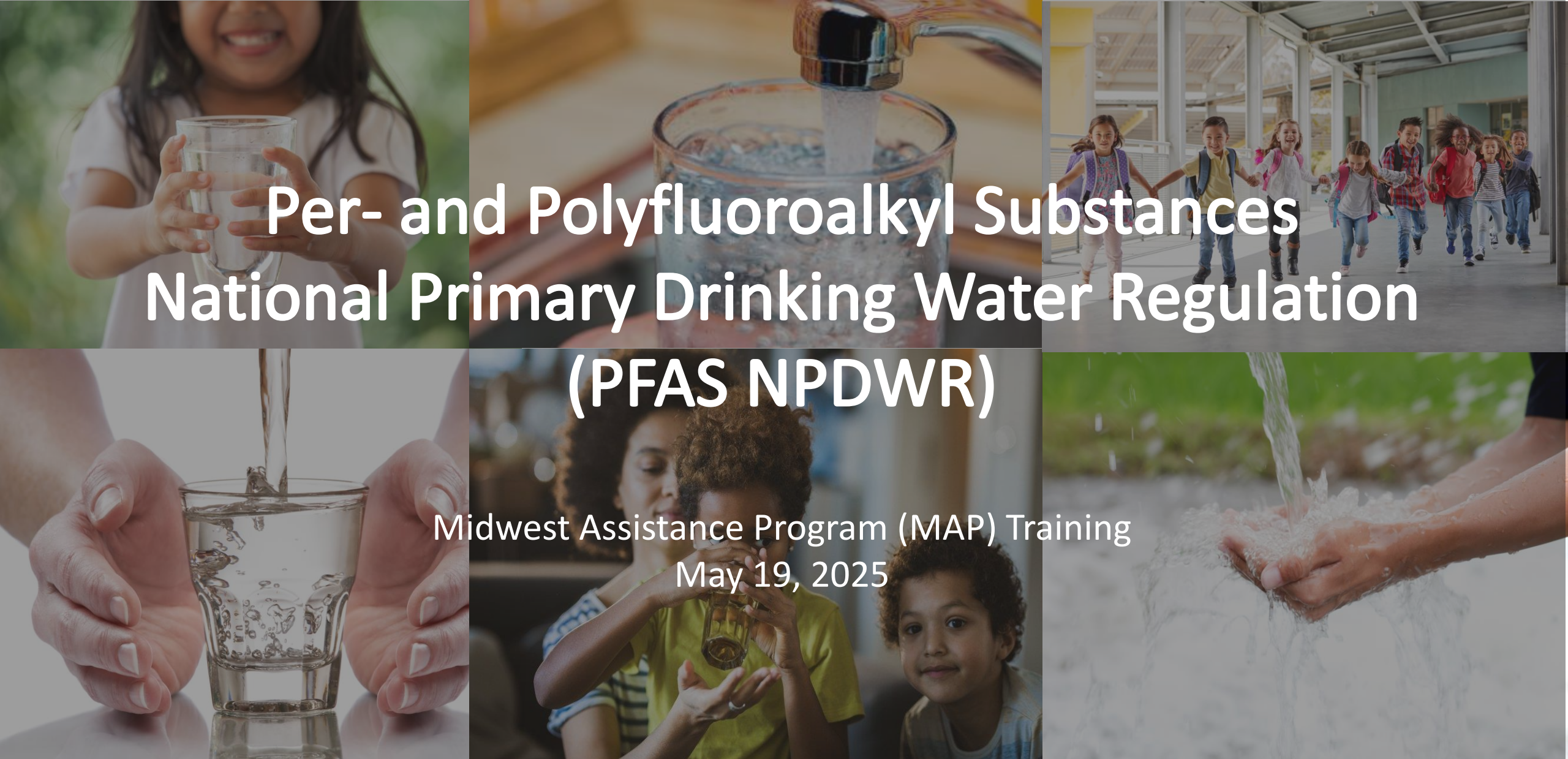




Per- and Polyfluoroalkyl Substances National Primary Drinking Water Regulation (PFAS NPDWR)

