Per- and Polyfluoroalkyl Substances (PFAS) Rule

Matt Munro

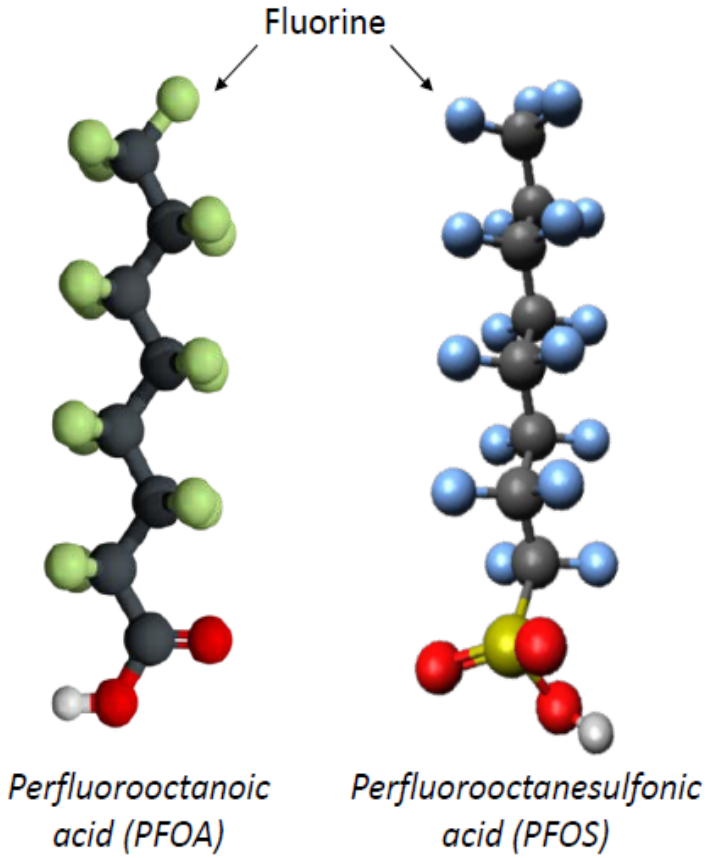
Outline

- Contaminant information
- Sampling data
- Reprocessing samples
- National Primary Drinking Water Regulation (NPDWR)
- Compliance Timeline
- Treatments

What is PFAS?

- Per- and polyfluoroalkyl substances
- PFAS are a category of manufactured chemicals with widespread use since the 1940s
- PFAS generally break down extremely slowly in the environment; highly persistent
  - Half-life of long-chain PFAS, such as PFOS, in the human body is upwards of 5 years
- Emerging contaminant

Per- and Polyfluoroalkyl Substances (PFAS)



P Phelps, L. (2020, August 4). Per- & polyfluoroalkyl substances (PFAS) [Slide show]. nelac-institute.org.

- Synthetic chemical chains of carbon atoms surrounded by fluorine
- Used widely in commercial and consumer products
- Known to be PBT
  - **P**ersistent
  - **B**ioaccumlative
  - **T**oxic

