



PFAS Today, Tomorrow, and Forever

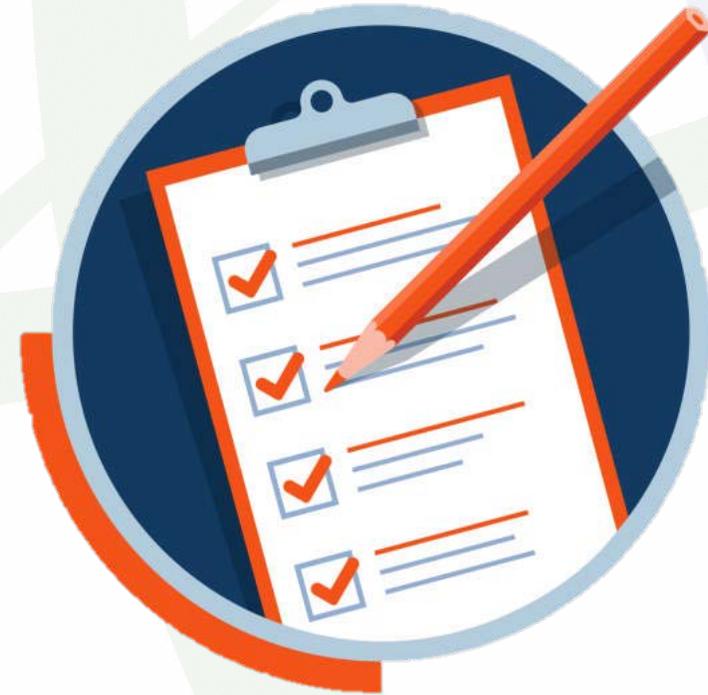
MCLs are Coming...Very Soon!

Will Shaffer, PE

February 6, 2024

Agenda

- Introduction
- Regulatory Overview
- UCMR5 Results
- Proposed MCLs
- Regulatory Requirements
- Funding Options





Introduction

Introduction

EEC Environmental

- National environmental engineering consultant
- Chemists, engineers, geologists, hydrogeologists, regulatory and compliance specialists
- PFAS treatment experts

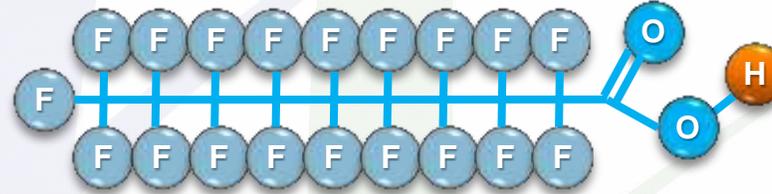
PFAS Services

- Site assessment and remediation
- PFAS characterization and planning
- Treatment system design
- Owner's representative consultant

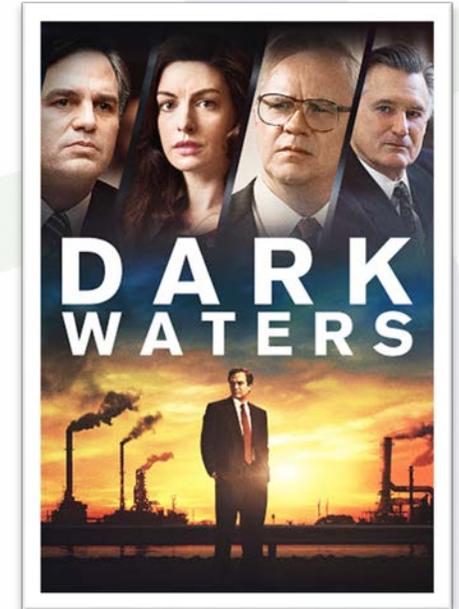


Will Shaffer, PE
Project Engineer

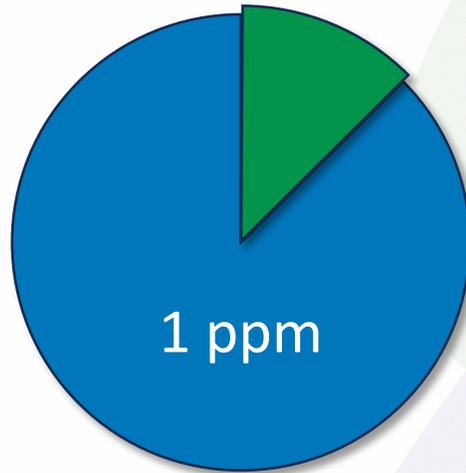
PFAS 101



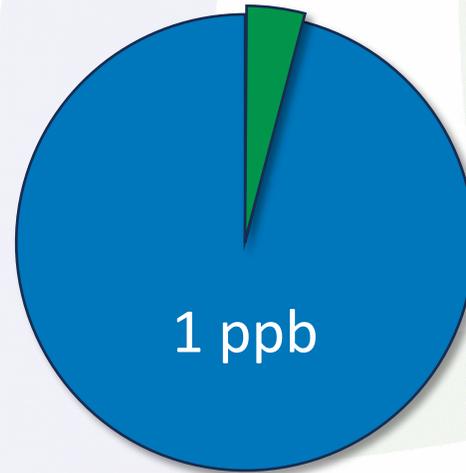
- Broad class of manufactured chemicals used to make products that resist heat, oils, grease, stains, & water
- Teflon™ coated cookware, carpets, clothing, paper packaging for food, fire retardants, AFFF
- First developed in 1940s
- Over 5,000 PFAS compounds (terminal and precursors)
- Extremely stable in environment and can be found in soil, air, surface water, groundwater, wastewater plant effluent, sewage sludge and landfills **“Forever Chemicals”**



