

PFAS REGULATORY COMPLIANCE READY OR NOT!

32nd Annual Air, RCRA and Water Permits
Environmental Permitting Conference
Columbus, OH

Robert J. Karl

porterwright

PRESENTATION OUTLINE

The Past:

- USEPA PFAS Roadmap – Goals & Objections
- Research, Understanding, Litigating the Unknowable

PRESENTATION OUTLINE

The Present:

- Proposed Rulemaking, Public Participation & Regulation
- Research & Understanding
- Litigation

PRESENTATION OUTLINE

The Future:

- USEPA & Ohio EPA – Rules, Regulations & Compliance
- Remediation, Restrict & Permit
- Get “Buy-In” or Litigate

USEPA PFAS ROADMAP – GENERAL APPROACH

- Published in October 2021.
- Outlines USEPA’s approach and tentative schedule to address PFAS in a multi-media environment that requires a holistic, integrated approach to subsequent regulation.
- USEPA is simultaneously tackling the PFAS issue on several different fronts, including:
 - **Lifecycle Considerations**
 - **Get Upstream**
 - **Hold Polluters Accountable**
 - **Science-Based Decision-Making**
 - **Prioritize Disadvantaged Communities**
 - **Strategic building blocks to protect public health and ecosystem**
 - **Inclusive engagement with stakeholders**



PFAS Strategic Roadmap: EPA’s Commitments to Action 2021–2024



WHAT IS USEPA PROPOSING TODAY TO ADDRESS PFAS IN THE MULTI-MEDIA ENVIRONMENT

- Program Plan 15 (January 2023)
- PFAS NPDES Guidance (December 2022)
- Drinking Water Proposed Rule (March 2023)
- Superfund Proposed Rule (September 2022)
- Toxics Release Inventory Program (2022)

EFFLUENT GUIDELINES PROGRAM PLAN 15

What is EPA's ELG Program Plan 15 (January 2023)

- Preliminary Plan 15
- Effluent limitation guidelines and pretreatment standards (ELGs)
- Plan 15 findings
- Mandatory questionnaire issued to national representatives

EFFLUENT GUIDELINES PROGRAM PLAN 15

What is EPA's ELG Program Plan 15 (January 2023)

- POTW Influent study of PFAS
- Detailed study of CAFO and potential revised ELGs
- Discharges from meat and poultry products; organic chemicals; plastic and synthetic fibers operations; metal finishing and electroplating operations; and steam electric power generating facilities

USEPA PFAS NPDES GUIDANCE

On December 5, 2022, USEPA issued a memo providing guidance to the states on how to implement the Clean Water Act's National Pollutant Discharge Elimination System (NPDES) permitting program to reduce PFAS discharges. This memo expands upon an earlier memo issued to USEPA Regions in April 2022 to address PFAS discharges in the NPDES Permits and through the states Pretreatment program and monitoring program. (See [https://www.epa.gov/system/files/documents/2022-12/NPDES PFAS State%20Memo December 2022.pdf](https://www.epa.gov/system/files/documents/2022-12/NPDES_PFAS_State%20Memo_December_2022.pdf)).

The December 2022 memo directs USEPA to use NPDES permit requirements to reduce PFAS discharges to waterways “at the source and obtain more comprehensive information through monitoring on the sources of PFAS and quantity of PFAS discharged by these sources.” (See PFAS Strategic Roadmap). The memorandum describes steps state permit writers can implement strategies under existing authorities to reduce the discharge of PFAS through NPDES permits.

A. Recommendations for Applicable Direct Industrial Dischargers

- Applicability. Industry categories known or suspected to discharge PFAS.
- Effluent and wastewater residuals monitoring. In the absence of a final 40 CFR Part 136 test method, USEPA recommends using CWA wastewater **draft** analytical method 1633. USEPA recommends that **quarterly** monitoring include each of the **40 PFAS** parameters detectable by draft method 1633 to ensure that there are adequate data to assess the presence and concentration of PFAS in discharges.
- Best Management Practices (BMPs) for discharges of PFAS, includes product substitution, reduction, or elimination of PFAS substances. USEPA recommends that within 6 months of the effective date of the NPDES permit, the facility shall provide an evaluation of whether the facility uses or has historically used any products containing PFAS, whether use of those products or legacy contamination reasonably can be reduced or eliminated, a plan to implement those steps, and annual reporting which includes a list of PFAS sources.
- Permit Limits. Options offered by USEPA are 1) technology-based treatment requirements under CWA, 2) site-specific technology-based effluent limits (TBELs) for PFAS discharges developed on a best professional judgment (BPJ) basis, 3) NPDES permits must include water quality-based effluent limits (WQBELs) as derived from state water quality standards and 4) where a state has developed a numeric criterion or a numeric translation of an existing narrative water quality standard for PFAS parameters.

B. Recommendations for Publicly Owned Treatment Works

Applicability. All POTWs (including POTWs that do not receive industrial discharges) and industrial users (IUs) in the industrial categories noted above.

Effluent, influent, and biosolids monitoring. In the absence of a final 40 CFR Part 136 test method, USEPA recommends using CWA wastewater **draft** analytical method 1633. USEPA recommends that **quarterly** monitoring include each of the **40 PFAS** parameters detectable by draft method 1633 to ensure that there are adequate data to assess the presence and concentration of PFAS in discharges.

Pretreatment program activities. POTW to update industrial users Inventory; Utilize BMPs and pollution prevention to address PFAS discharges to POTWs or develop local limits; and in the absence of local limits state pretreatment coordinators are encouraged to work with the POTWs to encourage pollution prevention, product substitution, and good housekeeping practices to make meaningful reductions in PFAS introduced to POTWs.

DRINKING WATER PROPOSED RULE

On March 14, 2023, EPA announced the proposed National Primary Drinking Water Regulation (NPDWR) for six PFAS including perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS), perfluorononanoic acid (PFNA), hexafluoropropylene oxide dimer acid (HFPO-DA, commonly known as GenX Chemicals), perfluorohexane sulfonic acid (PFHxS), and perfluorobutane sulfonic acid (PFBS).

The proposed PFAS NPDWR does not require any actions until it is finalized.

EPA anticipates finalizing the regulation by the end of 2023.

EPA expects that if fully implemented, the rule will prevent thousands of deaths and reduce tens of thousands of serious PFAS-attributable illnesses.

EPA is requesting public comment on the proposed regulation. The public comment period commences now (following the proposed rule publishing in the Federal Register on March 29, 2023). Comments were to be submitted during the public comment period that ended on **May 30, 2023**.

Public comments can be provided at www.regulations.gov under Docket ID: EPA-HQ-OW-2022-0114.

