

Per- and Polyfluoroalkyl Substances (PFAS)

Summary of State Policies to Protect Drinking Water

PFAS and U.S. Drinking Water

Per- and polyfluoroalkyl substances (PFAS) are a large group of environmentally persistent, man-made chemicals used in industrial and commercial household uses including firefighting activities, stain repellents, and non-stick cookware. Currently there are over 600 PFAS compounds that the EPA has approved for sale or import into the United States. Due to their widespread use, PFAS are being found at low ambient levels in the environment.

As concern over PFAS contamination grew, the United States Environmental Protection Agency (EPA) included six PFAS as part of the third Unregulated Contaminant Monitoring Rule and public water systems (PWSs) began monitoring these PFAS in finished drinking water supplies across the U.S. Two PFAS, perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA), were found to be present in finished drinking water of approximately 1.3% of PWSs at levels that exceed the EPA's 2016 health advisory level of 70 nanograms per liter (ng/L) for perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS), individually or combined.

The EPA and Agency for Toxic Substances and Disease Registry (ATSDR) both report that the most consistent health effect from PFAS exposure is increased cholesterol levels. There are more limited findings related to effects on the immune system, cancer, and low infants birth weights. The EPA published Interim Recommendations for Addressing Groundwater Contaminated with PFOA and PFOS in December 2019. The recommendations include a screening level of 40 ng/L for both PFOA and PFOS and a preliminary remediation goal of 70 ng/L (combined for PFOA and PFOS) for impacted drinking water supplies. In March 2020, the EPA published a preliminary positive determination to regulate PFOA and PFOS under Safe Drinking Water Act and requested input on potential additional PFAS for consideration. Individual states have taken regulatory actions in lieu of waiting for federal regulatory action.

State Regulatory Activities

The following tables provide a summary of state regulation for PFAS to protect drinking water. Table 1 provides an overview of the relevant state policies applicable to drinking water; Table 2 provides an overview of the relevant policies for sources of drinking water.

Additional AWWA Resources

The following resources can be accessed on our [PFAS Resource webpage](#).

- Technical fact sheets covering "Overview and Prevalence", "Sampling, Monitoring, and Analysis", and "Treatment"
- AWWA's Testimony to United States House and Senate on PFAS
- Relevant Journal of AWWA articles or standards
- Other related resources

Abbreviations

GenX – Hexafluoropropylene oxide dimer acid

PFBA – Perfluorobutanoic acid

PFHpA – Perfluoroheptanoic acid

PFOS – Perfluorooctanesulfonic acid

PFHxA – Perfluorohexanesulfonic acid

PFDA – Perfluorodecanoic acid

PFOSA – Perfluorooctanesulfonamide

PFBS – Perfluorobutanesulfonic acid

PFOA – Perfluorooctanoic acid

PFHxA – Perfluorohexanoic acid

PFNA – Perfluorononanoic acid



Table 1: State Policies for PFAS in Drinking Water (August 1, 2020)

Policy	Status	State	Date	Drinking Water Limit (ng/L or ppt)											
				Sum	GenX	PFBA	PFBS	PFHpA	PFHxA	PFHxS	PFOA	PFOS	PFNA	PFDA	Other
Maximum Contaminant Levels (MCLs)	Effective	Michigan	July 2020				1,000		84		9	8	9		
		New Jersey	September 2018										13		
			March 2020								14	13			
		New Hampshire (i)	July 2020						18		12	15	11		
	Proposed	Vermont (ii)	May 2019	20					*	*	*	*	*		
		Massachusetts	December 2019	20					*	*	*	*	*	*	
		New York	July 2019								10	10			
	Pre-Proposal	Connecticut	November 2019	To Be Determined											
		Maine	January 2020	70					*	*	*	*	*		
		Pennsylvania	September 2018	To Be Determined											
		Rhode Island	November 2019	To Be Determined											
		Virginia	April 2020	To Be Determined											
		Wisconsin	August 2019								*	*			
Non-MCL Standards	Effective	Alaska (iii)	October 2019	70							*	*			
		California (iv)	February 2020								10	40			
			August 2019								5.1	6.5			
		Connecticut (v)	December 2016	70							*	*			
	Pre-Proposal	Ohio	December 2019	70	700		140,000		140		*	*	21		
		Washington (vi)	November 2019				1,300		70		10	15	14		
Drinking Water Guidance	Effective	Maine	January 2017	70							*	*			
		Massachusetts	January 2020	20					*	*	*	*	*		
		Michigan	February 2019		370		420	400,000	51		8	16	6		
		Minnesota	April 2019									15			
			April 2019						47						
			August 2017			7,000									
			December 2017				2,000								
			May 2017								35				
		North Carolina	July 2017		140										
		Vermont	March 2020	0					*	*	*	*	*		

* Compounds with this symbol shown are included in a group limit.

(i) New Hampshire Department of Environmental Services (NHDES) filed a final rule September 2019, but on December 31st, 2019 the Merrimack County Superior Court issued a preliminary injunction barring enforcement of these rules due to alleged failure by NHDES to consider the costs and benefits of the rules. In July 2020 New Hampshire lawmakers passed a bill establishing the limits as proposed.