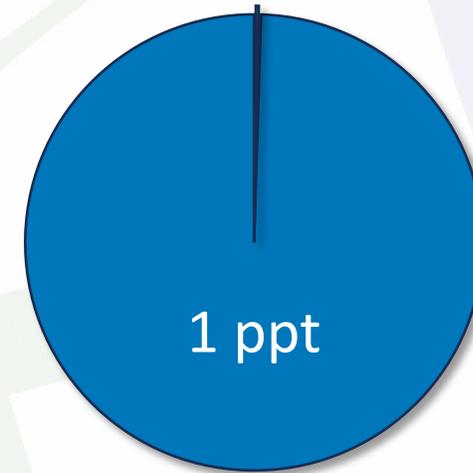
PFAS Concentration Units: ppt



1 ppm (part per million)
1 milligram per liter, mg/L
1 second in 11.5 days



1 ppb (part per billion)
1 microgram per liter, $\mu\text{g/L}$
1 second in 31.7 years

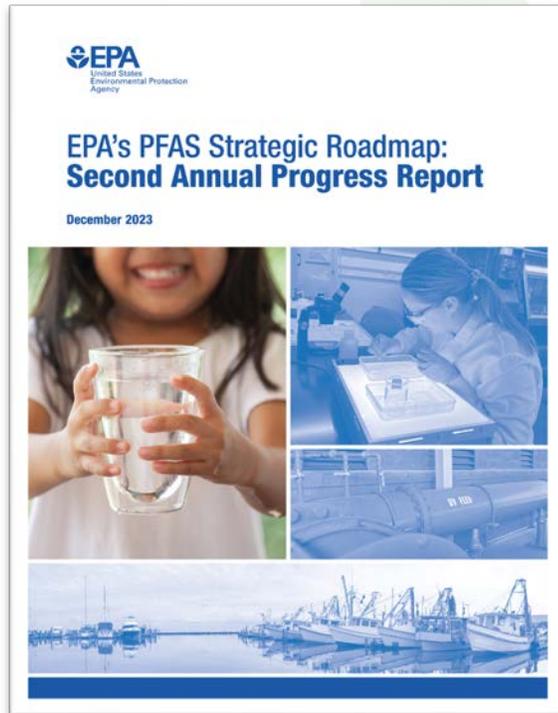


1 ppt (part per trillion)
1 nanogram per liter, ng/L
1 second in 31,700 years
1 drop in 20 Olympic pools
 $\frac{1}{2}$ tsp in SoFi Stadium



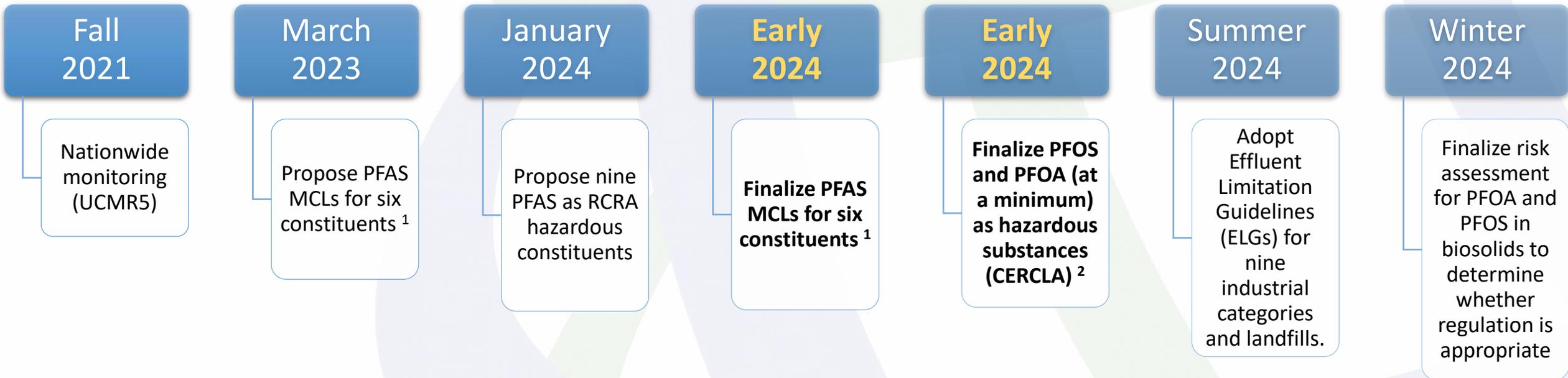
Regulatory Overview

EPA PFAS Strategic Roadmap



EPA PFAS Strategic Roadmap

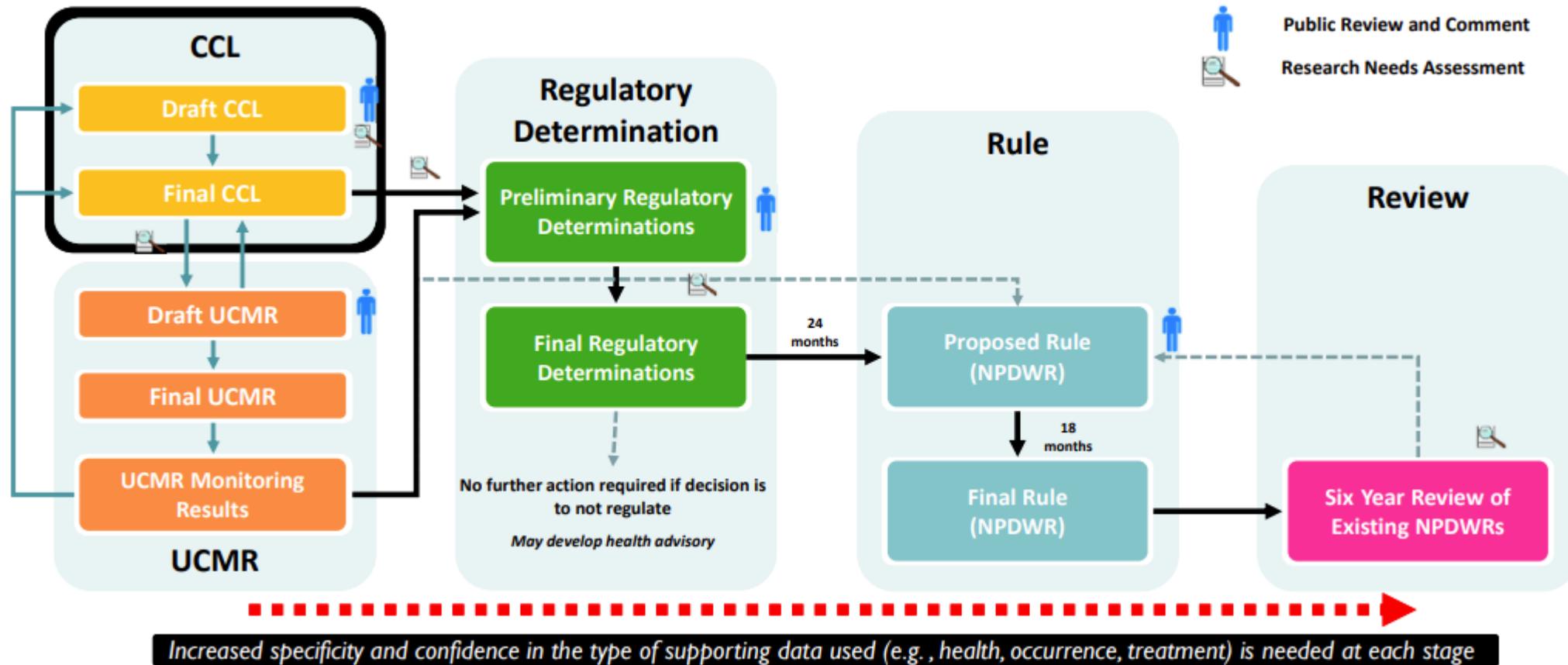
Key Actions



¹ PFOA, PFOS, PFNA, PFHxA, PFBS, HFPO-DA (GenX)

² PFOA, PFOS, PFBS, PFHxS, PFNA, GenX, PFBA, PFHxA, PFDA & precursors (proposed Fall 2022)

Flow of SDWA Regulatory Processes





UCMR5 Results

UCMR5 Scope and Data

Scope at a Glance

January 2023 – December 2025

29 PFAS analytes

All Large PWS serving > 10,000 customers

All Small PWS serving 3,300 – 10,000 customers

About 800 Small PWS serving < 3,300

Results at a Glance

Data released quarterly - 24% of data released so far

UCMR5 Data Finder for latest results

Drinking Water with PFAS > Proposed MCLs

As of January 2024

	0-10,000 customers Small PWS	10,000+ customers Large PWS
Number of PWS Sampled	1,950	1,851
PFOA > Proposed MCLs	152 (7.9%)	277 (15.4%)
PFOS > Proposed MCLs	185 (9.6%)	292 (16.3%)
GenX > Proposed MCLs	0	1
Exceedance Percentage	11.9%	19.9%