Midwest Assistance Program (MAP) Training
May 19, 2025

Disclaimer: The examples included in this presentation are intended for discussion purposes only. The statutory provisions and the EPA regulations described in this document contain legally binding requirements. This presentation is not a regulation itself, nor does it change or substitute for those provisions and regulations. Thus, it does not impose legally binding requirements on the EPA, states, or public water systems. This guidance does not confer legal rights or impose legal obligations upon any member of the public. While the EPA has made every effort to ensure the accuracy of the discussion in this presentation, the obligations of the regulated community are determined by statutes, regulations, or other legally binding requirements. In the event of a conflict between the discussion in this presentation and any statute or regulation, this presentation would not be controlling.

Administrator Zeldin Announced EPA Will Keep the Current NPDWR for PFOA and PFOS – May 14, 2025

- Keep EPA's nationwide standards to protect Americans from PFOA and PFOS
- Extend the compliance deadline for PFOA and PFOS (to 2031)
- Establish a Federal exemption framework
- Initiate enhanced outreach to water systems – PFAS OUTreach Initiative (PFAS OUT)
- Intent to rescind/reconsider regulations with respect to the regulatory determinations for PFHxS, PFNA, HFPO-DA (commonly known as GenX), and the Hazard Index mixture of these three plus PFBS

<https://www.epa.gov/newsreleases/epa-announces-it-will-keep-maximum-contaminant-levels-pfoa-pfos>

Implementation of the New Regulation



- EPA Region 8 guided
- Additional outreach and trainings this year
- Ongoing compliance assistance

The PFAS regulation is available in [40 CFR 141 Subpart Z](#).

PFAS Background

- Per- and poly-fluoroalkyl substances (PFAS) are manmade/synthetic organic chemicals that have been manufactured for commercial, consumer, and industrial uses since the 1940s.
- They contain carbon-fluorine bonds, one of the strongest chemical bonds. $C-F$
- PFAS tend to break down extremely slowly in the environment, and can build up in people, animals, and the environment over time.
- They are water soluble. 

PFAS Background

- Common products where PFAS have been used:
 - Firefighting foams
 - Cookware
 - Food packaging
 - Water repellant clothing
 - Stain resistant fabrics and carpets.
- Some specific PFAS have been largely phased out due to health and environmental concerns, they may still be found in the environment and in drinking water.



PFAS Background

We now know that over a long time PFAS may:



Lead to negative health effects on pregnant people and in developing babies



Weaken a body's ability to fight infections and disease



Increase the risk for some cancers (prostate, kidney, testicular) and damage the liver



Disrupt thyroid function (metabolism regulation)



Elevate cholesterol levels (which can increase the risk for heart attack or stroke)

40 CFR, Appendix A to Subpart O of Part 141 and <https://www.epa.gov/pfas/our-current-understanding-human-health-and-environmental-risks-pfas>

PFAS Background

- Different PFAS are often found together and in combinations (or mixtures) in drinking water and the environment.
- Drinking water is a direct way people can be exposed to PFAS.
- By regulating PFAS in drinking water, EPA is acting to protect people and reduce our exposure, which can lower our risk for these health effects.
- When implemented, the rule will prevent thousands of deaths and reduce tens of thousands of serious PFAS-attributable illnesses.

<https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas>

PFAS National Primary Drinking Water Regulation

Applicability: Community Water Systems and Non-Transient Non-Community Water Systems

Standards:

1. Establishes legally enforceable Maximum Contaminant Levels (MCLs) for 6 PFAS in drinking water: PFOA, PFOS, PFHxS, PFNA, PFBS, and HFPO-DA (GenX Chemicals)
2. Establishes non-enforceable Maximum Contaminant Level Goals (MCLGs) for these 6 PFAS.
 - MCLGs are the maximum level of a contaminant in drinking water where there are no known or anticipated negative health effects.