Common PFAS Sources

Non-stick cookware

Stain resistance products

Firefighting foams

Pesticides

Fast food packaging

Electronics & Manufacturing

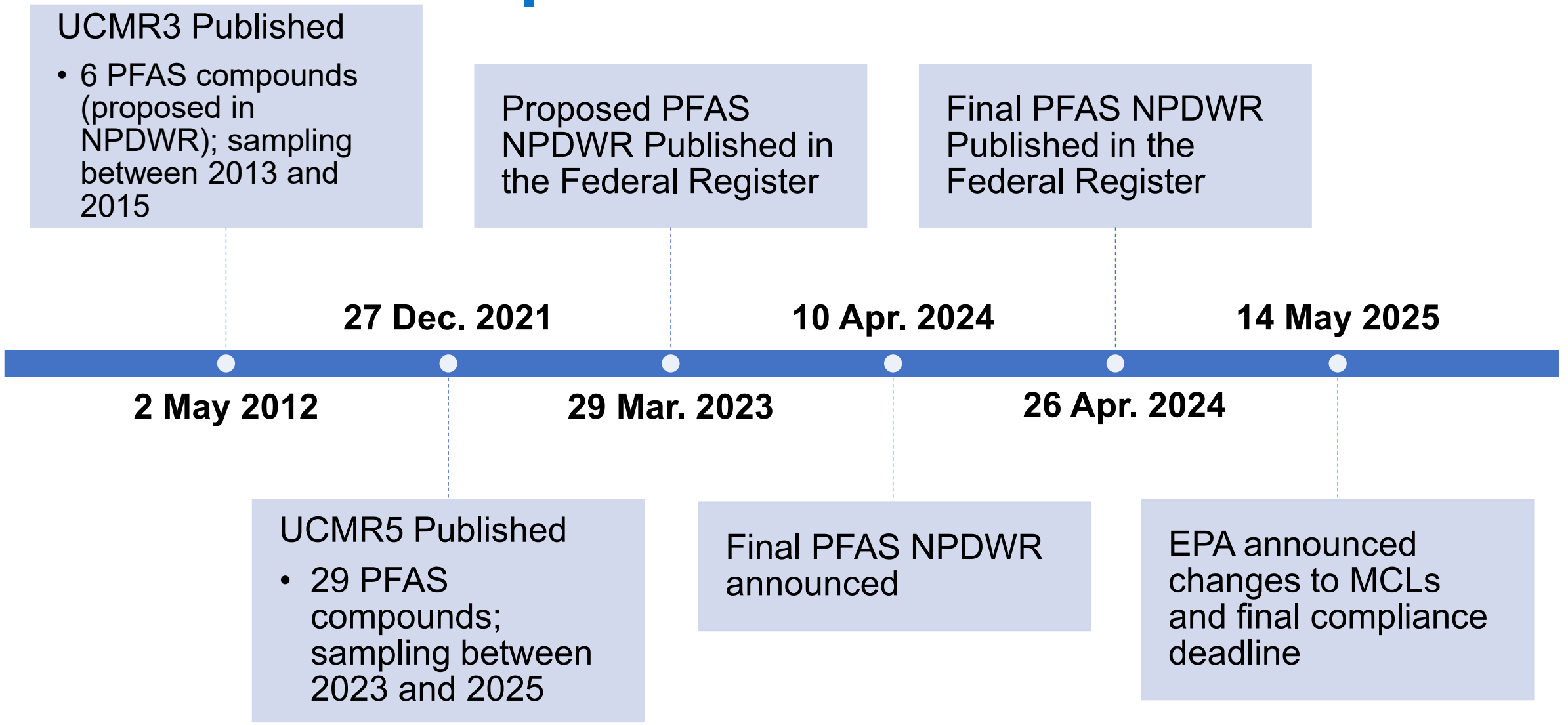
Possible Exposure

- Firefighting and manufacturing
- Drinking water
- Certain foods, such as fish
- Soil and dust ingestion
- Products/packaging

Health Effects

- Reproductive Effects
- Developmental effects in children
- Increased risk of Some Cancers
- Reduce immune response

PFAS Rule: Important Dates



PFAS Sampling in Texas

Overview of PFAS Sampling in Texas

- Unregulated Contaminant Monitoring Rule (UCMR)
  - Third Unregulated Contaminant Monitoring Rule (UCMR3)
  - Fifth Unregulated Contaminant Monitoring Rule (UCMR5)
- PFAS Occurrence Monitoring – Contaminants of Emerging Concern

UCMR Sampling

UCMR 3

- 2013-2015
- 6 PFAS chemicals
- All PWS with population >10,000
- 142 PWS with population <10,000

UCMR 5

- 2023-2025
- 29 PFAS chemicals
- All PWS with population >3,300
- 106 PWS with population <3,300

UCMR5 Data Breakdown (As of March 2025)

Samples	Samples with Detects	Samples with Regulated Detections (PFOA and PFOS)	Exceeding MCL
5637	1588	260	260

TCEQ PFAS Monitoring Data Breakdown

Fiscal Year	Samples	Samples with Detects	Samples with Regulated Detections (PFOA and PFOS)	Exceeding MCL
FY22	553	228	88	28
FY23	875	65	56	22
FY24	879	18	11	1
FY25	486	19	15	8

Reprocessing Previously Collected Samples

UCMR5 Monitoring Data

- Labs analyzing samples for UCMR5 only report data at or above UCMR5 MRLs to the EPA
- Lower-level results could support compliance monitoring frequency determinations
  - UCMR5 data may need to be reprocessed to produce lower-level results that reach to trigger levels

UCMR5 Monitoring Data (cont.)

- For small systems serving 10,000 or fewer, EPA is working with EPA-contracted lab to reprocess UCMR5 data
  - Will be provided to the small systems
- For large systems serving more than 10,000, the system needs to contact their UCMR5 lab and request they reprocess the data, if using for initial monitoring

Rule Trigger Levels

Contaminant	MCL (ppt or ng/L)	Trigger Level (ppt or ng/L)	PQL (ppt or ng/L)
PFOA	4.0	2.0	4.0
PFOS	4.0	2.0	4.0

PFAS Monitoring Data Reporting

- For UCMR5 labs that cannot meet method data quality objectives (DQOs) for reprocessed data, the lower-level data should be reported as a numeric value and notated with a qualifier flag
  - Qualified data are not used to demonstrate compliance with MCLs
  - Only for scheduling purposes

National Primary Drinking Water Regulation

PFAS National Primary Drinking Water Regulation (NPDWR) Overview

- Applies to Community (CWS) and Non-transient, Non-Community (NTNC) Water Systems
- Maximum Contaminant Level Goals (MCLGs) and Maximum Contaminant Levels (MCLs) for two PFAS:
  - PFOA and PFOS
- PWS Requirements:
  - Monitoring and reporting
  - Public notification
  - Reduce levels exceeding standards

MCLs and MCLGs

PFAS Compound	MCLG	MCL
PFOA (perflurooctanoic acid)	0 ppt	4.0 ppt
PFOS (perfluorooctane sulfonic acid)	0 ppt	4.0 ppt

Monitoring Requirements - Initial

Groundwater with population 10,000 or fewer

- 2 samples/year at each entry point to the distribution system (EPTDS) collected 5 to 7 months apart

Groundwater with population greater than 10,000

- 4 samples/year at each EPTDS collected 2 to 4 months apart

Surface water or Groundwater under Influence of Surface Water

- 4 samples/year at each EPTDS collected 2 to 4 months apart

Initial Monitoring Requirements- Previous Data

- May use previous data if:
  - Sampling was conducted according to specific data quality assurance criteria as part of UCMR5, state sampling, or other appropriate monitoring efforts using EPA methods 533 or 537.1
  - Samples were collected on or after January 1, 2019

Initial Monitoring Requirements- Additional Samples

- Systems may need to collect additional samples in a different calendar year to supplement existing data
- Example: large GW PWS using their UCMR5 data from their 2 UCMR5 samples will need to take an additional 2 samples to meet initial monitoring
  - UCMR5 samples collected in February and August
  - PWS would need to take 1 additional sample in April, May or June and another sample in October, November, or December

Initial Monitoring Requirements- Recent Data

- The most recent initial monitoring data will be used to determine a systems compliance schedule
- If water systems have multiple years of data, the most recent data must be used

Monitoring Requirements - Reduced

- If Initial monitoring results are below rule trigger level which is one-half (1/2) of the MCLs, PWS is eligible for reduced monitoring.
  - 2 ppt for PFOA and PFOS
- Entry point specific determination

All Water Systems

- 1 sample every 3 years (EPTDS)

Monitoring Requirements - Exceedance

Quarterly Monitoring

- Sample(s) greater than or equal to rule trigger level at EPTDS
  - 2 ppt for PFOA and PFOS

Rule Violation

- Rule violation if running annual average at EPTDS is greater than MCL

Monitoring Requirements – Reduced After Exceedance

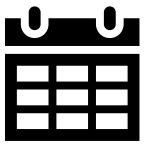
- After four consecutive quarterly sample results below the MCLs, EPTDS can go to annual monitoring
- After three consecutive annual samples below the rule trigger levels for all regulated PFAS, EPTDS can be reduced to 1 sample every 3 years

Public Notification Requirements

(MCL) Tier 2 notification	• Notice as soon as possible, but within 30 days of violation
(M&R) Tier 3 notification	• Notice as soon as possible, but within one year of violation.
Annual Consumer Confidence Report	• Level of PFAS • Health Effects language • Can include Tier 3 notification

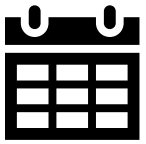
PFAS Rule: Important Dates

WITHIN 3 YEARS (By 2027)



- CWSs and NTNCWSs must conduct initial monitoring or obtain approval to use previously collected monitoring data

AT 3 YEARS (Starting 2027)



- CWSs and NTNCWSs must start their ongoing compliance monitoring
- CWSs and NTNCWSs must include results of their monitoring for the regulated PFAS in their Consumer Confidence Reports (CCRs)
- CWSs and NTNCWSs must start issuing public notification for any monitoring and testing procedure violations

AT 7 YEARS (Starting 2031)

- CWSs and NTNCWSs must comply with all regulated PFAS maximum Contaminant Levels (MCLs)
- CWSs and NTNCWSs must provide public notification for violations of the PFAS MCLs

Treatment Options

- PWSs with PFAS levels exceeding the MCL(s) would be required to install treatment or consider other options such as source remediation or connection to an uncontaminated source)
- EPA is proposing best available treatments (BAT) for PFAS removal from drinking water:

Treatment Method	Pros	Cons
Granular Activated Carbon (GAC)	• Better at removing long-chain PFAS • Less energy intensive than RO • Media may be replaced	• Less effective for short-chain PFAS • Pressure vessel or independent treatment unit must be added • Media disposal may be an issue
Anion Exchange (AIX)	• Short-chain PFAS are more likely to be removed	• Disposal of the resin is an issue
Nanofiltration/ Reverse Osmosis (NF/RO)	• Effective in removing long and short-chain PFAS	• Energy intensive and costly • Disposal of wastes may add to cost

Technical Review and Oversight Team Contact Information

Technical Review and Oversight Team

PTRS@tceq.texas.gov

(512) 239-1067

Additional Assistance

- Financial, Managerial, and Technical (FMT) Assistance Program
  - Contracted with Texas Rural Water Association to provide free onsite or remote assistance.
  - Capacity Assessments, Consolidation Assessments, Operator training, etc.

Email: fmt@tceq.texas.gov

Phone: (512) 239-1076

Contact Information

Matt Munro

Matthew.Munro@tceq.texas.gov

(512) 239-5821

Drinking Water Quality Team

PWSPFAS@tceq.texas.gov

(512) 239-1064