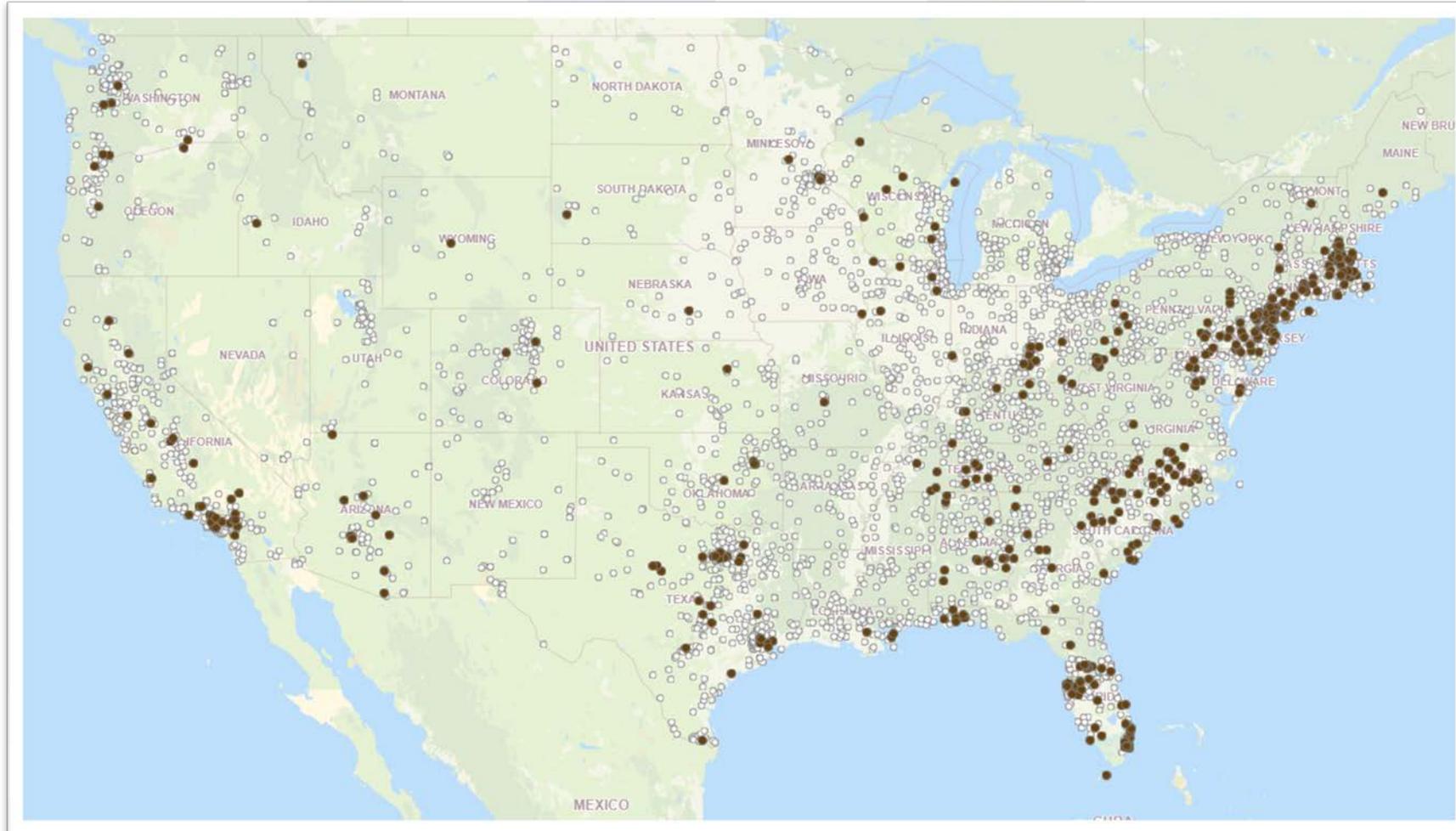
1 in 5 Large PWS & **1 in 10** Small PWS nationally currently exceed proposed PFAS MCLs
or