Regulatory Levels Summary

Chemical	Maximum Contaminant Level Goal (MCLG)	Maximum Contaminant Level (MCL)
PFOA (perfluorooctanoic acid)	0	4.0 ppt
PFOS (perfluorooctane sulfonic acid)	0	4.0 ppt
PFHxS (perfluorohexane sulfonic acid)	10 ppt	10 ppt
PFNA (perfluorononanoic acid)	10 ppt	10 ppt
HFPO-DA (hexafluoropropylene oxide dimer acid, or GenX chemicals)	10 ppt	10 ppt
Mixtures of two or more: PFHxS, PFNA, HFPO-DA, and PFBS (perfluorobutane sulfonic acid)	Hazard Index of 1 (unitless)	Hazard Index of 1 (unitless)

Regulatory Levels: Hazard Index

- The Hazard Index is used to determine the health concerns associated with exposure to chemical mixtures.
- It is calculated by adding the ratio of the water sample concentrations to health-based water concentrations (HBWC).

$$HI_{MCL} = \left(\frac{[HFPO-DA_{water}]}{[10 \text{ ppt}]} \right) + \left(\frac{[PFBS_{water}]}{[2000 \text{ ppt}]} \right) + \left(\frac{[PFNA_{water}]}{[10 \text{ ppt}]} \right) + \left(\frac{[PFHxS_{water}]}{[10 \text{ ppt}]} \right) = 1$$

Hazard Index MCL Calculation Examples

Example 1: Water System A – Exceedance of Hazard Index MCL

$$\begin{array}{ccccccc} \text{GenX Chemicals} & & \text{PFBS} & & \text{PFNA} & & \text{PFHxS} & & \text{Hazard Index} \\ \left(\frac{[5 \text{ ppt}]}{[10 \text{ ppt}]} \right) & + & \left(\frac{[200 \text{ ppt}]}{[2000 \text{ ppt}]} \right) & + & \left(\frac{[5 \text{ ppt}]}{[10 \text{ ppt}]} \right) & + & \left(\frac{[9 \text{ ppt}]}{[10.0 \text{ ppt}]} \right) & = & 2 \end{array}$$

Example 2: Water System B – Meets Hazard Index MCL

$$\begin{array}{ccccccc} \text{GenX Chemicals} & & \text{PFBS} & & \text{PFNA} & & \text{PFHxS} & & \text{Hazard Index} \\ \left(\frac{[0 \text{ ppt}]}{[10 \text{ ppt}]} \right) & + & \left(\frac{[100 \text{ ppt}]}{[2000 \text{ ppt}]} \right) & + & \left(\frac{[3 \text{ ppt}]}{[10 \text{ ppt}]} \right) & + & \left(\frac{[1 \text{ ppt}]}{[10.0 \text{ ppt}]} \right) & = & 0.5 \end{array}$$

Compound	HBWC
PFHxS	10 ppt
PFNA	10 ppt
PFBS	2,000 ppt
HFPO-DA (GenX Chemicals)	10 ppt

Public Water Systems are Required to:

- **Conduct** initial monitoring and ongoing compliance monitoring
- **Implement** solutions to reduce regulated PFAS in drinking water if levels exceed the MCLs
- **Inform** the public of the measured levels of PFAS in drinking water if an MCL is exceeded



Implementation: Timeframes

**WITHIN
3 YEARS**
(By 2027)



- Initial monitoring must be completed (by April 26, 2027)

**AT
3 YEARS**
(Starting 2027)



- Routine monitoring for compliance must begin
- Results included in consumer confidence reports (CCRs)
- Public notification begins for monitoring and reporting violations

**AT
5 YEARS**
(Starting 2029)



- Comply with all MCLs
- Public notification for MCL violations (starting 2029)

Initial Monitoring

Sample Location: all entry points to the distribution system

Surface Water Systems serving all population sizes

- Quarterly within 12-month period
- Samples collected 2 to 4 months apart.

