

# EPA Lunch and Learn for Region 8 Laboratories

Webinar Part 2  
03/20/2025

3/20/2025

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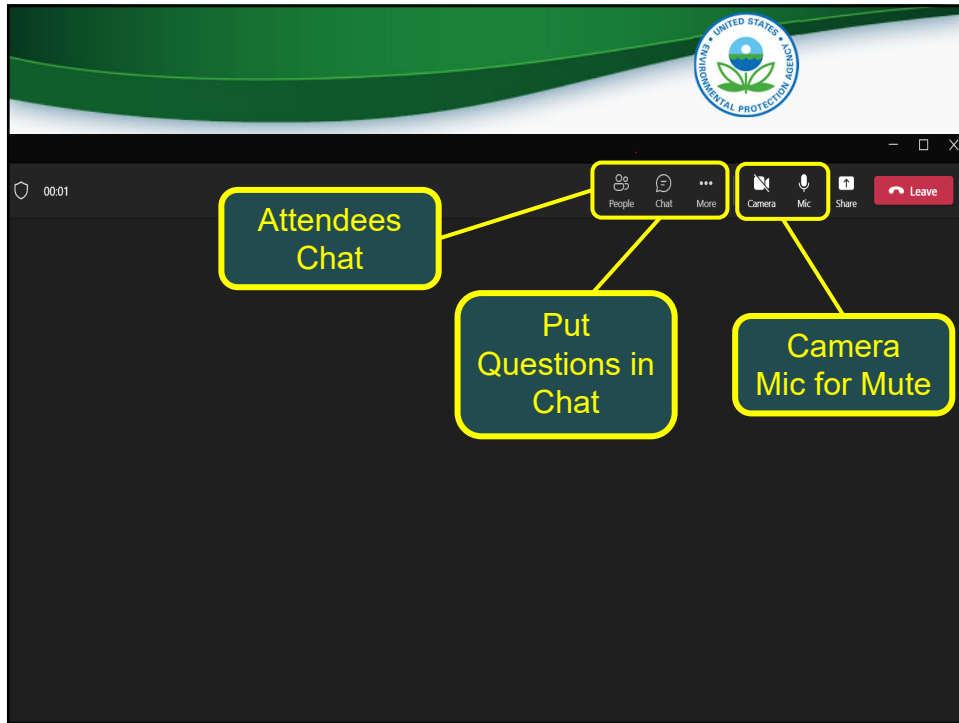


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## Agenda

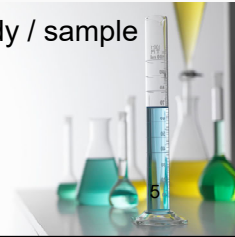
- Relationship between EPA and Labs
- Data Integrity
- Sending Results to EPA
- Analytical Report Information
- Sample Hold Times
- Sample Locations Across Rules
- Lead and Copper
- Nitrate/Nitrite
- Chemical Phase II/IV
- PFAS
- Radionuclides

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## 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



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## 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<sup>1</sup>.**

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<sup>2</sup>.**

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<sup>3</sup>.**



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

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# Relationship between EPA and Labs

## Legal Defensibility

Compliance monitoring data should be made **legally defensible** by keeping thorough and accurate records.<sup>1</sup>

## Data Integrity (Fraud Detection / Deterrence)

2006 OIG Report: "Promising Techniques Identified to Improve Drinking Water Laboratory Integrity and Reduce Public Health Risks"<sup>2</sup>

- 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.**

<sup>1</sup> – EPA's Manual for the Certification of Laboratories Analyzing Drinking Water, Fifth Edition, EPA 815-R-05-004, Sec. 8.1  
<sup>2</sup> – 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

- Ultimately it is the PWSs responsibility to make sure EPA receives lab results.
- Some labs offer a service to send EPA results on behalf of PWSs. 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](mailto:R8DWU@epa.gov)
  - Fax: 303-312-7517 (**as of February 2025**)

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## Emailing Lab Results to EPA

### Criteria to Submit Results to [R8DWU@epa.gov](mailto:R8DWU@epa.gov):

1. Include the PWS ID# in the subject line of the e-mail.
2. Include the correct keyword or abbreviation in the subject line of the e-mail for the documentation being submitted (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, Arsenic".