USEPA'S MARCH 2023 DRAFT DRINKING WATER RULE

Proposed Maximum Contaminant Levels Proposed for Six PFAS

As anticipated, on March 14, 2023, the United States Environmental Protection Agency (EPA) proposed National Primary Drinking Water Regulations for six per- and polyfluoroalkyl substances (PFAS).

Compound	Proposed MCLG	Proposed MCL
PFOA	Zero	4.0 parts per trillion (ppt)
PFOS	Zero	4.0 ppt
PFNA	1.0 (unitless)	1.0 (unitless)
PFHxS		
PFBS		
HFPO-DA (aka GenX Chemicals)	Hazard Index	Hazard Index

EPA'S PROPOSED ACTION FOR THE PFAS NPDWR

EPA is proposing a National Primary Drinking Water Regulation (NPDWR) to establish legally enforceable levels, called Maximum Contaminant Levels (MCLs), for six PFAS in drinking water.

Overview of NPDWR Development Process

- *Evaluate Data Availability*
- *Establish MCLG*
- *Develop Rule Analysis*
- *Set Standard as Close as Feasible to MCLG*
- *Benefit-Cost Determination*

EPA'S PROPOSED ACTION FOR THE PFAS NPDWR

EPA is proposing health-based, non-enforceable Maximum Contaminant Level Goals (MCLGs) for six PFAS.

- PFOA and PFOS as individual contaminants, and PFHxS, PFNA, GenX Chemicals, and PFBS as a PFAS mixture.
- MCLGs are the maximum level of a contaminant in drinking water where there are no known or anticipated negative health effects allowing for a margin of safety.
- EPA is proposing an NPDWR to establish legally enforceable MCLs for these six PFAS in drinking water.

EPA'S PROPOSED ACTION FOR THE PFAS NPDWR

The proposed rule would require public water systems to:

- Monitor for these PFAS;
- Notify the public of the levels of these PFAS; and
- Reduce the levels of these PFAS in drinking water if they exceed the proposed standards.



CERCLA PROPOSED RULE

Consistent with the PFAS Roadmap, the Environmental Protection Agency (EPA) has issued the proposed rule (September 6, 2022) to list two PFAS compounds as hazardous substances under CERCLA. The EPA is proposing to designate perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) as hazardous substances, including their salts and structural isomers.

As proposed, PFOA and PFOS are listed as hazardous substances pursuant to CERCLA Section 102(a) because “the totality of evidence about PFOA and PFOS described here demonstrates that they can pose substantial danger to public health or welfare or the environment.” Comments received on or before 60 days past the date of publication in the Federal Register, which was on or before November 7, 2022. The EPA had hoped to issue the final rule in 2023.

IMPACTS OF THE PROPOSED RULE

- Liability for CERCLA Response costs under sections 107 and 113.
- Remedial clean-up standards, investigation and remedies.
- Notification requirement - the proposed rule sets a reporting quantity (RQ) of 1 pound or more in a 24-hour period. Any release above the 1-pound RQ of PFOA or PFOS (and their salts and structural isomers) would have to be reported to NRC/EPA.
- CERCLA's shadow is tall and wide – this rule could expand the number of sites and facilities subject to CERCLA cleanup of PFOA and PFOS, the types of entities potentially subject to clean-up, and may allow “re-openers” (need to check order or settlement language) of “closed” or “no further action” sites, in addition to adding requirements for active CERCLA sites currently under review.

TOXICS RELEASE INVENTORY (TRI) PROGRAM

- For Reporting Year 2022 (July 1, 2023), 180 PFAS chemicals are reportable.
- For Reporting Year 2023, USEPA has already added 9 more PFAS.
- State of California added PFAS to Proposition 65 Notice List.

FUTURE PFAS ACTIVITIES

- USEPA & Ohio EPA – Rules, Regulations & Compliance
- Remediation, Restrict & Permit
- Get “Buy-In” or Litigate

QUESTIONS AND ANSWERS

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PFAS – COMING SOON TO A PERMIT NEAR YOU!!

**Presented at the 32nd Annual Air, RCRA and Water Permits
Environmental Permitting Conference**

Columbus, OH

Matthew Traister, PE– Ramboll

July 19, 2023

PRESENTATION OVERVIEW

01 The Dominoes Yet to Fall

02 Recent Analytical Methods Development

03 Importance of Background Concentrations on Permitting

04 A Look Ahead

THE DOMINOES YET TO FALL

WHICH DOMINOES ARE IMPORTANT AND WHY?

- PFAS as *hazardous substances* under CERCLA
- MCLs for drinking water
- PFAS as *hazardous constituents* under RCRA
- Revised toxicity assessments and/or regulating classes of compounds

Proposed MCLs

PFAS Compound	MCLG (ng/L)	MCL (ng/L)
PFOA	0	4
PFOS	0	4
PFNA	1.0 hazard index	1.0 hazard index
Gen-X	1.0 hazard index	1.0 hazard index
PFHxS	1.0 hazard index	1.0 hazard index
PFBS	1.0 hazard index	1.0 hazard index



RECENT ANALYTICAL METHODS DEVELOPMENT

DRAFT METHOD 1633

- Originally published in September 2021; 2nd draft issued in June 2022
- Currently undergoing multi-lab validation
- Unlike drinking water methods 533 and 537.1, draft Method 1633 is designed for non-drinking water matrices, including:
 - Wastewater
 - Surface Water
 - Groundwater
 - Soils
 - Biosolids, Tissue
 - Leachate
 - Sediment
- Expected to be promulgated before year end