Groundwater Systems serving > 10,000 customers

- Quarterly within 12-month period
- Samples collected 2 to 4 months apart.

Groundwater Systems serving $\leq 10,000$ customers

- Twice within 12-month period
- Samples collected 5 to 7 months apart.

Cost Reduction: previously acquired data may be used to satisfy some or all initial monitoring requirements

Compliance Monitoring



- By April 26, 2027, compliance monitoring is required at all entry points to the distribution system (EPTDS).
- Sampling is not required at a system interconnection point between a wholesale system and a consecutive system.
- Monitoring frequency is the same for *all* regulated PFAS.
- Your sample results during initial monitoring will be compared to trigger levels to establish your compliance monitoring frequency.

Trigger Levels and Monitoring Frequency



- Trigger level = one-half the MCLs and one-half the Hazard Index (i.e. 2.0 ppt for PFOA and PFOS, or 0.5 Hazard Index for mixtures)
- Based on initial monitoring, systems with samples **greater than or equal to** the trigger levels must conduct quarterly monitoring for all regulated PFAS
- Based on initial monitoring, systems that have **all sample results below the trigger levels** for all regulated PFAS can reduce monitoring to once every 3 years

Triennial Monitoring



- Sampling once every 3 years is the routine frequency for compliance monitoring.
- Based on initial monitoring, systems with sample results less than the trigger levels for all regulated PFAS are eligible for triennial monitoring.
- Triennial monitoring at a sampling location continues if all results are below all trigger levels.
- If there is a sample result for any regulated PFAS $\geq$ the trigger levels, quarterly monitoring is required.

Compliance with the MCLs



Compliance with the MCLs and Hazard Index is determined by calculating the running annual average (RAA) of your sample results

Chemical	Quarter 1		Quarter 2		Quarter 3		Quarter 4	
	Sample	Q1 Formula	Sample	Q2 Formula	Sample	Q3 Formula	Sample	Q4 Formula
HFPO-DA (ppt)	5 ppt	5 ppt/10 ppt = 0.5	5 ppt	5 ppt/10 ppt = 0.5	Not detected	0 ppt/10 ppt = 0	Not detected	0 ppt/10 ppt = 0
PFBS (ppt)	5 ppt	5 ppt/2000 ppt = 0.0025	5 ppt	5 ppt/2000 ppt = 0.0025	Not detected	0 ppt/2000 ppt= 0	5 ppt	5 ppt/2000 ppt = 0.0025
PFNA (ppt)	Not detected	0 ppt/10 ppt = 0	Not detected	0 ppt/10 ppt = 0	4 ppt	4 ppt /10 ppt = 0.4	Not detected	0 ppt/10 ppt = 0
PFHxS (ppt)	3 ppt	3 ppt/10 ppt = 0.3	Not detected	0 ppt/10 ppt = 0	4 ppt	4 ppt /10 ppt = 0.4	6 ppt	6 ppt/10 ppt = 0.6
Hazard Index (unitless)	0.5 + 0.0025 + 0 + 0.3 = 0.8025		0.5 + 0.0025 + 0 + 0 = 0.5025		0 + 0 + 0.4 + 0.4 = 0.8		0 + 0.0025 + 0 + 0.6 = 0.6025	
	Running Annual Average = $\left(\frac{0.8025 + 0.5025 + 0.8 + 0.6025}{4}\right) = 0.6769 = 0.7$ The Hazard Index Running Annual Average result is 0.7 (rounded to one significant digit). Because this result does not exceed 1, the water system has not exceeded the MCL. Therefore, no violation of the Hazard Index MCL has occurred.							

Compliance with the MCLs



- Compliance is determined with RAAs at each EPTDS
- Use “0” for a quarterly sample result if it is less than the practical quantitation limit (PQL), to calculate the RAA.
- If $RAA \leq MCLs$ for all regulated PFAS, the system is **compliant** with the standards.
- If $RAA > MCL$ for any regulated PFAS, the system is in **violation** of the MCL and must continue quarterly monitoring for all regulated PFAS.

Annual Monitoring



- After 4 consecutive quarterly sample results below the MCLs, a determination that the entry point is reliably and consistently below the MCLs can be made to reduce monitoring to once a year.
- Annual monitoring continues as long as the samples are below the MCLs; if a result for any regulated PFAS **equals or exceeds** the MCLs, the system must return to quarterly monitoring.
- After 3 consecutive annual samples below the trigger levels for all regulated PFAS, monitoring can be further reduced to once every 3 years.

Public Notice (PN) Requirements



- Compliance with monitoring, testing, and reporting requirements begins April 26, 2027. A system that violates a monitoring and testing requirement must provide Tier III public notice within one year.
- Compliance with the MCLs begins April 26, 2029. A system that violates a PFAS MCL must provide Tier 2 public notice as soon as practical, but no later than 30 days after the system learns of the violation.
- Community water systems must include detected regulated PFAS contaminants in their Consumer Confidence Reports delivered after April 26, 2027.

Use of Previously Acquired Data to Satisfy Initial Monitoring Requirements

- Conditions:
 - Samples collected in accordance with the Fifth Unregulated Contaminant Monitoring Rule (UCMR5), collected on or after January 1, 2023 [40 CFR 141.40].
 - Samples collected in accordance with State-based or other monitoring campaigns, collected on or after January 1, 2019
 - Most recent data from multiple years of data must be used
 - Acceptable data must be reported to the rule trigger levels by labs.
- Sampling will be required where fewer samples are available than the number required for initial monitoring.

Wyoming Drinking Water Monitoring Assistance

- Program will support monitoring of public water systems and private wells, provide technical assistance to public water systems
- Priority is to assist public water systems complete initial monitoring requirements under the PFAS NPDWR. Contractor will:
 - Coordinate with WDEQ and EPA Region 8
 - Contact each public water system to determine interest in participating
 - Visit each public water system 2-4 times to conduct required monitoring
 - Inspect the system for PFAS-containing materials
 - Send samples to a certified laboratory
 - Conduct quality assurance and resample, if necessary
 - Provide results to the public water system
 - Provide training to operators on how to conduct PFAS sampling
 - Submit data to USEPA Region 8 to meet PFAS NPDWR requirement
 - Assist with public notifications if desired.
- Additional details: <https://deq.wyoming.gov/water-quality/emerging-contaminants/pfas-in-drinking-water-monitoring-assistance-program/>
- Contact: Lindsay.Patterson@wyo.gov or (307) 777-7158

Laboratories and Analytical Methods



- 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](#)
- Labs can use EPA method 533, or EPA method 537.1 version 1 or 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))

Laboratories and Analytical Methods



- Labs used for **compliance monitoring** can include:
 - Laboratories certified by EPA
 - Laboratories certified by a State laboratory certification program
 - National Environmental Laboratory Accreditation Program (NELAP) State accreditation programs that use the TNI standard
- Labs must use EPA method 533, or EPA method 537.1 version 2
 - Both methods require the preparation of a Field Reagent Blank (FRB) to determine if method analytes or other interferences are introduced into the sample from shipping, storage, and the field environment.

More About the EPA Analytical Methods

- **Method 533:**
 - Ammonium acetate preservative
 - 28-day hold time
 - Samples must be received $\leq 6^{\circ}\text{C}$, not frozen
- **Method 537.1, version 2.0**
 - Trizma preservative
 - 14-day sample hold time
 - Samples must be received $\leq 6^{\circ}\text{C}$, not frozen



<https://www.epa.gov/water-research/pfas-analytical-methods-development-and-sampling-research>