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## R8DWU Documentation Keyword List

Type of Documentation	Required Keywords Example E-mail Subject	Example e-mail Subject Line
Nitrate or Nitrite Results	"Nitrate" or "Nitrite" or "NO3" or "NO2" or "N+N" or "N-N"	WY5600000 NO3
PFAS Results	"PFAS"	WY5600000 PFAS
Radionuclides	"RADS" or "Radionuclide"	WY5600000 RADS

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>

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## R8DWU Documentation Keyword List

Type of Documentation	Required Keywords Example E-mail Subject	Example e-mail Subject Line
Inorganic Compounds (IOC), including asbestos and/or Synthetic Organic Compounds (SOC) and/or Volatile Organic Compound (VOC) Results	"IOC" or "SOC" or "VOC"	WY5600000 IOC or WY5600000 IOC, SOC, VOC
Lead & Copper	"LCR" or "Lead" or "Copper" or "Pb/Cu"	WY5600000 LCR
Water Quality Parameters under Lead & Copper Rule	"WQP" or "Water Quality Parameters" or "LCR WQP"	WY5600000 LCR WQP

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>

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## 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.

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## Prompt Notification of Lab Results to EPA

Submit Results to [R8DWU@epa.gov](mailto:R8DWU@epa.gov) that exceed MCL:

1. For radionuclide, please notify the Rads Rule Manager as soon as possible, especially when the result that is 4 times the MCL
2. For nitrate/nitrite, please notify the Nitrate Rule Manager of any exceedance as soon as possible.
3. For chemical exceedances, especially a result that is 4 times the MCL, please notify the Chemical Phase II/V rule manager as soon as possible. The rule manager reviews the result(s) for exceedances of the one-day and ten-day health advisories for children, which may warrant emergency action.

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## Analytical Report

- PWS ID Number
- PWS Name
- Lab Sample ID Number
- Facility and Sampling Point Code
  - Such as SS01/SP01 or PF01/SP03
  - For coliform, use DIST/DIST
- Sample Collection Date & Time
- Date & Time Lab Received Samples
- Date & Time of Analyses
- Sample Type
  - Compliance, Confirmation, Repeat, Special
- Who collected the sample
- Condition of the Samples
  - Was ice used? Type? Frozen? Melted?
  - Broken bottles? Seals intact?
- How the Samples Were Delivered
  - Hand-delivery by the system
  - Shipped (USPS, FedEx, UPS, etc.)
- Did the Sample Meet Hold Times?
- Analyte Name, Results & Units
- Methods Used for Each Analyte
- Method Detection & Reporting Limits
- Chain-of-Custody, Requisition or Lab Intake Form
- Important Notes and Observations
  - Headspace in VOC bottles?
  - Anything out of the ordinary or notable
- Is this a Revised Report?

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## Information to Include in Lab Reports

### Sample identification information continued...

- Did the system specify methods of analyses?
  - Limits the ability of the lab to use best available methods
  - Some EPA-regulated analytes will be missed, requiring the system to resample

### Other Analytical Information

- FRDS/analyte code (Federal Reporting Data System) for each analyte is very helpful, but not every lab has the capability to include this
  - Arsenic FRDS code is 1005
  - Benzene FRDS code is 2990
- Subcontracted lab information
- QA/QC information

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

- If not already included, EPA recommends adding an option on these forms for user to mark sample type as routine, special, repeat, or confirmation.
- EPA will process samples as routine compliance if not specified and this can have ramifications for the PWS (non-compliance and additional sampling)

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## Sample Collection and Hold Times

- Nitrate = **48 hours** (unpreserved)
- Nitrite = **48 hours** (unpreserved)
- Total Nitrate + Nitrite = 28 days (preserved)
- Asbestos = **48 hours**
  - But up to 7 days hold time if received at  $\leq 6^{\circ}\text{C}$  (not frozen) and filtered within 48 hours of collection, then treated with  $\text{O}_3$ -UV
- Gross alpha (adj.), radium-226, radium-228, uranium = 6 months
- IOCs, SOCs, VOCs = 7, 14, 28, or 180 days (contaminant & method dependent)
- Lead and copper = 14 days (unpreserved), 6 months (preserved)
- Water quality parameters (pH, temp) - Water systems should collect these in the field and report them on the chain of custody
- Water quality parameters: alkalinity - 14 days; calcium – method dependent; orthophosphate – 48 hours; conductivity – 28 days



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# SAMPLE LOCATIONS FOR DIFFERENT RULES

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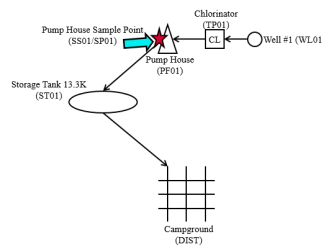


## Forever Snowy National Forest PWS ID # WY5600000 GW/NC

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



★ 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, Bientzle



## Lead and Copper Rule 40 CFR 141 Subpart I

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## Lead and Copper Rule – Routine Compliance

- Routine compliance samples need to have a sample location identified on the COC.
  - Correct & common collection locations: Kitchen, kitchen sink, fountain, restrooms, etc.
- **Do not analyze samples collected from hose bibs or bathtubs** (information may be in the sample name or on the Homeowner Instruction Form) - notify PWS and EPA.
- Include any documentation you receive from the PWS to EPA (e.g., Homeowner Sampling Instruction Form or Tap Site Sampling Plans)

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## Lead and Copper Rule – Routine Compliance

- If Homeowner Instruction Sampling Form is provided, make sure the **water last used time** and the **sample collection time** is greater than **6 hours**.
  - If less than 6 hours, you should contact the system and reject the sample.

