-groundwater-source-sampling-form

EPA Resources

RTCR Chain of Custody
https://www.epa.gov/region8-waterops/revised-total-coliform-rule-lab-sampling-form

Certification of Laboratories that Analyze Drinking Water Samples to Ensure Compliance with Regulations
https://www.epa.gov/dwlabcert

Approved Drinking Water Analytical Methods by Rule and/or Contaminant
https://www.epa.gov/dwanalyticalmethods/approved-drinking-water-analytical-methods

How to Submit Samples to R8DWU@epa.gov
https://www.epa.gov/region8-waterops/how-submit-sample-results-r8dwu

EPA Contacts

Revised Total Coliform Rule (RTCR) & Triggered Ground Water Rule (GWR) Manager
Jamie Harris, harris.jamie@epa.gov
303-312-6072

Chlorine Residuals & Disinfection Byproduct Rule Manager
Bailey Smith, smith.bailey@epa.gov,
303-312-6940

Surface Water Treatment Rules Manager
Jake Crosby, crosby.jake@epa.gov,
303-312-6389

Compliance Monitoring Data Portal (CMDP)
Shirley Mlachak, mlachak.shirley@epa.gov,
303-312-6061

Lab Certification Program Manager
Marcie Tidd, tidd.marcie@epa.gov,
303-462-9476

EPA Lunch and Learn for Region 8 Laboratories – Part 2

03/20/2025 @ 12:00 (MT)

Same Teams Link as Today

- **Laboratory Data Integrity**
- **Nitrate/Nitrite Rule**
- **Chemical Phase II/V Rules**
- **Radionuclides Rule, and**
- **Lead & Copper Rule**