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PFAS NPDWR Insights: What, When, and How

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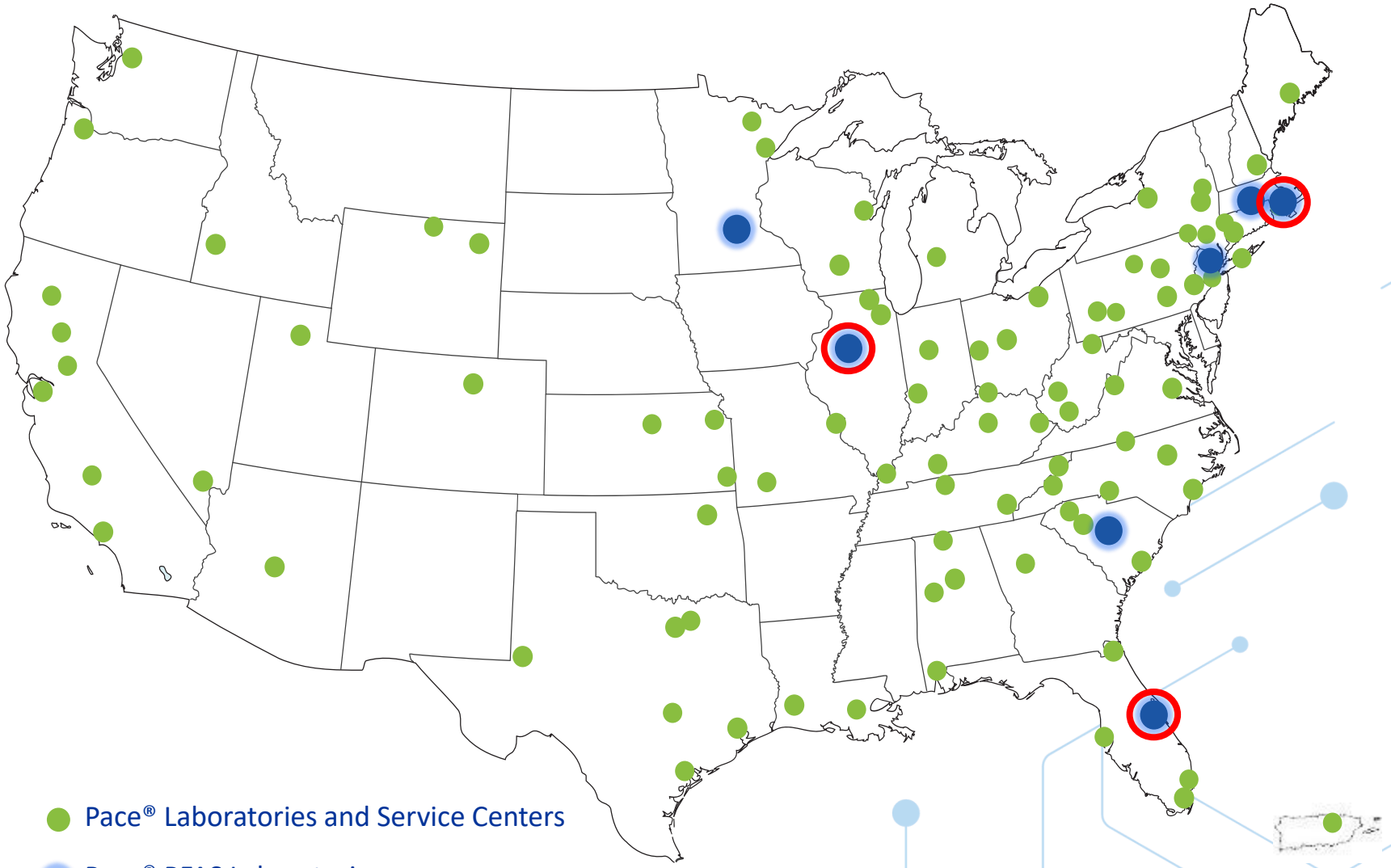
Pace® PFAS LABS



