

EPA Final PFAS Rule

Finalized on April 10, 2024

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- ### Learning Objectives
- Become familiar with proposed PFAS rule
 - What water systems are affected by this rule
 - What compounds are covered by rule
 - What a Hazard Index is
 - What PWS and water operators will have to do

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- ### EPA Final PFAS NPDWR
- Finalized April 10, 2024
 - Applicable to COM and NTNC PWS. Not TNCs.
 - 3 new MCLs + 1 Hazard Index
 - Initial monitoring is quarterly
 - Systems have 3 years to complete initial monitoring, 5 years to implement solutions to reduce PFAS

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EPA Proposed PFAS Compounds in Rule

PFAS	Compound Name
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
GenX (HFPO-DA)	Hexafluoropropylene oxide dimer acid
PFBS	Perfluorobutane sulfonic acid
PFHxS	Perfluorohexanesulfonic acid
PFNA	Perfluorononanoic acid

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EPA Proposed PFAS MCLGs and MCLs

PFAS	MCLG	MCL
PFOA	0	4.0 ppt*
PFOS	0	4.0 ppt*
GenX, PFBS, PFHxS, PFNA	10 ppt*	10 ppt*
GenX (HFPO-DA)	1.0 (unitless) Hazard Index	1.0 (unitless) Hazard Index
PFBS		
PFHxS		
PFNA		

*ppt = parts per trillion

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- ### What is a Hazard Index?
- The Hazard Index is a tool used to evaluate health risks of simultaneous exposure to mixtures of related chemicals.
 - This approach has been used in other EPA programs, such as CERCLA, but this is the first time it has been used for a drinking water standard.
 - Compares measured levels in drinking water to Health-Based Water Concentrations (HBWC) for each of the four PFAS
 - Sum of the 4 ratios
 - EPA is developing an online calculator for PWS use

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Hazard Index Calculation

Step 1. Divide the measured concentration of Gen X by the health-based value of 10 ppt
Step 2. Divide the measured concentration of PFBS by the health-based value of 2000 ppt
Step 3. Divide the measured concentration of PFNA by the health-based value of 10 ppt
Step 4. Divide the measured concentration of PFHxS by the health-based value of 9 ppt
Step 5. Add the ratios from steps 1, 2, 3 and 4 together

Equation

$$\text{Hazard Index} = \left(\frac{[\text{GenX}_{\text{water}}]}{[10 \text{ ppt}]} \right) + \left(\frac{[\text{PFBS}_{\text{water}}]}{[2000 \text{ ppt}]} \right) + \left(\frac{[\text{PFNA}_{\text{water}}]}{[10 \text{ ppt}]} \right) + \left(\frac{[\text{PFHxS}_{\text{water}}]}{[9.0 \text{ ppt}]} \right)$$

Step 6. To determine HI compliance, repeat steps 1-5 for each sample collected in the past year and calculate the average HI for all the samples taken in the past year.
Step 7. If the running annual average HI greater than 1.0, it is a violation of the proposed HI MCL.

From EPA's Fact Sheet: Understanding the PFAS National Primary Drinking Water Proposal Hazard Index

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Hazard Index MCL Calc Examples

- Example 1 – Exceedance of proposed Hazard Index MCL

$$\begin{matrix} \text{Gen X} & \text{PFBS} & \text{PFNA} & \text{PFH}_{\text{x}}\text{S} & \text{HI} \\ \left(\frac{5 \text{ ppt}}{10 \text{ ppt}} \right) & + \left(\frac{200 \text{ ppt}}{2000 \text{ ppt}} \right) & + \left(\frac{5 \text{ ppt}}{10 \text{ ppt}} \right) & + \left(\frac{9 \text{ ppt}}{9 \text{ ppt}} \right) & = 2.1 \end{matrix}$$

- Example 2 – Exceedance of proposed Hazard Index MCL

$$\left(\frac{0 \text{ ppt}}{10 \text{ ppt}} \right) + \left(\frac{200 \text{ ppt}}{2000 \text{ ppt}} \right) + \left(\frac{2 \text{ ppt}}{10 \text{ ppt}} \right) + \left(\frac{7 \text{ ppt}}{9 \text{ ppt}} \right) = 1.1$$

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Hazard Index MCL Calc Examples