TO BE COMPLETED BY RESIDENT			
Water was last used:	Time _____	Date _____	
Sample was collected:	Time _____	Date _____	
Street Address: _____			
Sample Location & faucet (e.g. Bathroom sink): _____			
I have read the above directions and have taken a tap sample in accordance with these directions.			
Printed Name _____			
Signature _____		Date _____	

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## Lead and Copper Rule – Action Level Exceedance Follow Up Sampling

When system exceeds the action level for copper (1.3 mg/L) or lead (0.015 mg/L) at the 90th percentile, the following samples must be collected:

- Entry Point lead and copper samples
- Entry Point water quality Parameter samples
- Distribution system water quality parameter samples

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## Lead and Copper Rule – Entry Point Samples

- Entry Point to the Distribution System (EPTDS) samples must be representative of sources after treatment.
- These may align with locations used for other rules that use source samples such as nitrate/nitrite or IOC/VOC/SOCs.
- The samples **MUST** be coded differently (i.e. cannot be DIST/DIST).
- They may be labelled incorrectly, please call us or the system to verify.

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## Lead and Copper Rule – Water Quality Parameters

- WQPs should be collected from both Entry Point and DIST locations. Please be sure to use the right sample location ID when putting data in
- Numbers of samples and required analyses depends on various factors but may include:
  - pH, alkalinity, calcium, temperature, conductivity, orthophosphate, silica
- pH and temperature analyzed in the lab aren't acceptable as they are past hold times. These measurements should be included on the Chain of Custody and reported out with the final report as being measured in the field.

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# NITRATE, NITRITE AND TOTAL NITRATE + NITRITE

40 CFR 141 SUBPART C

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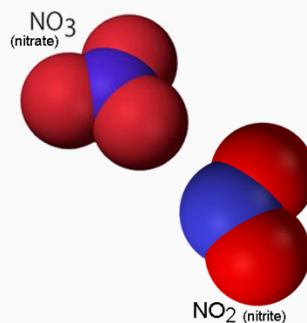
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## Nitrate and Nitrite Rule

- PWSs are required to sample annually at minimum for nitrate (1040 or 1038).
- New source, system with treatment change, or new PWS sampling is required for nitrate (1040) and nitrite (1041) separately.
- Please instruct the water system on how to sample properly (preservatives or not).



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## What to do when there is an exceedance of Nitrate MCL

- Nitrate MCL : 10 mg/L
- Please note the significant figure.
- MCL is 10 not 10.0 or 10.00
- Let the water system and EPA know if they have a maximum contaminant level (MCL) for nitrate which is >10.4 mg/L.

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## Chemical Phase II/V Rules (excluding nitrate/nitrite)

40 CFR 141 Subpart C -  
141.23 and 141.24

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## Chemical Phase II/V Rules

- EPA Region 8 requires monitoring for 13 IOCs, 21 VOCs, 29 SOCs, and asbestos.
- Asbestos sample locations
- Dioxin monitoring is waived
- State-issued waivers for chemical contaminants do **not** apply to Wyoming and Tribal public drinking water systems located throughout our six states.

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## Chemical Phase II/V Rules

- We recommend operators refer their labs to EPA's online [Regulated Analytes List](#)
  - See homepage <https://www.epa.gov/region8-waterops> under the “Regulations and Compliance” heading.
  - Specifying methods on chains of custody may result in missed sampling requirements
- Please refer operators to EPA for direction when there are issues with sample integrity.