Pace® Laboratories and Service Centers

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THE PFAS PUZZLE

- Lack of federal regulation
- Non-uniformity of state regulations or test methods
- Lack of environmental test methods
- Variety of compound lists
- Thousands of PFAS compounds
- Low DLs vs. contaminated matrices
- Ultra restrictive field sampling guidance

PFAS NPDWR MCL OVERVIEW

- **NPDWR SUMMARY**
- TEST METHODS
- HAZARD INDEX MCL
- COMPLIANCE MONITORING
- TRIGGER LEVELS FOR REDUCED MONITORING
- TAKEAWAYS

NPDWR SUMMARY

- March 2023 - US EPA proposed to add six PFAS to the National Primary Drinking Water Regulation (**NPDWR**) with Maximum Contaminant Levels (**MCL**s) for the nation's water systems
- April 2024 - US EPA makes the rule final
- Applicable to all Community Water Systems and Non-Transient Non-community Water Systems

Compound	Final MCLG	Final MCL (enforceable limit)
PFOA	0	4.0 parts per trillion (ppt or ng/L)
PFOS	0	4.0 ppt
PFHxS*	10 ppt	10 ppt
PFNA*	10 ppt	10 ppt
HFPO-DA (GenX)*	10 ppt	10 ppt
Mixtures containing two or more of PFHxS, PFNA, HFPO-DA, and PFBS*	1 (unitless) Hazard Index	1 (unitless) Hazard Index

*Imminently subject to change

NPDWR SUMMARY

- Compliance with the new MCLs is determined by calculating Running Annual Averages of Entry Point to the Distribution System sample results
- 3 years to complete Initial Monitoring (by April 2027), followed by ongoing compliance monitoring
- Public notification of PFAS levels required beginning April 2027
- 5 years (by April 2029) to implement solutions that reduce these PFAS if monitoring shows MCL exceedance*
- Beginning in April 2029 systems must take action to reduce PFAS that exceed MCLs and must provide notification to the public of violations

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NPDWR SUMMARY

PFAS NPDWR Initial Monitoring current requirements:

- All surface water systems and large groundwater systems that serve >10,000 consumers must sample quarterly over a 12-month period (2-4 months apart)
- All smaller groundwater systems must sample twice in a 12-month period (5-7 months apart)
- All sampling must be done at the Entry Point to Distribution System (EPTDS) where current compliance sampling is done
- UCMR 5 data may be used for Initial Monitoring, however large groundwater systems will need an additional 2 quarters of sampling
- Data from other programs such as state-wide grant programs may also be used for Initial Monitoring

NPDWR SUMMARY

Imminent changes:

- In May 2025 US EPA announced its intent to rescind limits for PFHxS, PFNA, HFPO-DA (GenX), and the Hazard Index; and to extend the deadline for compliance from 2029 to 2031. **The Initial Monitoring deadline of April 2027 is not expected to be changed.**
- September 2025 - EPA expects to issue the proposal for public comment to rescind the 4 MCLs and to **finalize revised rule in February 2026**.
- October 2025 – EPA expects to issue the proposal for public comment to change the current PFAS NPDWR to extend the deadline for compliance with MCLs from 2029 to 2031 and to **finalize revised rule in April 2026**.
- Take-away: the PFAS NPDWR is likely to change, but for now it is in force as is.

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TEST METHODS

DRINKING WATER

METHOD	EPA 537.1 V2.0	EPA 533
MATRIX	Drinking Water	Drinking Water
COMPOUNDS	18	25
HOLDING TIMES, DAYS	14/28	28/28
EXTRACTION	Solid Phase (SPE)	Solid Phase (SPE)
QUANTIFICATION	Internal Standard (IS)	Isotope Dilution (ID)
NOTES	All 6 regulated compounds are in this test method	All 6 regulated compounds are in this test method. Developed for UCMR 5 and additional PFAS. **Does not replace 537.1.**