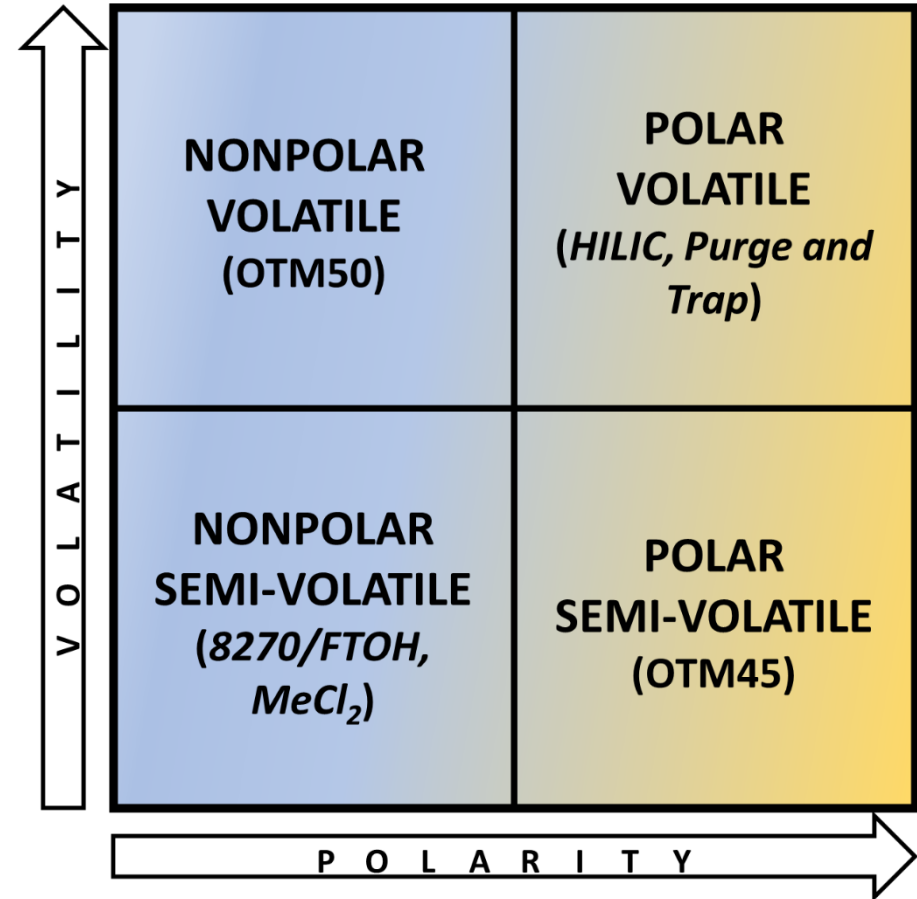
DRAFT METHOD 1633 IMPLICATIONS AND CHALLENGES

- Allowable limits can be evaluated and set for a variety of matrices (*e.g.*, biosolids)
- Drinking water plants and WWTPs now have an EPA method to identify PFAS sources
- Currently not appropriate for aqueous sources with solids concentrations greater than 100 ppm
- Method has significant handling, storage, and processing requirements; >> costs
- More extensive extraction process; will result in higher lab costs than current methods.



ADVANCEMENT OF AIR TESTING METHODS

- USEPA advanced OTM-45 in January 2021
- Working on OTM-50 for non-polar PFAS
- Also working on a derivative of SW-846 0010/3542/8270 (tentatively OTM-55) for non-polar, semi-volatile PFAS compounds
- On-going needs: PICs/PIDs, FTOHs
- USEPA also considering a sequential extraction approach to enable single sample train for polar and non-polar semi-volatile PFAS



IMPORTANCE OF BACKGROUND CONCENTRATIONS ON PERMITTING

UNDERSTAND BACKGROUND & BASELINE CONDITIONS



Background:
sources not associated with site releases, and can include anthropogenic and natural background

Baseline:
conditions that would exist but for the release of hazardous material

Cleanup not required to levels below background

What other PFAS sources are upgradient and nearby?

PFAS are human-made; however, **PFAS are found in locations without known sources**

Numerous diffuse, non-point sources contribute to anthropogenic background

IMPORTANCE OF PFAS BACKGROUND STUDIES

PFAS source identification

By identifying and delineating between PFAS background concentrations and PFAS contamination attributable to known or suspected local source(s) of PFAS.

Remediation for PFAS

Background levels are relevant to many federal and state risk-based cleanup programs, and remediation is not required below background levels (e.g., CERCLA)

PFAS liability assessment

By establishing areas where liability for PFAS cleanup exists, including baseline concentrations for “but-for” releases

APPROXIMATE PFAS BACKGROUND CONCENTRATIONS BY MEDIA*

PFAS Compound	Outdoor Air (pg/m ³)	Soil (ng/kg)	Surface Water** (ng/L)	Groundwater** (ng/L)	Stormwater (ng/L)
PFOA	~2-7	48-124	~20-100	20-350	ND-19
PFOS	~0.8-3	7-472	~40-400	40-7,000	ND-15.5

* Adapted from *PFAS Technical and Regulatory Guidance Document and Fact Sheets*. Interstate Technology & Regulatory Council, June 2022. Values generally represent concentrations observed in areas without a known PFAS source and may include global locations; concentrations near industrial sources tend to be considerably higher.

** Unregulated Monitoring Contaminant Rule (UCMR) 3 data for drinking water sources derived from surface water and groundwater sources, respectively.

ANTHROPOGENIC PFAS BACKGROUND FROM DIFFUSE SOURCES

Vermont

- 66 shallow (0-15 cm) surface soil samples
- PFOS, PFOA, and PFNA are the most predominant analytes
- PFOA: **52-4,900 ng/kg**

New Hampshire

- 186 shallow (up to 3 ft) soil samples
- PFOA detected in ~96% samples
- PFOA: **76-4,100 ng/kg**

Maine

- 64 shallow (0-6 cm) surface soil samples
- PFOS, PFOA and PFBS most frequently detected
- PFOA: **ND – 5,290 ng/kg**

Massachusetts

- 25 monitored locations for PFAS in rainfall
- PFAS detected in 11 of 50 rainfall events
- Median PFAS <10 ng/L
- Predominantly short-chained PFCAs (e.g., PFBA)