15.8% of all PWS nationally currently exceed proposed PFAS MCLs



Drinking Water with PFAS > Proposed MCLs

As of January 2024





Strategic Roadmap

Whole of
government
approach

Impact

10-20% of PWS
nationally
Ubiquitous

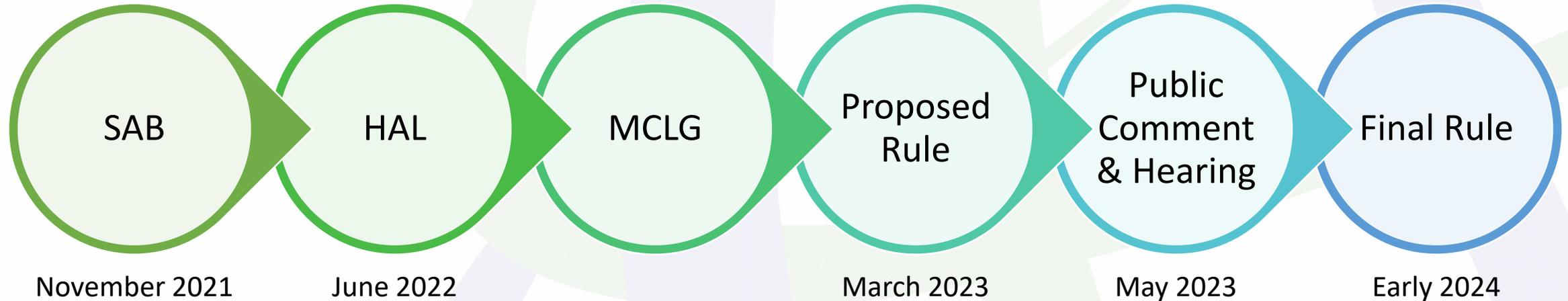
Imminent

Key regulations
finalizing soon



Proposed MCLs

Flow of SDWA Regulatory Processes



SAB: Science Advisory Board Review

- Over 400 health studies found association of PFOA/PFOS exposure to adverse health effects

HAL: Health Advisory Level

- PFOA = 0.004 ppt, PFOS = 0.02 ppt based on health effects

MCLG: Maximum Contaminant Level Goal

- Public health goal without considering detection limits or treatment

Proposed Rule

- As close to MCL as possible while considering detection limits and treatment

Drinking Water Standards in the US

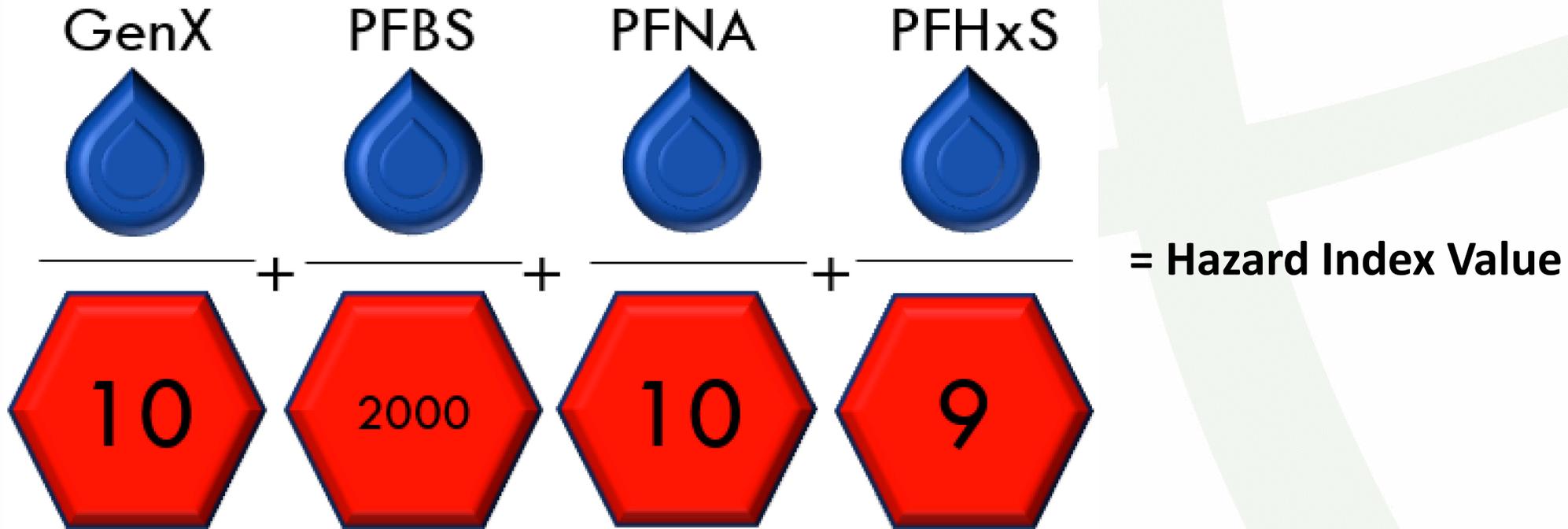
State	PFOS	PFOA	PFNA	PFHxS	PFBS	HFPO-DA (GenX)	PFHpA	PFHxA	PFDA
Massachusetts (MCL)	20	20	20	20			20		20
Michigan (MCL)	16	8	6	51	420	370		400,000	
New Hampshire (MCL)	15	12	11	18					
New Jersey (MCL)	13	14	13						
New York (MCL)	10	10							
Pennsylvania (MCL)	18	14							
Vermont (MCL)	20	20	20	20			20		
Wisconsin (MCL)	70	70							
USEPA (Proposed MCL)	4	4	10 *	9 *	2,000 *	10 *			

Values in parts per trillion (ppt) or ng/L

This list is not exhaustive

*Hazard Index Values: Sum of fractions must not exceed 1.0

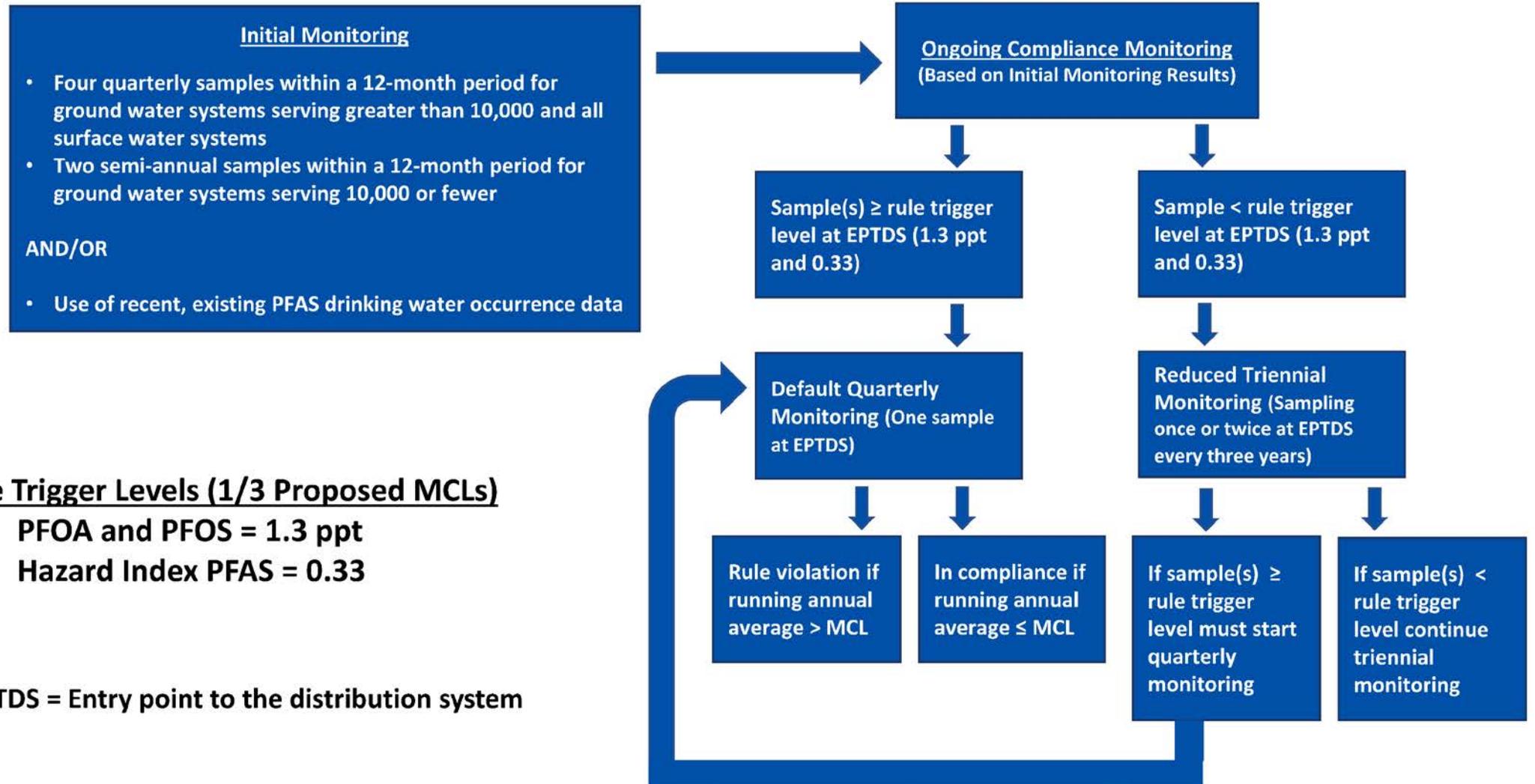
Hazard Index (HI)





Regulatory Requirements

Monitoring Requirements



Rule Trigger Levels (1/3 Proposed MCLs)

- PFOA and PFOS = 1.3 ppt
- Hazard Index PFAS = 0.33

* EPTDS = Entry point to the distribution system

Drinking Water Analytical Methods

EPA Method 537.1

- 18 PFAS Compounds

EPA Method 533

- 25 PFAS Compounds

Both include PFOA, PFOS, GenX, PFBS, PFNA, and PFHxS

Practical Quantitation Limit (PQL) for 6 PFAS between 2 – 4 ppt



What Constitutes an MCL Exceedance?

