



PFAS – Impacts to Water Utilities

Presentation to the Water Planning Council Advisory Group
April 16, 2024

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Per- and Polyfluoroalkyl Substances (PFAS) Are a Group of Manufactured Chemicals

- PFAS are a group of manufactured chemicals that have been used in industry and consumer products since the 1940s because of their useful properties. There are thousands of different PFAS, some of which have been more widely used and studied than others. Examples include:
 - 1950s - Teflon developed by Dupont and Scotchgard developed by 3M
 - 1960's and 1970s - 3M develops “aqueous film-forming foam” (AFFF), a firefighting foam containing PFOS and PFOA which was used widely starting in the 1970s.
- Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS), for example, are two of the most widely used and studied chemicals in the PFAS group. PFOA and PFOS have been replaced in the United States with other PFAS in recent years.
- One common characteristic of concern of PFAS is that many break down very slowly and can build up in people, animals, and the environment over time.

PFAS Regulatory Timeline for Drinking Water

- EPA issues a non-enforceable “lifetime drinking water health advisory,” recommending a maximum of 200 parts per trillion for PFOS and 400 ppt for PFOA (2009)
- The EPA issues a far stricter lifetime health advisory level for PFOA and PFOS in drinking water: 70 ppt (2016).
- States issue local maximum contaminant levels and drinking water action levels
- Connecticut Department of Health issues Drinking Water Action Levels
- EPA proposes regulation of six PFAS, which is expected to be issued in April 2024

Regulatory Limits - all values in ug/L or parts per trillion (ppt)

Region	Type of Limit	PFOA	PFOS	GenX	PFBS	PFNA	PFHxS	PFHpA	PFDA	6:2 Cl- PFESA	8:2 Cl- PFESA	PFHxA	PFBA
USEPA	proposed	4	4	10(a)	2000(a)	10(a)	9(a)						
MA	enforceable	(b)	(b)			(b)	(b)	(b)	(b)				
NH	enforceable	12	15			11	18						
CT	action levels (non-enforceable)	16	10	19	760	12	49			2	5	240	1800

(a) Proposed to be regulated as a group under a "Hazard Index".

(b) In MA, 20 ppt limit on total of six PFAS.

Number of Systems by Category in CT and Population

CWS	489 systems with an estimated population of 2,767,855
TNCWS	480 systems with an estimated population of 98,309
NTNCWS	1,395 systems with an estimated population of 60,522

Water System Definitions

A community water system (CWS) supplies water to the same population year-round. It serves at least 25 people at their primary residences or at least 15 residences that are primary residences (for example, municipalities, mobile home park, sub-divisions).

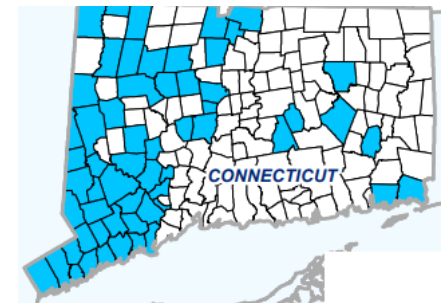
Non-community water systems are composed of transient and non-transient water systems.

- Transient non-community water systems (TNCWS) provide water to 25 or more people for at least 60 days/year, but not to the same people and not on a regular basis (for example, gas stations, campgrounds).
- Non-transient non-community water systems (NTNCWS) regularly supply water to at least 25 of the same people at least six months per year, but not year-round (for example, schools, factories, office buildings, and hospitals which have their own water systems).

Aquarion Water Systems in CT and PFAS Treatment Costs

Water System Type	No of Systems	Number of Water Systems with Detectable Levels of PFAS	Number of Water Systems with PFOA or PFOS Levels above 4 ppt
Community Water Systems	69	47	31
Non Transient Non-Community Water Systems	4	3	1
Total	73	50	32

Aquarion's Preliminary Estimate of Capital Costs for PFAS Treatment is \$260 M to \$280 M



PFAS Impacts by Point of Entry - Aquarion Water Systems in CT

- ✓ Tier 1 (PFOA /PFAS \geq 8 ppt)
 - 7 Points of Entry

- ✓ Tier 2 ($6 \leq$ PFOA/PFAS $<$ 8 ppt)
 - 8 Points of Entry

- ✓ Tier 3 ($4 \leq$ PFOA/PFAS $<$ 6 ppt)
 - 20 Points of Entry

- ✓ Tier 4 (PFOA /PFAS $<$ 4 ppt)
 - 15 Points of Entry



Funding Opportunities and Aquarion Project Funding Summary

Drinking Water State Revolving Fund

- The BIL provides for three (3) additional DWSRF awards to states in each of Federal Fiscal Years 2022-2026:**Supplemental Capitalization Award** – an additional capitalization grant that can be used for any eligible DWSRF drinking water project
- **Emerging Contaminant Award** – a capitalization grant that can be used only to address emerging contaminants in drinking water with a focus on poly and perfluoroalkyl substances (PFAS/PFOA)
- **Aquarion Project Funding Summary**