A LOOK AHEAD



FUTURE STATE OF PFAS ACTIVITY

01

Revised TRI Information

02

Expect Permitting Challenges

03

Rapidly Evolving Regulatory Changes

04

Updated/Additional PFAS Toxicity Assessments

05

More PFAS Thermal Treatment Studies

06

Effluent Limitations/Air Emission Standards



Ohio EPA - PFAS

32nd Annual Air, RCRA, and Water
Permits Environmental Permitting
Conference

Columbus, OH

Mark Johnson, Assistant Director

Ohio EPA

July 19, 2023

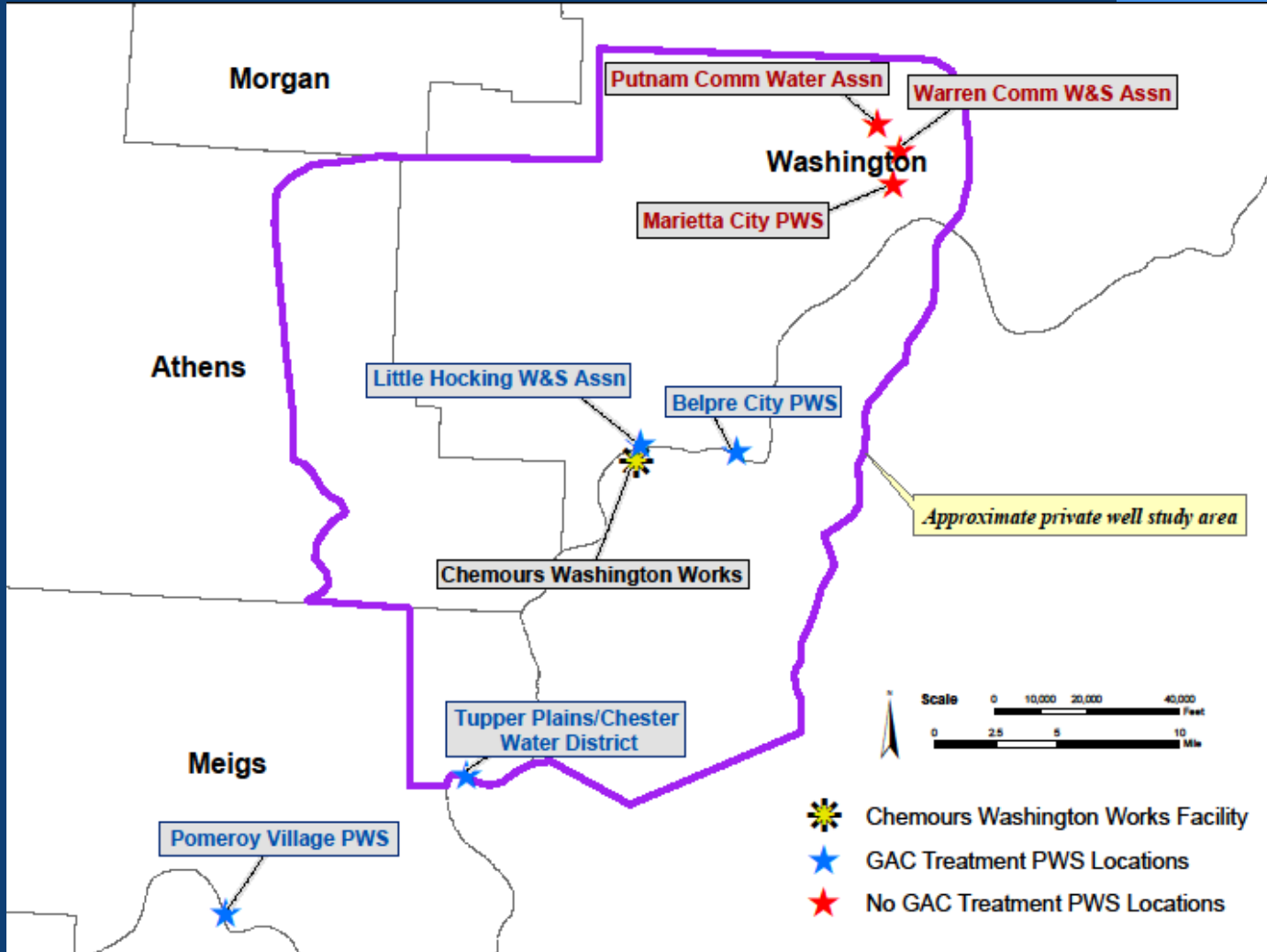


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Ohio's Previous PFAS History

- DuPont/Chemours Washington Works Plant, Parkersburg, WV
 - Sampling ongoing
- Newport Volunteer Fire Department (2016 sampling)
- Wright Patterson Air Force Base (2016 UCMR3/2017 GAC)
- Dayton Fire Training Center (2016 sampling)
- Toledo Air National Guard Base (2016-2017 sampling)
 - Tested private wells downgradient of bases





Dupont/Chemours

• Three areas of drinking water sampling/treatment

- Four Ohio public water systems (PWS) with Granular Active Carbon (GAC)
- Additional PWS sampled
- Private well sampling in three Ohio counties

• 2009 U.S. EPA



Legend

■ Ohio DoD Air Force Base Fire Training Sites

Ohio Air Bases

Ohio Air National Guard Bases:

- Toledo
- Mansfield
- Rickenbacker
- Springfield

U.S. Air Force Bases:

- Warren-Youngstown

Testing for PFAS in Ohio's Drinking Water

September 2019 – Ohio Governor DeWine directed Ohio EPA and Ohio Department of Health to analyze for PFAS in Ohio's drinking water

- Ohio EPA sampled 1,512 PWS, from daycares to the City of Columbus

PFAS.ohio.gov

- Includes State of Ohio PFAS action plan, PWS testing results, what to know about PFAS, and upcoming news regarding PFAS



Ohio Per- and Polyfluoroalkyl Substances (PFAS) Action Plan for Drinking Water



December 2019



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Testing Method

PFAS Compound	PFOA	PFOS	GenX	PFBS	PFHxS	PFNA
Action Level in parts per trillion (ppt)	>70 single or combined with PFOS	>70 single or combined with PFOA	700* (20)	>140,000* (2,500)	> 140	> 21

Reporting level is 5 ppt for all but GenX (25 ppt)

*Action Levels Revised March 2022: GenX = 20 ppt; PFBS = 2,500 ppt



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Results of Testing Ohio's Drinking Water

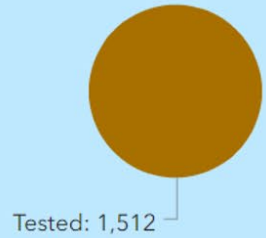
- **Two PWS were over Ohio's action level of 70 ppt**
 - Solution for these PWS – Regionalization!!!
- **80+ systems had at least 1 PFAS contaminant detected**
- **20+ additional systems had at least a raw detection**



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PFAS Testing of Ohio Public Water Systems

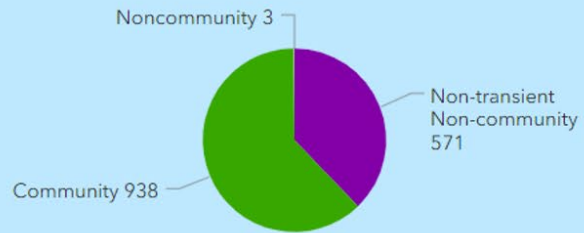
Water Treatment Plants by Sampling Status



Sampling Status Chart/Filter

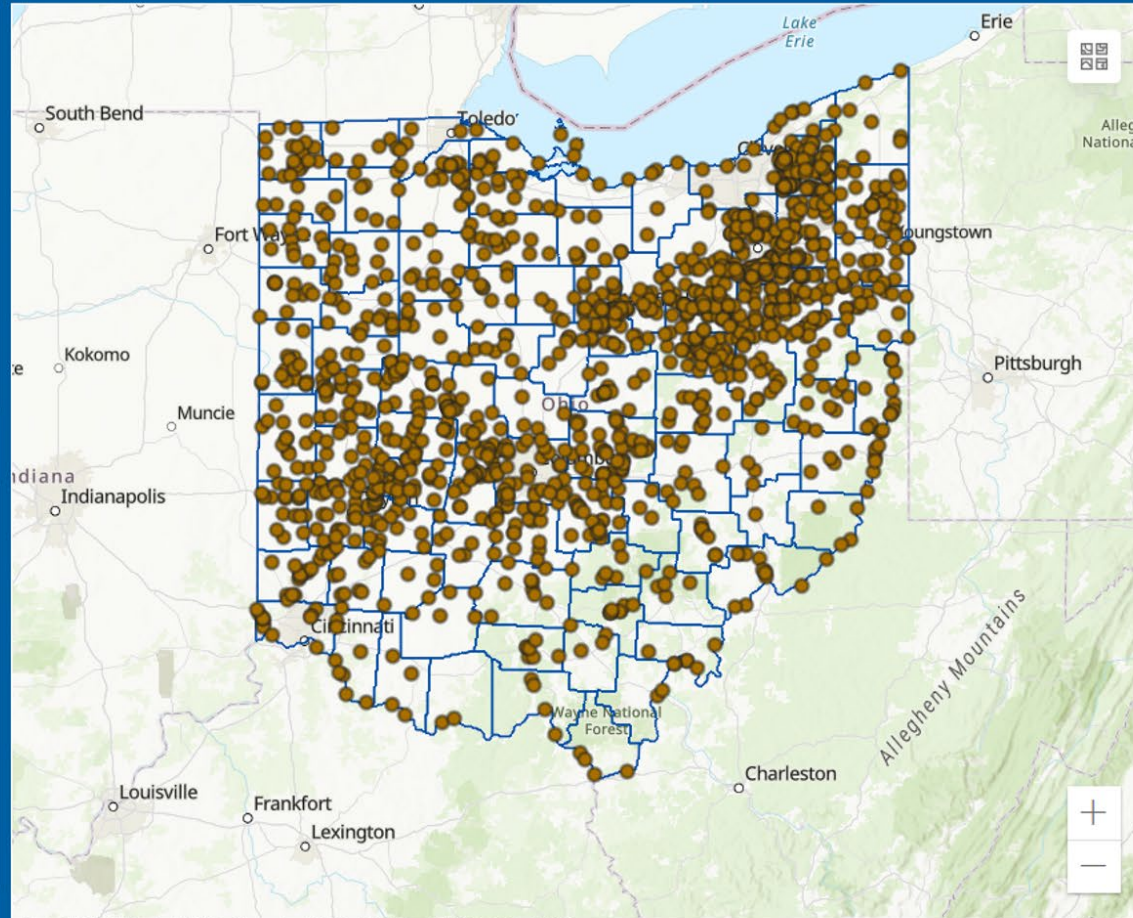
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Water Treatment Plants by System Type



System Type Chart/Filter

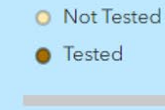
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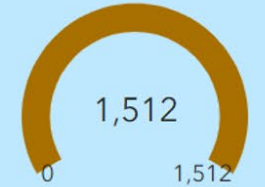
Esri, USGS | Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS

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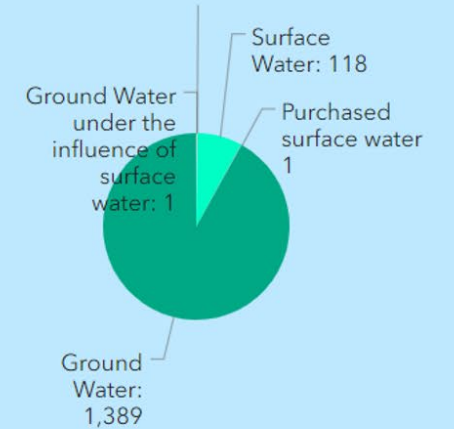
Ohio Water Treatment Plants: PFAS Sampling Status



Water Treatment Plants Tested



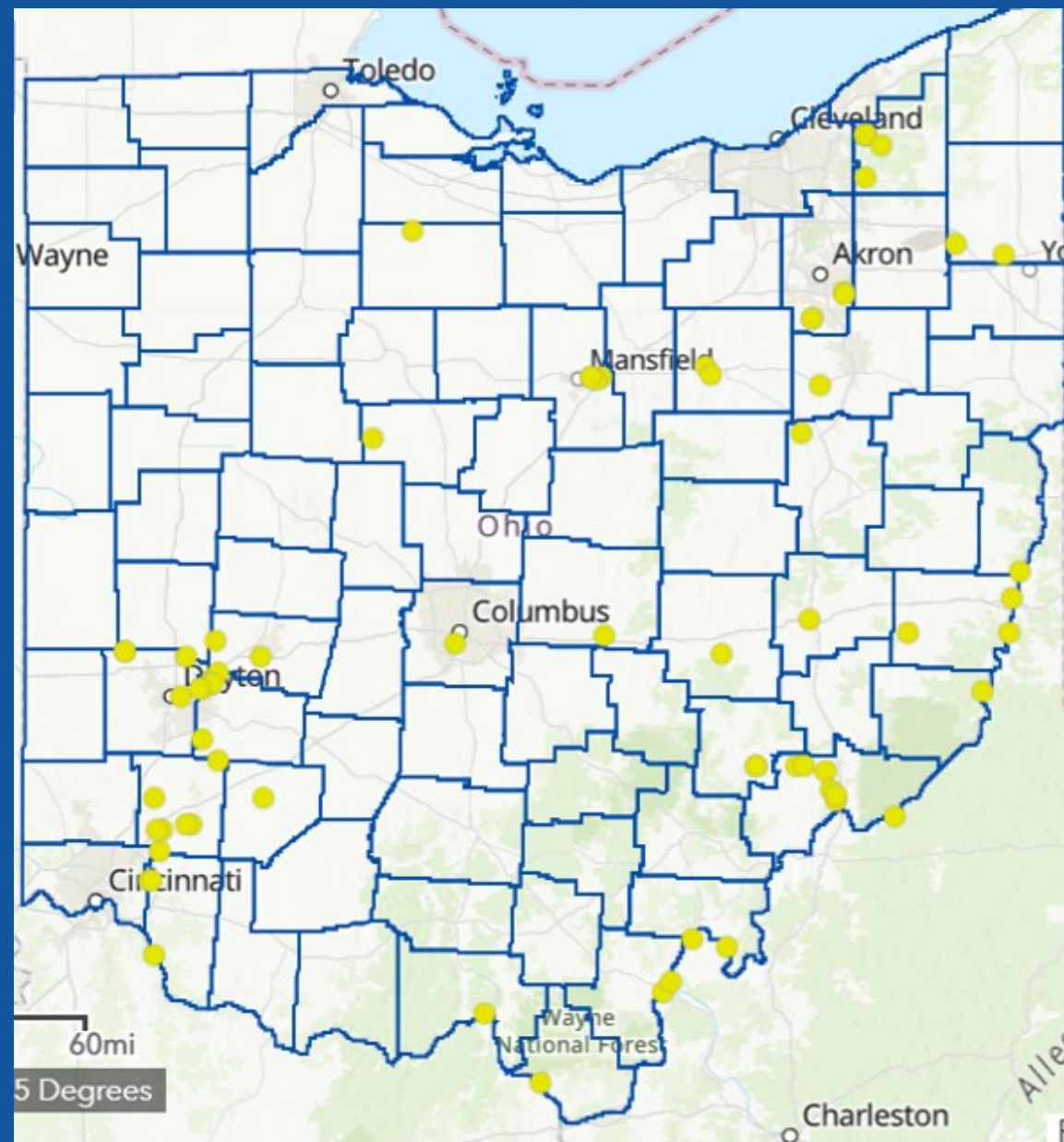
Water Treatment Plants by Type of Source



Type of Source Chart/Filter

Details

Finished Water Detections



Quarterly Follow-up Sampling

Ohio EPA's contractors conducted follow-up sampling at no cost to PWS.

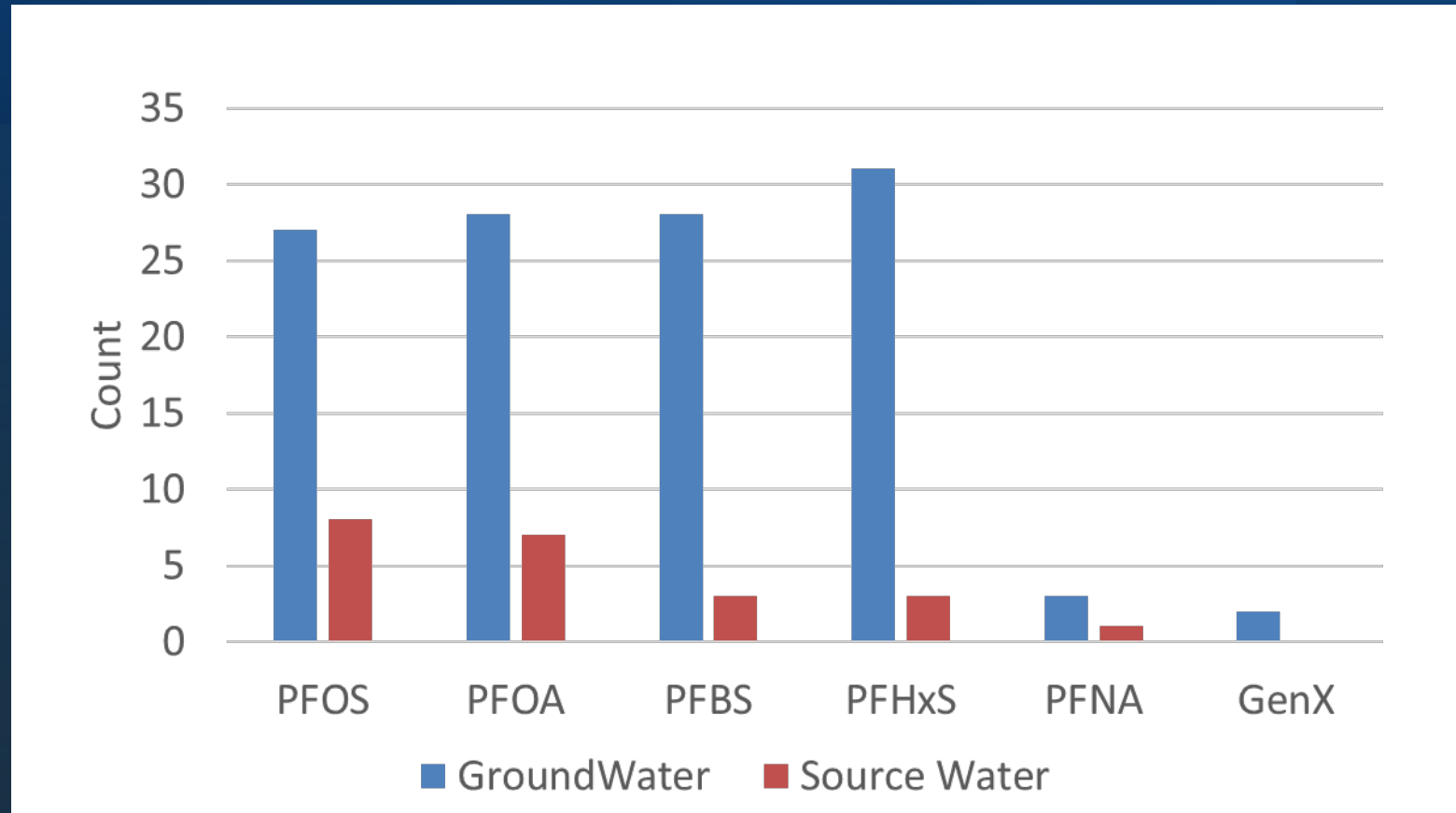
- 81 PWS are quarterly sampling
- Two PWS do monthly sampling due to detection above Ohio's action level
 - Continued until connection to a new source can be made

Detections were required to be included in Consumer Confidence Reports (CCRs).