(ii) Interim drinking water MCL established by State Legislature May 2019. Final rulemaking filed March 2020.

(iii) Alaska Department of Environmental Conservation issued drinking water action levels. When these are exceeded, responsible parties must provide corrective actions to address contamination of wells.

(iv) California has established response (February 2020) and notification levels (August 2019) for PFOA and PFOS. For water systems with PFOA or PFOS exceeding response levels, the State requires that the system remove the well from service, provide treatment, or notify their customers in writing. Systems with levels exceeding the notification level are required to notify governing bodies and State Water Board and encouraged to test water sources and notify customers.

(v) Connecticut's Department of Public Health has established drinking water action levels. When these are exceeded, Connecticut Department of Energy and Environmental Protection (CT DEEP) may address contamination

(vi) Washington is developing rule language to establish State Action Levels, which would require corrective actions similar to an MCL.

Note

Please note that, due to the dynamic nature of this topic, this document is intended to serve only informational purposes. Interested parties are encouraged to contact appropriate regulatory authorities to verify current and application regulations for specific projects.



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Table 2: State Policies for PFAS in Drinking Water Sources (May 1, 2020)

Policy	Media	Status	State	Year	Drinking Water Limit (ng/L or ppt)											
					Sum	GenX	PFBA	PFBS	PFHpA	PFHxA	PFHxS	PFOA	PFOS	PFNA	PFDA	Other
Cleanup Standard	Groundwater	Effective	Colorado (i)	June 2018	70							*	*			
			Connecticut	December 2016	70					*	*	*	*	*		
			Iowa (ii)	July 2019	70			140,000				*	*			
			Maine	October 2018	400			400				*	*			
			Massachusetts	December 2019	20					*	*	*	*	*	*	
			Michigan	June 2018	70							*	*			
			Nebraska (ii)	September 2018	70							*	*			
			New Hampshire (iii)	September 2019						18		12	15	11		
				May 2016	70											
			New Jersey	January 2018										13		
				March 2020								14	13			
			North Carolina	December 2006								2,000				
			Rhode Island	January 2019	70							*	*			
			Texas (ii, iv)	September 2014			71,000	34,000	93	93	560	290	290	290	370	(v)
			Vermont	December 2016	20							*	*			
		Proposed	Illinois	February 2020	21			140,000		140		21 / *	14 / *	21		
			Wisconsin	June 2019	20							*	*			
		Pre-Proposal	Florida	September 2019	70							*	*			
			Wisconsin (v)	October 2019	To be Determined											
	Surface Water & Groundwater	Effective	Alaska (vi)	October 2018	70							*	*			
			Montana	June 2019	70							*	*			
		Proposed	Alaska	October 2018	70			400,000		*	*	*	*	*		
			Michigan	October 2019								8	16			
	Surface Water	Effective	Michigan	2011								420				
				2014									11			
			New Jersey (vii)	2020								*	*	*		
			Oregon	2011							300,000	24,000	300,000	1,000		
		Pre-Proposal	Vermont	May 2019	To Be Determined					*	*	*	*	*	To Be Determined	
Cleanup Guidance	Groundwater	Effective	California	May 2020								5.1	6.5			
			Delaware	February 2018	70			40,000				*	*			
			Indiana	March 2020				400,000								
			Nevada	July 2017				667,000				667	667			
		Proposed	Pennsylvania	February 2020	70			690,000				*	*			
			Wisconsin	June 2019	2							*	*			

* Compounds with this symbol shown are included in a group limit.

(i) Colorado has established a site-specific groundwater quality standard for the El Paso Aquifer (Colorado Springs) area.

(ii) Iowa, Nebraska, and Texas have established groundwater cleanup levels that are required under voluntary remediation programs. Reduction of PFAS to specified levels is required to receive “No Further Action” certification from the State.

(iii) New Hampshire Department of Environmental Services (NHDES) filed a final rule September 2019, but on December 31st, 2019 the Merrimack County Superior Court issued a preliminary injunction barring enforcement of these rules due to alleged failure by NHDES to consider the costs and benefits of the rules. Until further action, the existing rules are effective.

(iv) Texas’s groundwater clean-up target levels standard also includes a 93 ppt limit perfluoropentanoic acid (PFpTA) and a 290 ppt limit for each of the following PFASs: perfluorooctanesulfonamide (PFOSA), perfluorododecanoic acid (PFDoA), perfluorotetradecanoic acid (PFTA), perfluorotridecanoic acid (PFTrDA), perfluoroundecanoic acid (PFUnA), and perfluorodecane sulfonic acid (PFDS).

(v) As part of Cycle 11, Wisconsin Department of Natural Resources requested standards for an additional 30 PFAS.

(vi) Alaska Department of Environmental Conservation has issued action levels for PFOA and PFOS in drinking water which extend to groundwater and surface water used for drinking water and require corrective action.

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