Project	State	Eligible Project Costs	Estimated Subsidy	Loan/Internal Funds
Cedar Heights Interconnection	CT	\$3,613,462	\$1,000,000	\$2,613,462
Craigmoor Interconnection	CT	\$3,504,672	\$1,000,000	\$2,504,672
New Fairfield PFAS Treatment	CT	\$1,489,043	\$1,000,000	\$489,043
Pleasant View Interconnection	CT	\$3,163,750	\$1,000,000	\$2,163,750
Oak Pond	MA	\$3,500,000	\$875,000	\$2,625,000
Mill Road Well 6	NH	\$1,854,740	\$1,772,994	\$81,746
Total		\$17,125,667	\$6,647,994	\$10,477,673

3M and Dupont Settlement Terms

Company	3M	Dupont	Notes
Settlement Amount	\$10.3 to \$12.5 B	\$1.195 B	Settlement Amounts are Separated into two Phases
Phase 1 - Eligibility	Community Water Systems with PFAS detected before June 23, 2023	Community Water Systems with PFAS detected before June 30, 2023	
Phase 2 – Eligibility	Community Water Systems to test under UCMR5 or serve more than 3,300 people	Community Water Systems to test under UCMR5	
Opt Out Dates	12/11/2023	12/4/2023	
Submission Dates	TBD	TBD	Waiting on Court Decisions
Excluded Water Systems	TNC and NTNC Water Systems Serving Less than 3,300 people		

3M and Dupont Settlement Terms

Evaluating Potential Cost Recovery

- Source Information Required:
 - Total Daily Flow and Max Daily Flow Rate from 2013-2022
 - PFAS Laboratory Test Results

For illustration purposes only; not reflective of actual allocation awards

3M Public Water Provider Settlement Estimated Allocation Range Table

Each cell in the Table represents an estimated allocation *PER IMPACTED WATER SOURCE (per groundwater well or surface water source)*. The Settlement Class consists of Public Water Systems, which may and often do have multiple wells or water sources, each of which would be calculated individually and added up to arrive at the total.

IMPACTED WATER SOURCE
means a Water Source that has a "qualifying" Test Result showing a Measurable Concentration of PFAS.
See the Settlement Agreement for defined terms.

		Adjusted Flow Rate (gpm)											
		0	100	250	500	1,000	1,500	5,000	10,000	25,000	50,000	100,000	300,000
PFAS SCORE	2		\$36,240	\$70,013	\$115,244	\$189,694	\$253,898	\$603,369	\$993,106	\$1,918,881	\$3,157,910	\$5,196,296	\$11,436,561
	4		\$145,785	\$281,723	\$463,713	\$763,253	\$1,021,550	\$2,427,216	\$3,994,261	\$7,714,149	\$12,687,352	\$20,855,641	\$45,758,953
	10		\$148,252	\$286,489	\$471,559	\$776,166	\$1,038,832	\$2,468,269	\$4,061,800	\$7,844,507	\$12,901,569	\$21,207,290	\$46,527,259
	50		\$164,724	\$318,320	\$523,950	\$862,394	\$1,154,236	\$2,742,397	\$4,512,775	\$8,714,863	\$14,331,681	\$23,554,481	\$51,652,815
	100		\$185,313	\$358,108	\$589,437	\$970,176	\$1,298,484	\$3,085,022	\$5,076,399	\$9,802,456	\$16,118,368	\$26,485,901	\$58,047,466
	250		\$247,082	\$477,467	\$785,890	\$1,293,499	\$1,731,188	\$4,112,663	\$6,766,639	\$13,062,886	\$21,472,088	\$35,263,074	\$77,149,868
	500		\$350,027	\$676,390	\$1,113,285	\$1,832,294	\$2,452,225	\$5,824,623	\$9,581,606	\$18,489,120	\$30,373,873	\$49,834,987	\$108,717,963*
	750		\$452,968	\$875,299	\$1,440,643	\$2,370,993	\$3,173,089	\$7,535,613	\$12,393,952	\$23,905,608	\$39,249,406	\$64,336,461*	\$139,954,105*
	1000		\$555,906	\$1,074,195	\$1,767,967	\$2,909,596	\$3,893,781	\$9,245,635	\$15,203,680	\$29,312,376	\$48,098,804*	\$78,768,005*	\$170,863,503*

*While the available data has not revealed any Impacted Water Source with the values in the shaded cells, and any such Impacted Water Source would be an anomaly, the Table is designed to account for and estimate any scenario that could occur as a result of the Allocation Procedures.

EPA Proposal

- EPA is proposing to designate PFOA and PFOS as Hazardous Substances under CERCLA (Comprehensive Environmental Response, Compensation and Liability Act)
- The designation establishes liability for current and future owners, operators, generators, transporters and other parties. This will impact not just manufacturers but rather any entity that handles PFAS can be held liable for recovery and remediation costs.

Passive Receivers of PFAS

- Passive Receivers, water and wastewater utilities, are entities that do not contribute to PFAS contamination and merely receive materials that contain PFAS. Water and wastewater utilities are vulnerable to CERCLA liability due to their role in receiving, filtering and disposing of PFAS.

What is Needed?

- Liability exemption need at the state and federal level. Exemptions have been proposed in the US Senate (S.1430 – Water System PFAS Liability Protection Act)



Final Questions and Comments