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HAZARD INDEX

What is the Hazard Index (HI)?*

- Tool the EPA uses to understand health risks in chemical mixtures
- The HI has been commonly used in Superfund programs, but this is the first time it is being applied to Drinking Water
- The HI MCL applies for PFNA, PFBS, PFHxS, and HFPO-DA (GenX) when 2 or more are detected in a sample
- Utilizing the HI allows the EPA to consider the different toxicities of each of the individual PFAS and/or a mixture
- If the HI >1 it would be in exceedance of the MCL

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HAZARD INDEX

- Divide the measured individual PFAS concentrations by the Health Based Water Concentration (HBWC) - the level at which no adverse health effects are expected
- Sum the ratios to determine HI for that sampling event
- Average the HI value for each sampling event collected in the year (Running Annual Average)

Compound	Health Based Water Concentrations, ppt (MCLG)
HFPO-DA (GenX)	10
PFBS	2000
PFNA	10
PFHxS	10

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

HAZARD INDEX

Example Calculation:

PFAS	Q1 Result (ppt)	Q2 Result (ppt)	Q3 Result (ppt)	Q4 Result (ppt)	Running Annual Average
HFPO-DA (GenX)	0	0	0	0	
PFBS	5.1	4.8	6.2	5.2	
PFNA	4.1	5.8	7.8	11.2	
PFHxS	0	0	5.9	9.0	
HI	0.41	0.58	1.4	4.2	**1.6**

Q1 Example Calculation:

$$Hazard\ Index = \left(\frac{[0\ ppt]}{10\ ppt}\right) + \left(\frac{[5.1\ ppt]}{2000\ ppt}\right) + \left(\frac{[4.1\ ppt]}{10\ ppt}\right) + \left(\frac{[0\ ppt]}{10\ ppt}\right) = 0.41$$

In this example the Q1, Q2, Q3, Q4 average HI 1.6
1.6 is rounded to 2 which is >1 = **Violation**

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COMPLIANCE MONITORING

Significant Figures and Rounding Requirements

Contaminant	MCL, ppt or ng/L	Significant Figure Requirement	Example
PFOA	4.0	2	Running annual average value (RAA) of 4.04 ng/L = round to 4.0 ng/L = **Compliance** RAA of 4.05 ng/L = round to 4.1 ng/L = **Exceedance**
PFOS	4.0	2	
PFNA*	10	1	RAA of 14.9 ng/L = round to 10 ng/L = **Compliance** RAA of 15.0 ng/L = round to 20 ng/L = **Exceedance**
PFHxS*	10	1	
HFPO-DA*	10	1	
Hazard Index of PFNA, PFHxS, HFPO-DA, PFBS*	1 (unitless)	1	RAA of 1.49 = round to 1 = **Compliance** RAA of 1.50 = round to 2 = **Exceedance**

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COMPLIANCE MONITORING

- Quarterly monitoring required after Initial Monitoring unless approved for reduced monitoring
- Compliance based on a running annual average (RAA)
- Results <Practical Quantitation Limit (PQL) levels will be summed as zero
- These PQL levels are set in the NPDWR by EPA
- If more than one sample taken per quarter, all samples are used in the RAA calculation

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Contaminant	PQL, ng/L
PFOA	4.0
PFOS	4.0
PFNA*	4.0
PFHxS*	3.0
HFPO-DA*	5.0
PFBS*	3.0

COMPLIANCE MONITORING

Example 1:

- PFOA quarterly results of 2.0, 1.5, 5.0 and 1.5 ng/L
- RAA calculation: 0.0 + 0.0 + 5.0 + 0.0 / 4 = **1.3 ng/L** (2 significant figures)
- Below MCL of 4.0 ng/L

Example 2:

- HFPO-DA* quarterly results of 3.2, 6.1, 5.5 and 2.7 ng/L
- RAA calculation: 0.0 + 6.1+ 5.5 + 0.0 / 4 = 2.9 reported as **3 ng/L** for 1 significant figure
- Below MCL of 10 ng/L

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Contaminant	PQL, ng/L
PFOA	4.0
PFOS	4.0
PFNA*	4.0
PFHxS*	3.0
HFPO-DA*	5.0
PFBS*	3.0