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## Chemical Phase II/V Rules

### Facility Codes

Facility Code	Definition
TP	Treatment Plant
PF	Pump Facility
SS	Sampling Station
ST	Storage Tank
DIST	Distribution System/Zone

### Sample Point Codes

Sample Point Code	Definition	Notes
SP	Sample Point	Specific place or point where an EPTDS sample can be collected
Sample Point Code	Sample Name	
DIST	Represents asbestos location	

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## Chemical Phase II/V Rules - Cyanide

- MCL = 0.2 mg/L as **free cyanide\*** [40 CDR 141.62(b)]  
\*sum of molecular hydrogen cyanide (HCN) and cyanide ion (CN<sup>-</sup>)
- Total cyanide methods are allowed for screening:
  - If total cyanide  $\leq 0.2$  mg/L, the value may be reported as free cyanide and compliance with the free cyanide MCL is documented
  - If total cyanide  $>0.2$  mg/L, a measurement of free cyanide must be made using an approved free cyanide method to determine compliance.
- Future use of new analyte codes: 1097 free CN, 1098 total CN, included in SDWIS State version 3.7. Current analyte code is 1024.

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## Chemical Phase II/V Rules - Cyanide

- Analysis of cyanide is subject to interferences
- EPA's June 2020 "[Clarification of Free and Total Cyanide Analysis for Safe Drinking Water Act \(SDWA\) Compliance](#)"
  - Clarifies the Code of Federal Regulations (CFR) and addresses reliable determination of cyanide in drinking water samples
  - Available at <https://www.epa.gov/dwlabcert/cyanide-clarification-free-and-total-cyanide-analysis-safe-drinking-water-act-compliance>.

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## Per- and Polyfluoroalkyl Substances (PFAS) Rule 40 CFR 141 Subpart Z – 141.900 through 141.905

<https://www.epa.gov/dwreginfo/pfas-rule-implementation>

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## PFAS Rule

- EPA requires monitoring for 6 PFAS: PFOA, PFOS, PFHxS, PFNA, PFBS, HFPO-DA.
- Compliance deadlines:
  - Complete initial monitoring by April 26, 2027
  - Comply with MCLs by April 26, 2029
- Initial monitoring will be assigned to Wyoming and Tribal PWS in early 2026
- Sample points are entry points to the distribution system

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## PFAS Rule

- Labs used for **initial monitoring** can include:
  - [Laboratories EPA approved for the Fifth Unregulated Contaminant Monitoring Rule \(UCMR5\)](#)
  - Laboratories certified by a State laboratory certification program
  - National Environmental Laboratory Accreditation Program (NELAP) State accreditation programs that use the TNI standard
- Use EPA method 533, or EPA method 537.1 **version 1 or version 2**

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## PFAS Rule

- Labs used for **compliance monitoring** must be certified by EPA or the State and use EPA method 533 or EPA method 537.1 version 2
- System must report all results provided by a lab to EPA so compliance monitoring frequency for the public water system can be determined (40 CFR 141.902(a)(7))



## PFAS Rule

- EPA recommendations for reporting from [HQs Memorandum - Labs](#):
  - Use 1/3 of PQL for each regulated PFAS as a minimum threshold when providing results to systems
  - Results below 1/3 of PQLs are reported as "not detected" (ND) instead of numeric value
  - Laboratories that cannot meet data quality objectives for lower-level data (between PQL and 1/3 PQL) can still report numeric values but should notate with a data flag as "qualitative"
- Method 533 and 537.1 QC requirements:
  - Reagent blank sample results must be less than 1/3 of laboratory MRLs (which must be at or below PQLs)

PFAS	MCL (ng/L)	Trigger Level (ng/L)
PFOA	4.0	2.0
PFOS	4.0	2.0
PFHxS	10.0	5.0
PFNA	10.0	5.0
PFBS	No individual MCL	
HFPO-DA (Gen-X)	10.0	5.0



# Radionuclides Rule

## 40 CFR 141 Subpart C

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## Contaminants Covered under the Radionuclides Rule

- Gross Alpha particle activity
- Radium
- Uranium
- Other contaminants under certain situations

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## Method Detection Limit

Contaminant	Method Detection Limit	Maximum Contaminant Limit (MCL)
Gross Alpha Particle Activity	3 pCi/L	15 pCi/L
Radium 226	1 pCi/L	5 pCi/L
Radium 228	1 pCi/L	
Uranium	1 µg/L	30 µg/L

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## Radionuclides Rule

- Sample schedules are as follows:
  - Quarterly
  - 3, 6, or 9-year
- Results need to be submitted within 10 days after the end of the compliance period.
- This is important, as turnaround time for radionuclides analysis is long.

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## EPA Resources

EPA Region 8 Drinking Water Watch

<https://sdwisdww.epa.gov/DWWR8WY/>

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-r8dww>

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## EPA Contacts

**Nitrate & Nitrite Rule Manager**

Pragati Sharma, [sharma.pragati@epa.gov](mailto:sharma.pragati@epa.gov),  
303-312-7285

**Chemical Phase II/IV (IOC, Asbestos, VOC, SOC, Arsenic) and PFAS Rule Manager**

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303-312-6145

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