4 QRAA exceeds
PFOA MCL

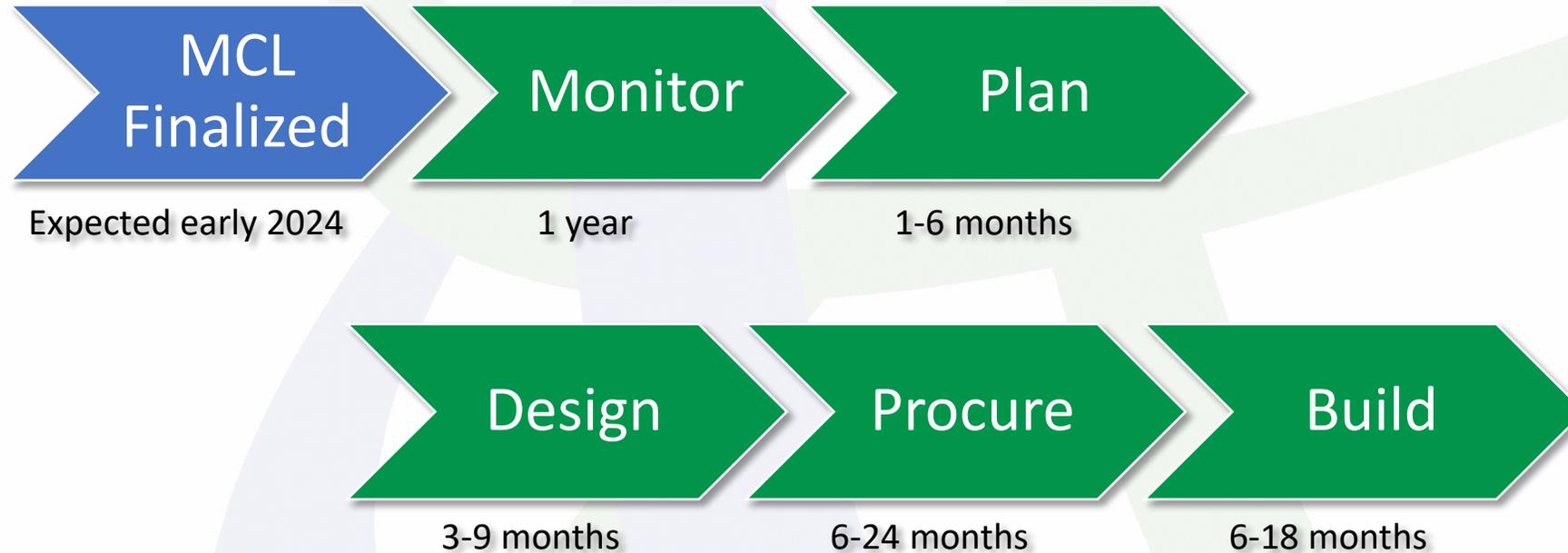
Single sample is 4x
MCL at any
sampling point

MCL
Exceedance

4 QRAA exceeds
PFOS MCL

4 QRAA exceeds
PFAS HI

Compliance Timeline



- 3 years to comply with MCL, additional extension(s) possible
- Equipment lead time up to 24 months (vessels, electrical)
- Continue to make notification if > MCL

Compliance Extensions

- All systems - 2 additional years for capital improvements
- Compelling factors (disadvantaged community) – 3 additional years
- Small systems (< 3,300 people) which need financial assistance for improvements
 - Up to three additional 2-year exemptions

**Don't
count on it**



**Act
Now**

Primacy Requirements

Primacy = States or Indian Tribes

Primary enforcement responsibilities:

- ☑ Adopt MCLs no less stringent
- ☑ Enforce
- ☑ Recordkeeping
- ☑ Issue variances and exemptions*
- ☑ Emergency planning*
- ☑ Revised program to EPA for approval within 2 years



***May require unique knowledge of PFAS concerns not typical for other MCLs**



MCLs

MCL vs HI

Other State
MCLs

Monitoring

QRAA

Trigger Rule
triennial
monitoring

Timeline

Act Now



Funding Options

Funding Options

Bipartisan Infrastructure Law (BIL)

- \$4B through Drinking Water State Revolving Funds
 - 25% (\$1B) to disadvantaged communities or PWS < 25,000 people
- \$5B as grants through EC-SDC Grant Program
 - \$2B appropriated in February 2023
 - No cost share or match requirement
 - Small PWS < 10,000 people or disadvantaged
 - 2% (\$20M) for Tribes

<https://www.epa.gov/dwcapacity/emerging-contaminants-ec-small-or-disadvantaged-communities-grant-sdc>