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TRIGGER LEVELS FOR REDUCED MONITORING

- Meeting Trigger Levels during Initial Monitoring enables the water system to go to a triennial sampling schedule
- Trigger Levels are set at half the MCLs
- Some UCMR 5 approved laboratories are unable to report PFOA and PFOS down to the Trigger Level, making that data unusable for this purpose
- Pace® Analytical UCMR 5 data meets this requirement

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Contaminant	Trigger Level, ppt or ng/L
PFOA	2.0
PFOS	2.0
PFNA*	5
PFHxS*	5
HFPO-DA*	5
Hazard Index of PFNA, PFHxS, HFPO-DA, PFBS*	0.5 (unitless)

TRIGGER LEVELS FOR REDUCED MONITORING

- If Running Annual Average (RAA) results fall between Trigger Levels and MCLs PWS may sample annually
- Determining the system is below the Trigger Level and reliably and consistently below the MCL requires 4 consecutive quarterly samples during Compliance Monitoring (after Initial Monitoring)
- To be collected during the quarter with the highest prior concentration identified in the most recent year
- After 3 years with results below the trigger levels, the state may allow triennial monitoring
- **A single sample exceeding the MCL requires quarterly sampling and is required to be used for 1st quarter result of RAA calculation**

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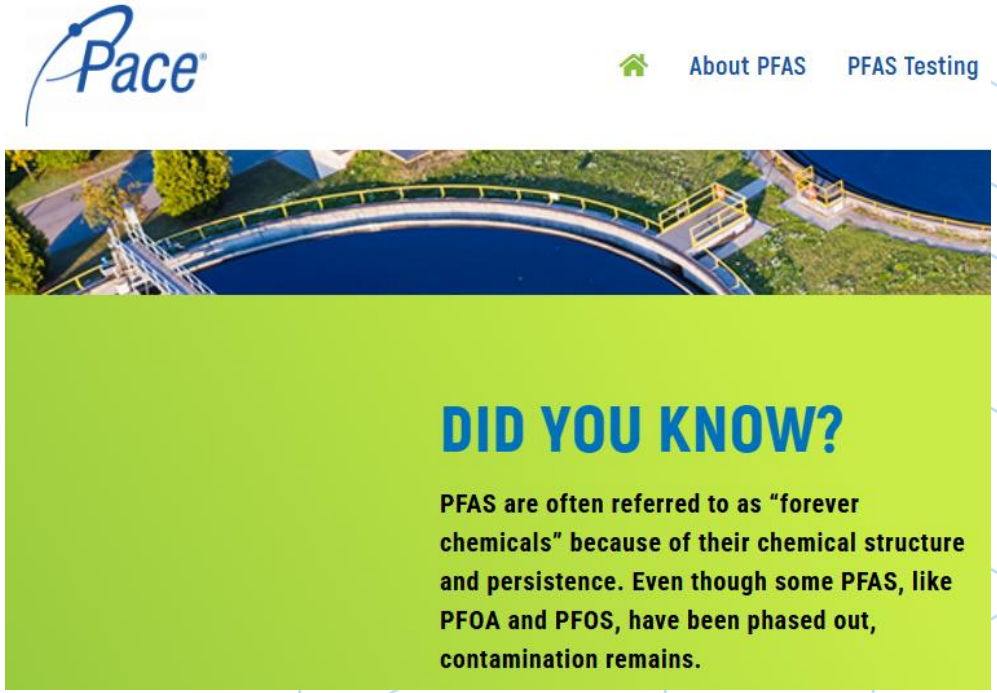
TAKEAWAYS

- US EPA finalized the PFAS NPDWR, however EPA is revising its limits and portions of its timeline
- Your PFAS laboratory must be able to provide reporting limits (PQLs) that enable you to calculate your Trigger Levels for reduced monitoring
- UCMR 5 and other recent PFAS monitoring data may be used for your Initial Monitoring
- Pace® Analytical is your source for the most current information and full-service laboratory testing



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THANK YOU

Additional resources:

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CONTACT ME: