

Per- and Polyfluoroalkyl Substances (PFAS) (PFNA,PFOA,PFOS,etc)

What are PFAS?

PFAS are a family of thousands of chemicals that vary widely in their chemical and physical properties, as well as their potential risks to human health and the environment. They are persistent, bio accumulative, and not easily broken down, and are water soluble. PFAS are a class of manmade chemicals that have been used to make fluoropolymer coatings and products that are oil and water repellent such as Teflon®, StainMaster® carpets, Tyvek®, Scotchgard®, and GoreTex®. They have also been used to make surfactants that are used in firefighting foams and mist suppressants for metal plating operations. Production by major US manufacturers of PFOA, PFNA, PFOS, PFHxS and other long chain homologues has ended. However, these compounds are still produced in other countries and can be contained in products available for purchase in the US.

What are the known health effects?

PFAS has been linked to issues affecting the liver, endocrine system, reproductive system, cardiovascular system, as well as immunological and developmental issues.

How does exposure occur?

PFAS are released to the air from a variety of sources and are dispersed throughout the world, leading to contamination of soils and surface water, and eventually ground water which can then end up in water supplies. PFAS also accumulate in plants from contaminated soils and groundwater, and in fish from surface waters. Additional exposure can occur from eating food that was packaged in material that contains PFAS, as well as using some consumer products such as non-stick cookware, stain resistant carpeting and water repellant clothing.

Is this contaminant regulated?

PFAS are not currently regulated in drinking water by USEPA; however, in 2016 USEPA issued a federal health advisory of 70 ppt (parts per trillion) combined for PFOA and PFOS. Then on June 15, 2022, USEPA modified the health advisory as follows:

USEPA interim health advisory for PFOA of 0.004 ppt

USEPA interim health advisory for PFOS of 0.02 ppt

USEPA final health advisory for GenX of 10 ppt

USEPA final health advisory for PFBS of 2,000 ppt

On March 14, 2023, the U.S. Environmental Protection Agency (EPA) announced its proposal to establish drinking water standards for per- and polyfluoroalkyl substances (PFAS). EPA is proposing MCLs for PFOA and PFOS of 4.0 ppt. EPA has also developed a “Hazard Index” for PFNA, PFBS, HFPO-DA (“GenX”) and PFHxS, which would combine concentrations for the four (4) PFAS, and establish a threshold above which action would be required.

EPA's proposed standards are summarized below:

Contaminant	2023 EPA Proposed Standards	2018 and 2020 NJDEP MCLs
PFOA	4.0 ppt (MCL)	14 ppt
PFOS	4.0 ppt (MCL)	13 ppt
PFNA	Combined 1.0 Hazard Index (unitless)*	13 ppt
PFBS		N/A
HFPO-DA(Gen X)		N/A
PFHxS		N/A

*Health-Based Water Concentrations (HBWCs), which will be utilized to calculate the combined Hazard Index for these 4 PFAS. The Hazard Index utilizes a formula comparing the concentration of each contaminant to these HBWCs. Action would be required when the Hazard Index, which is unitless, exceeds 1.0. The concentrations are 10 ppt for PFNA, 2000 ppt for PFBS, 10 ppt for HFPO-DA, and 9.0 ppt for PFHxS.

Note that this is just a proposal by the EPA. It may take several years for these standards to go into effect. Mt Laurel MUA will continue to monitor this situation and provide updates to our customers.

In 2019, NJDEP established limits in drinking water for some PFAS:

- PFNA 13 ppt, effective January 1, 2020 - No detections in water supplied to MLTMUA customers.
- PFOA 14 ppt, effective January 1, 2021 – Detected in the water supplied to MLTMUA customers with the highest level at 7.8 ppt from the WMUA supply source, which is in compliance with the NJDEP limit.
- **PFOS 13 ppt, effective January 1, 2021 – Detected in the water supplied to MLTMUA customers. Water purchased from WMUA had a maximum detection of 16 ppt from WMUA's well 5A (updated on 6/8/22 to 15.5 ppt); this exceeds the new NJDEP limit. However, since the water we receive is from a blend of sources (several of WMUAs wells), additional samples at the interconnection between our systems were performed. The highest test result at the point of entry into the Mount Laurel water distribution system was 12 ppt (updated on 1/10/24 to 8.2 ppt), which is below the NJDEP limit. Due to the exceedance of the limit within their piping system, WMUA will be required by NJDEP to either install treatment devices or remove the well from service (well 5A is currently removed from service). WMUA has opted to install treatment devices at well 5A. Construction for the WMUA well 5A treatment unit began in September 2022 and is now complete. Well 5A will be placed in service on 3/12/24.**
Water purchased from NJ American Water-Briggs Interconnection had a maximum detection of PFOS of 2.5 ppt (occurred in 2nd quarter of 2023). NJDEP considers the water supplied to customers of Mount Laurel MUA to be in compliance with the limit.

How can I reduce exposure?

Avoid eating contaminated fish. PFAS can be removed from drinking water by Granular Activated Carbon and Reverse Osmosis. Because PFAS are at low levels in some foods and in the environment (air, water, soil), eliminating exposure is unlikely.

Additional information regarding PFAS, including the information referenced, can be found at:

https://www.atsdr.cdc.gov/pfas/docs/pfas_fact_sheet.pdf

https://www.nj.gov/health/ceohs/documents/pfas_drinking%20water.pdf

Additional PFAS parameters

As part of USEPA's Unregulated Contaminant Monitoring Rule, round 5 (UCMR5), we are scheduled to sample and report for additional PFAS in 2024. The following is a list of the existing and new parameters:

hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX chemicals)

perfluorobutanesulfonic acid (PFBS)

perfluorooctanesulfonic acid (PFOS)

perfluorooctanoic acid (PFOA)

perfluorohexanesulfonic acid (PFHxS)

perfluorononanoic acid (PFNA)

perfluorobutanoic acid (PFBA)

perfluorohexanoic acid (PFHxA)

perfluorodecanoic acid (PFDA)

11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)

1H, 1H, 2H, 2H-perfluorohexane sulfonic acid (4:2 FTS)

1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)

4,8-dioxa-3H-perfluorononanoic acid (ADONA)

9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)

nonafluoro-3,6-dioxaheptanoic acid (NFDHA)

perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)

perfluoro-3-methoxypropanoic acid (PFMPA)

perfluoro-4-methoxybutanoic acid (PFMBA)

perfluorododecanoic acid (PFDoA)

perfluoroheptanesulfonic acid (PFHpS)

perfluoroheptanoic acid (PFHpA)

perfluoropentanesulfonic acid (PFPeS)

perfluoropentanoic acid (PFPeA)

perfluoroundecanoic acid (PFUnA)

n-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)

n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)

perfluorotetradecanoic acid (PFTA)

perfluorotridecanoic acid (PFTrDA)
