EPA Proposes Drinking Water Regulations for Six PFAS

WHAT ARE THE PROPOSED MCLS?

On 14 March 2023, the United States Environmental Protection Agency (USEPA) announced that it is proposing maximum contaminant levels (MCLs) and MCL-goals (MCLGs) for six per- and polyfluoroalkyl substances (PFAS) in drinking water, shown below. PFOA and PFOS both have proposed MCLs of 4.0 parts per trillion (ppt) and proposed MCLGs of 0 ppt. An MCL is enforceable; the MCLG is a non-enforceable public health goal.

Compound	Proposed MCLG	Proposed MCL
Perfluorooctanoic acid (PFOA)	0 ppt	4.0 ppt
Perfluorooctane sulfonic acid (PFOS)	0 ppt	4.0 ppt
Perfluorononanoic acid (PFNA)	Hazard Index of 1.0 (unitless)[1]	Hazard Index of 1.0 (unitless)
Perfluorohexane sulfonic acid (PFHxS)		
Perfluorobutane sulfonic acid (PFBS)		
GenX Chemicals*		

*Note: "GenX Chemicals" refers to hexafluoropropylene oxide dimer acid (HFPO-DA) and its ammonium salt.

FUNDING OPPORTUNITIES

In February 2023, the USEPA announced that $2 billion of funding is available through President Biden's Infrastructure Law to help address PFAS and other emerging contaminants in drinking water in the United States. Individual states will collaborate with USEPA regional offices to apply for grant funding, with participating states encouraged to fill out their applications as soon as possible to grants.gov. These funds will assist: addressing PFAS in drinking water that would benefit a small or disadvantaged community; providing technical assistance to evaluate emerging contaminant issues; programs to provide household water-quality testing, including testing for unregulated contaminants; local contractor training; and activities necessary and appropriate for a state to respond to an emerging contaminant.

TIMING FOR ADOPTION OF PROPOSED MCLS

Public commenting[i] on these proposed MCLs is currently available for Docket ID No. EPA-HQ-OW-2022-0114, and the USEPA is requesting feedback from all stakeholders, including the public, water system managers, and public health professionals.

The final rule is expected to be announced by the USEPA by the end of 2023. Once the MCLs are finalized, primary standards go into effect after three years.

[1] For the other four PFAS listed above, the USEPA proposed regulating these as a mixture using a hazard index of 1.0 (unitless) for the MCLG and MCL. The hazard index is the sum of the hazard quotient for each compound; the hazard quotient is simply the measured concentration of the compound in drinking water divided by the corresponding contaminant's Health-Based Water Concentration (HBWC). Individual HBWCs for PFNA (10 ppt), PFHxS (9 ppt), PFBS (2,000 ppt), and GenX (10 ppt) are used in the equation below to calculate the Hazard Index:

$$\text{Hazard Index} = 1.0 = \frac{[\text{PFNA}](\text{ppt})}{10\text{ ppt}} + \frac{[\text{PFHxS}](\text{ppt})}{9\text{ ppt}} + \frac{[\text{PFBS}](\text{ppt})}{2{,}000\text{ ppt}} + \frac{[\text{GenX}](\text{ppt})}{10\text{ ppt}}$$

WHAT DOES THIS MEAN FOR PUBLIC WATER UTILITIES?

Once the MCLs to go into effect, the USEPA will require public water systems to:

- *Monitor for these six PFAS.*

Public water systems will need to develop and implement PFAS sampling and analysis plans. A system-specific sampling approach will be needed to ensure that the sampling is representative of water quality in the distribution system and, if needed, account for multiple and varying water sources. The sampling and analysis plans would specify the locations of sampling points, the frequency of sampling, procedures for sampling, and record keeping and reporting requirements. The sampling procedures would need to include specific measures to minimize PFAS contamination during sampling. For laboratory analyses, USEPA Methods 533 and 537.1 both include all six PFAS listed above for drinking water sampling. Public water systems would then need to review the data, and if PFAS are present above the MCLs in effect at the time, determine the sources and transport/transformation of PFAS, and identify potential solutions to reduce PFAS concentrations in drinking water provided to consumers.

- *Reduce the PFAS contamination if measured concentrations exceed the MCLs in effect.*

Reduction of PFAS contamination can include physical removal of PFAS from drinking water onto solid sorbents such as granular activated carbon or ion exchange, into concentrated liquids using reverse osmosis, or using novel sorbents such as DEXSORB+ to remove PFAS from the water. Public water system managers will also need to consider how to manage and dispose of sorbent media waste or concentrated PFAS liquid waste from treatment in accordance with current regulations. It is expected that PFOA and PFOS will be designated by the USEPA as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) by the Summer of 2023. This designation may result in the management of spent sorbent media or liquid waste as hazardous if contaminated with PFOA and/or PFOS.

- *Notify the public if PFAS concentrations in finished drinking water exceed the MCLs in effect.*

Similar to other Tier 2 exceedances, PFAS exceedances will require reporting to the public within 30 days, the details of which are summarized under the USEPA's Public Notification Rule, including a description of the violation, potential health impacts, and the population at risk.

WHAT'S NEXT?

In order to prepare for this ruling, public water utilities can:

- Test drinking water to determine the state of PFAS contamination and to assess the need, if any, for action;
- Assess and develop PFAS removal/treatment options if PFAS concentrations exceed proposed MCLs;
- Reach out to suppliers of required materials for PFAS removal/treatment early, as suppliers are experiencing long lead times;
- Consider options and cost implications for PFAS waste disposal; and
- Develop informative, educational content on PFAS history, current state of science, and suggestions for consumers to reduce PFAS exposure in their daily lives.

For questions or more information on how EKI can assist with your PFAS needs, please visit our PFAS webpage, or email our PFAS team leaders at PFAS@ekiconsult.com.

ABOUT THE AUTHORS

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Dr. Carpenter's recent work includes leading a PFAS impacted groundwater treatment study and providing technical support for detection of PFAS in a municipal groundwater supply. His doctoral research focused on emerging contaminant (including PFAS) measurement and treatment as well as chemical fate and transport in surface waters. Dr. Carpenter is published in peer-reviewed journals related to emerging contaminant identification, monitoring, and treatment as well as other surface water investigations.

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Dr. Cook joined EKI after graduate school, during which she gained extensive expertise studying the properties, transformation, and applied treatment strategies of PFAS. She investigated the destruction of PFAS using activated persulfate chemical oxidation, the biotransformation of PFAS precursors with various source zone co-contaminants, and the toxicity of PFAS on in situ bioremediation processes.

[i] https://www.regulations.gov/search/comment?filter=epa-hq-ow-2022-0114