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Raw Water Detections by Source Type



PFOS Raw Detections

1.9% in Ground Water and 6.7% in Surface Water

Next Steps for Ohio

**Continue working
with PWS with known
detections**

**Focused on window of
opportunity before
U.S. EPA's proposed
MCL is final**

Emerging Contaminant Funding for PWS

- Additional \$19M for Ohio's State Revolving Loan Funds
 - 100% Principal Forgiveness

Ohio EPA's Division of Financial and Environmental Assistance (DEFA)



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- Assists communities with understanding Ohio EPA's funding resources
- **Manages Ohio's Two State Revolving Loan Funds (SRFs):**
 - Water Supply Revolving Loan Account (WSRLA) or Ohio's Base Drinking Water SRF
 - Currently open for nominations.
 - Planning and design projects can be nominated at any time
 - \$25M at discounted rate (0%) available (rolling nominations)

Contact: defamail@epa.ohio.gov or 614-644-2798

Other Ohio Funding Opportunities

New Bipartisan Infrastructure Law (IIJA)

- General supplemental funding for Ohio's base drinking water SRF
- Specific funding for emerging contaminants to Ohio's drinking water SRF
- Specific funding for lead service line replacement to Ohio's drinking water SRF

H2Ohio

- **State funding for water and wastewater projects**
 - \$10 million each year for the last four years
 - Next two years Ohio EPA receiving another \$10 million per year



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Estimates of Ohio's Portion of IIJA Funds for the SRF Programs

Year	Ohio's CWSRF Portion for Base Program	New! Ohio's CWSRF Portion for Emerging Contaminants	Ohio's DWSRF Portion for Base Program	New! Ohio's DWSRF Portion for Emerging Contaminants	New! Ohio's DWSRF Portion for Lead	Estimated Total
2022	\$102 M	\$5 M	\$45 M	\$19 M	\$71 M	\$242 M
2023	\$118 M	\$11 M	\$52 M	\$19 M	\$71 M	\$271 M
2024	\$128 M	\$11 M	\$57 M	\$19 M	\$71 M	\$286 M
2025	\$138 M	\$11 M	\$62 M	\$19 M	\$71 M	\$301 M
2026	\$138 M	\$11 M	\$62 M	\$19 M	\$71 M	\$301 M
Total*	\$624 M	\$49 M	\$278 M	\$95 M	\$355 M	\$1.397 B

Can be PF	\$303 M	\$49 M	\$134 M	\$95 M	\$175 M	\$756 M
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Funding

Planning

- This can include an analysis, piloting, or investigation of the problem. Can nominate a planning project at any time and receive 0%.

Design

- PWS can nominate a design project at any time and receive 0%.

Construction

- PWS will have the opportunity to nominate a PFAS project in February for the chance at principal forgiveness. Need to indicate it is for PFAS mitigation or treatment.
 - The program year for this funding starts in July 2023.

Treatment

- Will require an approved general plan before a design or construction loan

**Both planning and design loans can be rolled into the construction loan (won't need to pay on those loans before the construction loan is awarded).

H2Ohio Rivers Initiative

Emerging contaminants assessment

- Ohio has very limited data on PFAS contaminant's existence in, and impact to, Ohio's surface water resources
- Through the H2Ohio initiative, Ohio EPA will hire a contractor to sample water, macroinvertebrates, and fish in Ohio's major rivers throughout the state to assess the levels of PFAS contaminants in the environment and their potential impact to aquatic life
- The data gathered will establish a baseline for future comparison, demonstrate if any action is needed through wastewater discharge permits or source remediation, and identify potential concerns for future fish consumption advisories



PFAS Federal Activity Highlights

March 14, 2023: U.S. EPA announces proposed MCL Rule for 6 PFAS

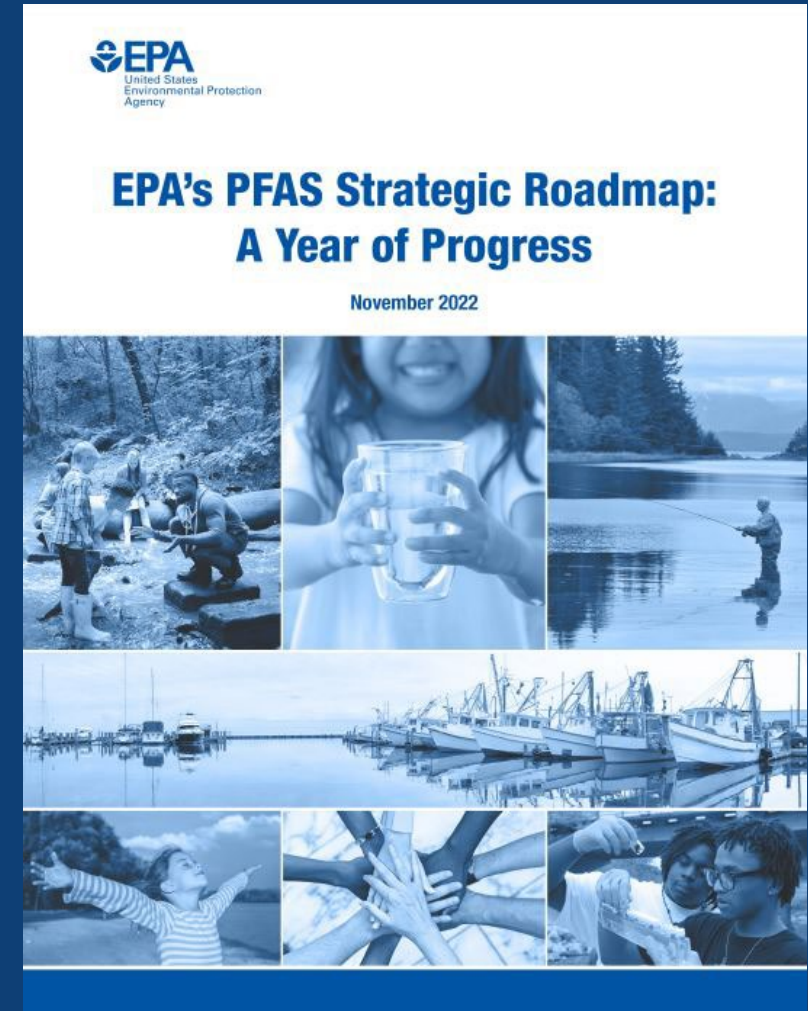
- PFOA, PFAS, PFNA, PFHxS, PFBS, GenX

The proposed rule would require public water systems to:

- Monitor for the 6 PFAS contaminants in the rule
- Notify the public of the concentrations of these PFAS
- Reduce the levels of these PFAS in drinking water if they exceed the proposed standards



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<https://www.epa.gov/pfas>

PFAS Federal Activity Highlights

Compound	Proposed MCLG	Proposed MCL (enforceable levels)
PFOA	Zero	4.0 parts per trillion (also expressed as ng/L)
PFOS	Zero	4.0 ppt
PFNA	1.0 (unitless) Hazard Index	1.0 (unitless) Hazard Index
PFHxS		
PFBS		
HFPO-DA (commonly referred to as GenX Chemicals)		

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

PFAS Federal Activity Highlights

Who:

Community and non-transient, non-community public water systems

Monitoring approach:

“Standard” monitoring schedule: quarterly for at least the first year, then eligible for reductions based on results

Compliance:

Annual average

When would it start?:

Rule could be final by the end of the calendar year, implementation likely set in the rule

- TBD
- State would have 2 years to adopt rules based on the federal rule

Thank You



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Biographical Information



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Mark Johnson was appointed Assistant Director in August 2022. Prior to his appointment as Assistant Director, Johnson was the Deputy Director of Business and Regulatory Affairs for Ohio EPA. As deputy director, Johnson acted as a primary contact for regulated entities to help coordinate permitting activities within the Agency, particularly for complex projects requiring multiple permits.