BIL EC FUNDING SOURCES COMPARISON		
Programs		
Clean Water State Revolving Fund Bipartisan Infrastructure Law Emerging Contaminants Funding (CWSRF EC) 	Drinking Water State Revolving Fund Bipartisan Infrastructure Law Emerging Contaminants Funding (DWSRF EC) 	Emerging Contaminants Small and Disadvantaged Communities (EC-SDC) Grant Program 
Who is eligible for funding?		
Funding is allocated to states, who then will award the funds to eligible entities. Eligible entities are dependent on the project type and may include: municipalities, intermunicipal, interstate, or state agencies; non-profit entities; private, for-profit entities; watershed groups; community groups; homeowner's associations; and individuals.	Funding is allocated to states, who then will award the funds to eligible entities. Eligible entities include: <ul style="list-style-type: none">• Public or private community water systems. A community water system is a public water system that serves at least 15 service connections used by year-round residents, or regularly serves at least 25 year-round residents.• Non-profit non-community water systems. A non-profit non-community water system is a public water system that is not a community water system and is owned and operated as a non-profit entity (e.g., a school). The non-profit entity could also be government owned.	States apply for funding. Using this funding, states administer grants, which are made available for eligible entities. Eligible entities are privately- and publicly-owned community water systems and non-profit non-community water systems that serve small and/or disadvantaged communities. <ul style="list-style-type: none">• Small¹• Disadvantaged is determined by affected criteria under the Safe Drinking Water Act (SDWA), SDWA 1452.
How are disadvantaged communities defined?		
CWA section 603(j) requires states to establish affordability criteria based on income, unemployment data, population trends, and other data determined relevant by the state. Affordability criteria varies by state.	Under SDWA 1452(d), states are required to define "disadvantaged community" for their DWSRF program. The definition of disadvantaged community varies by state.	Disadvantaged is determined by affected criteria under SDWA 1452. The definition of disadvantaged community varies by state.
What are the general financial requirements?		
<ul style="list-style-type: none">• States are required to provide funding from this appropriation to eligible entities as forgivable loans, grants, or a combination of both. States may mix these funds with other CWSRF funding to create a funding package (i.e., assistance agreement) that may include repayable financing.• No state match required.• States may use up to 2% of funding to provide technical assistance to small, rural, and tribal publicly-owned treatment works.	<ul style="list-style-type: none">• States are required to provide funding from this appropriation to eligible entities as forgivable loans, grants, or a combination of both. States may mix these funds with other DWSRF funding to create a funding package (i.e., assistance agreement) that may include repayable financing.• No state match required.• States have the flexibility to take DWSRF set-asides from this appropriation for non-infrastructure support for the state and water systems. The set-asides must be used to administer the grant or serve the primary purpose of this funding (i.e., addressing emerging contaminants).	<ul style="list-style-type: none">• 100% of funding will be provided to eligible entities as grants.• No state match required.• Up to 3% of funding may be used for program related salaries, expenses, and administration.
<small>¹"Small" refers to communities that have a population of less than 10,000 individuals and lack the capacity to incur sufficient debt to finance the project.</small>		

Funding Options

3M Class Action Settlement

- \$10B+ settlement for public drinking water systems
- Opt-out deadline passed (12/11/23)
- Final Fairness Hearing (2/2/24)
- Phase One PWS Settlement Claim Form – 60 days after Effective Date

<https://www.pfaswatersettlement.com/>

Environmental Finance Center Network

<https://efcnetwork.org/resources/funding-tables/>





MCLs

6 PFAS

MCL vs HI

Other State
MCLs

Requirements

QRAA

Trigger Rule

Primacy

Act Now!

We are just
getting
started.

Don't wait!

Secure
funding

EFCN

Leverage your
local EFCN
chapter

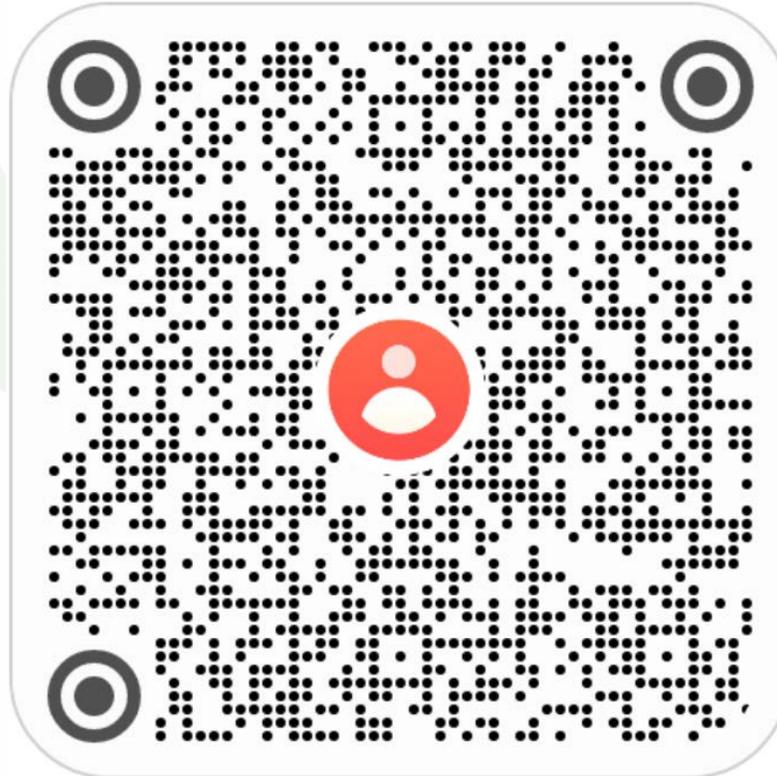
Questions?

Speaker Contact Information

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Thank you!

**Environmental Finance
Center Network**



Southwest EFC