Some Best Practices for PFAS Sampling

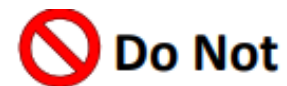


Do

#1 Wash your hands thoroughly before sampling

#2 Use nitrile gloves

- 1 pair for managing the field blank
- 1 pair for collecting the sample



Do Not

- Apply personal care products, sunscreen, or insect repellent prior to sample collection.
- Use anti-fog sprays or wipes prior to sample collection.
- Handle or use water, oil or stain resistant materials prior to sample collection (i.e., water-repellant face masks, food packaging and wrappers, Gore-Tex or Tyvek clothing, plastic clip boards).
- Use permanent markers (i.e., Sharpies) to label sample bottles.
- Touch the inside of the cap or bottle.
- Touch the bottle to the faucet.
- Place the lids in a pocket (set bottle lids face up on a clean surface while sampling).

How Can I Prepare for this Rule?

- Prepare for logistics and establish a budget
- Each sample set is approximately \$309
 - See [89 Federal Register 32532](#) (April 26, 2024): Page 32662, Table 36
- Ask questions about the rule and its applicability to your water system
- Become knowledgeable by reviewing the regulation, fact sheets, and quick reference guides

Resources for the PFAS NPDWR

Final PFAS Rule Homepage:

- Fact sheets, FAQs, the Federal Register Notice, a general overview presentation, implementation products, memos, webinar recordings and materials for utility professionals and small systems
- See **PFAS Final Rule webpage** at <https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas>
- See **PFAS implementation webpage** at <https://www.epa.gov/dwreginfo/pfas-rule-implementation>



Best Available Technologies (BAT) for PFAS Removal from Drinking Water

Granular Activated Carbon
(GAC)

Anion Exchange

Reverse
Osmosis/Nanofiltration



Management of Treatment Residuals

- EPA does not have any regulatory requirements for treatment, destruction, and disposal of water treatment residuals that contain only PFAS
- Public water systems must determine whether spent materials are a regulated waste
- PFAS alone are not considered hazardous waste under federal statutes

Management of PFAS-Contaminated Waste

Interim Guidance on the Destruction and Disposal of PFAS and Materials Containing PFAS – Version 2 (2024)

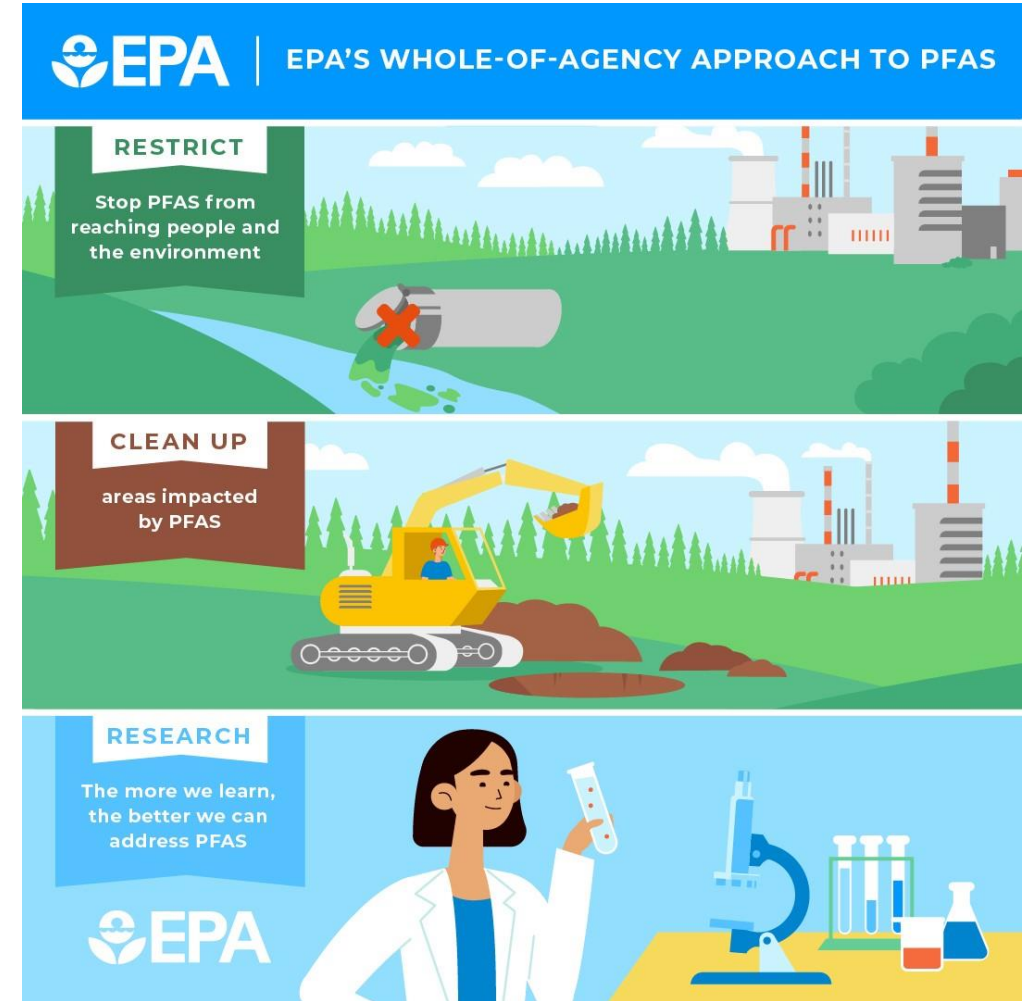
- EPA guidance for decision-makers on available and effective destruction and disposal methods based on current science
- Describes options of landfilling, underground injection, and thermal treatment for disposal
- Materials containing PFAS should be managed to minimize potential releases to the environment and protect human health
- Guidance: <https://www.epa.gov/pfas/interim-guidance-destruction-and-disposal-pfas-and-materials-containing-pfas>