- Example 3 – Exceedance of proposed Hazard Index MCL

$$\begin{matrix} \text{Gen X} & \text{PFBS} & \text{PFNA} & \text{PFH}_{\text{x}}\text{S} & \text{HI} \\ \left(\frac{12 \text{ ppt}}{10 \text{ ppt}} \right) & + \left(\frac{0 \text{ ppt}}{2000 \text{ ppt}} \right) & + \left(\frac{0 \text{ ppt}}{10 \text{ ppt}} \right) & + \left(\frac{0 \text{ ppt}}{9 \text{ ppt}} \right) & = 1.2 \end{matrix}$$

- Example 4 – Meets proposed Hazard Index MCL

$$\left(\frac{0 \text{ ppt}}{10 \text{ ppt}} \right) + \left(\frac{100 \text{ ppt}}{2000 \text{ ppt}} \right) + \left(\frac{4 \text{ ppt}}{10 \text{ ppt}} \right) + \left(\frac{3 \text{ ppt}}{9 \text{ ppt}} \right) = 0.8$$

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PWS Actions

- The proposed rule would require public water systems to:
 - Monitor for these PFAs;
 - Notify the public of the level of these PFAs; and
 - Reduce the levels of these PFAs in drinking water if they exceed the proposed standards (MCLs)

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Proposed Monitoring Requirements

- Initial monitoring**
 - 4 quarterly samples over 1 year for groundwater systems serving > 10,000 and all surface water systems
 - 2 semi-annual samples for groundwater systems serving <= 10,000
- OR**
- Use of recent PFAS drinking water data, including state compliance monitoring data may be substituted
- To be completed in the three years between promulgation date (Apr 2024) and rule effective date (Apr 2027)

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Proposed Monitoring Requirements

- Compliance monitoring**
 - Quarterly monitoring at locations where the result is ≥ rule trigger level
 - Reduced monitoring once or twice every three years at locations where the result is < rule trigger level
 - Rule Trigger Levels = 1/3 of the MCLs
 - 1.3 ppt for PFOA and PFOS
 - 0.33 for HI PFAS

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Compliance with Proposed NPDWR

- In compliance if the running annual average is \leq MCL
- In violation if the running annual average is $>$ MCL
- PWS with PFAS above the MCLs would be required to install treatment or take other action to reduce levels to meet MCLs
 - Best available technology: Ion Exchange, Reverse Osmosis, Granular Activated Carbon, Nanofiltration
- Violation would require Tier 2 Public Notice

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What Should PWSs Do?

- **PFOA and/or PFOS results above proposed 4.0 ppt MCLs**
 - Contact BECQ to discuss your results and plans to remove PFAS from your drinking water supplies should the draft EPA MCLs become final
- **PFHxS, GenX, PFNA, and/or PFBS above HI MCL**
 - Contact BECQ to discuss your results and plans to remove PFAS from your drinking water supplies should the draft EPA MCLs become final

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What Should PWSs Do?

- **PFOA and/or PFOS results above 2 ppt MRL but below 4 ppt**
 - If concerned about levels, contact BECQ to discuss your results
- **PFAS results non-detect**
 - No recommended action.
 - Keep up to date on all PFAS related information from EPA and BECQ

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States with PFAS Drinking Water Limits

<https://www.saferstates.com/toxic-chemicals/pfas/>

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States with PFAS Drinking Water Regs

States are regulating PFAS chemicals in drinking water and/or taking action to expand PFAS monitoring, including:

• Alaska	• Massachusetts*	• Oregon
• California	• Michigan*	• Pennsylvania*
• Colorado	• Minnesota	• Rhode Island*
• Connecticut	• New Hampshire*	• Vermont*
• Delaware	• New Jersey*	• Virginia
• Florida	• New Mexico	• Washington
• Illinois	• New York*	• Wisconsin*
• Maine*	• North Carolina	
• Maryland	• Ohio	

*adopted enforceable standards or a Maximum Contaminant Level (MCL) for PFAS chemicals in drinking water

<https://www.saferstates.com/assets/Resources/PFAS-Momentum-Factsheet-8.23.2023.pdf>

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Public Notification proposed changes

- **PUBLIC NOTICE RULE**
- PFAS MCL exceedance requires a Tier 2 notification
 - As soon as possible, but within 30 days of violation
- **CONSUMER CONFIDENCE REPORT**
- PFAS info to include
 - Level of regulated PFAS that is measured in their drinking water
 - Potential health effects of the regulated PFAS detected in violation of the PFAS MCL

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More PFAS Information

- EPA
 - PFAS Information: <https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas>
 - Fact Sheet: EPA Proposal to Limit PFAS in Drinking Water: https://www.epa.gov/system/files/documents/2023-04/Fact%20Sheet_PFAS_NPVDR_Final_4.4.23.pdf

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End Final PFAS Rule

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