Johnson joined Ohio EPA in 2012 and has worked in the Division of Surface Water, Division of Drinking and Ground Waters, and Division of Environmental Response and Revitalization. Johnson has years of experience in oversight of staff, environmental regulations, environmental enforcement, environmental remediation, Brownfield redevelopment, and ecological restoration.

Johnson graduated from Kent State University with a Bachelor of Science degree in Conservation Biology.

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Matt Traister has more than three decades of environmental consulting experience and provides technical expertise and expert services in a variety of air quality matters. For the past three years, Matt has been involved in a number of projects, both domestically and abroad, involving the quantification and control of PFAS emissions and the study of their fate and transport. These projects have been performed for surface coating operations, chemical manufacturers, semiconductor facilities, textile finishing operations and remediation systems. As a professional chemical engineer, Matt assists clients in identifying replacement chemistries and/or modifying their industrial processes so as to minimize the discharge of air contaminants to the environment. Matt also frequently presents on PFAS matters at national and regional conferences, including MEC, the Midwestern States Environmental Consultants Association, and those sponsored by the Air & Waste Management association.

Matt's recent emerging contaminant experience includes:

- Fate and Transport Investigation, Massachusetts: Provided technical direction of air quality activities (including testing, modeling and control) performed in support of a PFAS source investigation at an industrial facility that was suspected of having impacted nearby public and private drinking water supplies.
- Material Balance Study, Asia: Conceived and implemented a material balance study to understand the fate of PFAS chemistry within a semiconductor manufacturing process. This information was used by the client to improve its environmental control of PFAS.
- Emissions Testing, North Carolina: Provided technical review for an emissions testing project performed at a chemical manufacturing plant to evaluate the control efficiency of a thermal oxidizer and a carbon treatment system.
- Emissions Testing, New Jersey: Provided technical oversight for a project team tasked with conducting source emissions testing for select PFAS compounds from two emission sources at a chemical manufacturing facility. PFAS emissions were characterized over the entire 30-hour product batch cycle by collecting samples at five discrete intervals, with the duration of each portion of the test run ranging from 20 to 150 minutes.
- Emissions Testing, West Virginia: Project officer for a massive source testing project to quantify PFAS emissions from a chemical manufacturing operation. Inlet and outlet testing for PFAS from three process scrubbers was conducted as a condition of a regulatory consent order.

Education

Matt received his B.S. in Chemical Engineering from Clarkson University in 1987.



Robert J. Karl

partner

Bob focuses his practice in energy and environmental law with an emphasis in matters involving the Federal Water Pollution Control Act, Ohio VAP, CERCLA, FIFRA, TSCA, DOT and RCRA matters, wetlands regulation, pretreatment requirements, state and local environmental statutes and regulations, and lender and fiduciary liability issues. With 30 years of environmental law experience, his clients range from large corporate entities to developers to entrepreneurs to municipalities. He is the chair of Porter Wright's nationally recognized environmental practice.

Bob's work crosses nearly all major environmental programs, and includes permitting, compliance, criminal and civil defense, drafting of real estate and other transactional documents.

He has successfully briefed and argued numerous appellate and Supreme Court of Ohio cases.

Bob advises clients in the chemical and manufacturing industries across the Northeast, Midwest and Southeast, including Texas. His work includes counseling on a variety of environmental issues including due diligence and audits. He also assists clients in navigating the implementation of state and federal statutes related to permitting and regulatory compliance.

As part of the firm's real estate development team, Bob works with industry stakeholders on Brownfield remediation projects and advises on applicable incentives and grants. He also is a part of the firm's economic development group where he regularly collaborates with property developers, state and local officials.

He also has significant experience with energy and mineral issues, including oil and gas disputes and transactional matters; oil and gas litigation, including appellate practice; property and mineral title issues,

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Cleveland, OH 44113

EDUCATION

Vermont Law School, J.D., 1989

Wright State University, B.A., 1982

SERVICES

Environmental

- Chemical industry

Energy

- Power siting
- Oil and gas

Litigation

- Environmental litigation

Investigations, White Collar Defense & Shareholder Litigation

Real Estate

- Appropriation and eminent domain
- Environmental compliance

including mineral rights disputes, Ohio Dormant Minerals Act (ODMA), forfeiture and royalty disputes; and regulatory and enforcement actions before the Ohio Department of Natural Resources (ODNR) and Ohio courts, representing clients in all actions including mandatory pooling and unitization proceedings.

Before entering private practice, Bob was a former assistant Ohio attorney general where he managed more than 250 water and multimedia civil and criminal enforcement actions in various courts. His legal representation included the ODNR and the Ohio Environmental Protection Agency (EPA) before state and federal courts. Bob has been named to the *Ohio Super Lawyers*[®] list and is recognized by *Best Lawyers*[®] in Environmental Law and Litigation - Environmental. He has appeared on the list of "Who's Who in Energy" by *Columbus Business First*.

BAR ADMISSIONS

- Ohio
- U.S. Court of Appeals for the Sixth Circuit
- U.S. District Court for the Northern District of Ohio
- U.S. District Court for the Southern District of Ohio

PRESENTATIONS

- "Overview of Ohio's Voluntary Action Program (VAP) & Remediation State Funding Opportunities," Terracon and JobsOhio, November 2019
- "Understanding Federal and State Rules on Stormwater Management," Current Issues in Landscape Architecture, January 2015

PUBLICATIONS

- "Selling real estate before the 2013 tax law changes," *Commercial Developers Resource*, February 2012

PROFESSIONAL ASSOCIATIONS

- Columbus Bar Association, Environmental Section, former Co-Chair
- Ohio State Bar Association
- National Brownfield Association
- American Bar Association

HONORS | AWARDS

- *Best Lawyers*[®], Environmental Law and Litigation – Environmental
- *Ohio Super Lawyers*[®]
- *Columbus Business First*, Who's Who in Energy
- Ohio Attorney General, Professionalism Award, 2001

COMMUNITY

- National Association of Attorneys General, Environmental Issues, CAFO working group, Ohio Representative, 1998-2002
- Conference of Government Mining Attorneys, Chairperson, 1992-1993

SERVICES (CONTINUED)

Government & Regulatory Affairs

- Economic development, incentives and grants
- Regulatory advocacy and drafting

Cannabis

Business Growth & Operation

- Chemicals