Management of PFAS-Contaminated Waste

- The following are known disposal options in or outside of Wyoming:
 - Municipal solid waste landfills can accept PFAS-containing waste, but they may choose not to do so.
 - DEQ's Municipal Solid Waste Cease and Transfer Program has overseen remediation and landfill closure, and consolidation/regionalization efforts
 - Preferable to dispose in lined landfills
 - Hazardous waste landfills
 - Clean Harbors, Colorado – closest to Cheyenne
 - Clean Harbors Grassy Mountain, Utah – closest to southwestern Wyoming
 - Class I injection wells (nonhazardous) could accept some wastes.
 - Hazardous waste incineration
 - Clean Harbors Aragonite, Utah – west of Salt Lake City
- Contact the Wyoming DEQ's [Solid and Hazardous Waste Program](#) with questions and for more information (307) 777-7937.

Other Actions to Address PFAS

- EPA has taken a **multi-media approach** to addressing PFAS in the environment
 - [PFAS Strategic Road Map](https://www.epa.gov/pfas/strategic-road-map) –EPA's commitments to research, restrict, and remediate PFAS
- List of key actions addressing PFAS: <https://www.epa.gov/pfas/key-epa-actions-address-pfas>
- Administrator Zeldin will designate an agency lead for PFAS (April news release)



Funding Opportunities

The Bipartisan Infrastructure Law (BIL) provides \$9 billion to invest in communities impacted by PFAS and other emerging contaminants in drinking water: www.epa.gov/infrastructure.

\$4 billion

Drinking Water State Revolving Fund

\$5 billion

**Small or Disadvantaged Communities
Drinking-Water Grants**

Technical Assistance Opportunities

- **WaterTA** supports communities to identify water challenges, develop plans, improve resiliency, build technical, managerial and financial capacity, and develop application materials to access water infrastructure funding:

<https://www.epa.gov/water-infrastructure/water-technical-assistance-waterta>

- All programs offering technical assistance:

<https://www.epa.gov/water-infrastructure/water-technical-assistance-programs>





Questions?

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This presentation will be posted at <https://www.epa.gov/region8-waterops>
under the "Training Presentations" link following the conference.