MOTT MACDONALD

PFAS

What you need to know, and how you can prepare proactively

What are PFAS?
Per- and polyfluoroalkyl substances, also known as PFAS, are a group of man-made chemicals used for non-stick cookware, stain-resistant fabric/carpet, firefighting foam, and many other commercial and industrial purposes.

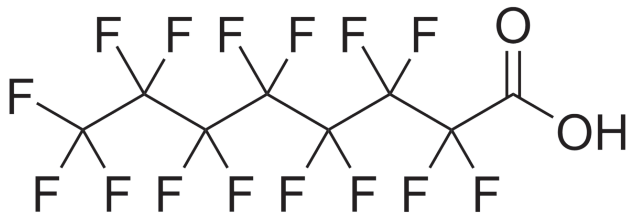
PFAS are not found naturally, are very persistent in the environment and the human body, and have been linked to reproductive and developmental impacts and cancer.

How have PFAS been monitored?
While approximately 3,500 PFAS exist, only six were included in the monitoring required under Unregulated Contaminant Monitoring Rule (UCMR3) during the period 2013 to 2015. Those compounds were perfluorooctanoic acid (PFOA), perfluorooctane sulfonate (PFOS), perfluorononanoic acid (PFNA), perfluorohexanesulfonic acid (PFHxS), perfluoroheptanoic acid (PFHpA), and perfluorobutanesulfonic acid (PFBS).

The UCMR3 monitoring showed the presence of all six PFAS compounds throughout the US, but it is important to note that reporting limits were significantly higher than current analytical detection limits and current levels of concern. Also, PFAS monitoring under UCMR3 was generally limited to community water systems (CWS) and nontransient noncommunity water systems (NTNCWS) with more than 10,000 retail customers. Therefore, although much proactive monitoring by water systems is underway, many water systems have not monitored for these contaminants or have not detected them.

The fifth Unregulated Contaminant Monitoring Rule (UCMR5) is anticipated to be proposed in late 2020, with PWS monitoring during 2023 – 2025, and will likely include additional PFAS contaminants not sampled during UCMR4.

As stated in the EPA's PFAS Action Plan (USEPA, 2019d): The Agency recognizes that there is additional information that the EPA should evaluate regarding PFAS other than PFOA and PFOS, including new monitoring and occurrence data, recent health effects data, and additional information to be solicited from the public, which will inform the development of a national drinking water regulation for a broader class of PFAS in the future.



Are PFAS still being manufactured?
PFOA and PFOS have been the most extensively produced and studied of these chemicals. Between 2000 and 2002, PFOS was voluntarily phased out of production in the US by its primary manufacturer. In 2006, eight major companies voluntarily agreed to phase out their global production of PFOA and PFOA-related chemicals, although there are a limited number of ongoing uses.

PFAS contamination of ground and surface waters has been found near production facilities and in the vicinity of military and airport installations that practice fire protection. PFAS can travel large distances and have been detected several miles away from the manufacturing and disposal sites. Even in the absence of nearby PFAS production facilities and airports, PFAS compounds are being detected in many water supplies. PFAS can be found in both groundwater and surface water sources.

How is the EPA regulating PFAS?
In May 2016, EPA announced the release of lifetime health advisories (HA) and health effects support documents for PFOA and PFOS. EPA's health advisories, which identify the concentration of PFOA and PFOS in drinking water at or below which adverse health effects are not anticipated to occur over a lifetime of exposure, are 70 ng/L (70 parts per trillion) for PFOA and PFOS combined. Health advisories are nonregulatory and reflect EPA's assessment of the best available peer-reviewed science.

These health advisories superseded the EPA's 2009 provisional health advisories for PFOA and PFOS. In June 2018, the Agency for Toxic Substances and Disease Registry (ATSDR) issued a draft Toxicological Profile for Perfluoroalkyls for public comment that indicated that the EPA health advisories for PFOA and PFOS should potentially be lowered.

On February 20, 2020, EPA issued preliminary determinations to regulate PFOA and PFOS, and is currently seeking public comment before making a final determination.

How are states regulating PFAS?
Several states have established more stringent health-based guidance and advisories for PFAS compounds than the EPA health advisories, as they consider formal regulation of PFAS contaminants at the state level for PFOA, PFOS, and other PFAS compounds.

In September 2018, the New Jersey Department of Environmental Protection (NJDEP) became the first state to adopt an enforceable Maximum Contaminant Level (MCL) for a PFAS compound, which was an MCL of 13 ng/L for perfluorononanoic acid (PFNA).

In 2017, NJDEP issued updated drinking water guidance levels for PFOA and PFOS of 0.014 micrograms per liter (µg/L) and 0.013 µg/L, respectively. In April 2020, NJDEP adopted these new standards as Maximum Contaminant Levels (MCLs), which will be published in the New Jersey Register. NJ public community water systems (and public non-transient non-community water systems) will be required to begin monitoring for PFOS and PFOA beginning the first quarter of 2021, in addition to monitoring that is already required for PFNA.

Monitoring will be required for all New Jersey systems beginning the first quarter of 2021. If monitoring shows the presence of the regulated PFAS compounds above the threshold value of 2 ng/L (0.002 ug/L), the system will be required to monitor the source quarterly for 4 consecutive quarters.

Systems that have previously monitored their sources may be able to use previous data provided that minimum detection levels comply with the standards and that the data was obtained after January 1, 2019. Systems are eligible to go to annual monitoring if their results are reliably and consistently below the MCL (R&C values of 6.5 ng/L for PFOS and 7 ng/L for PFOA). Systems whose test results indicate levels consistently below threshold value of 2 ng/L can go to triennial monitoring.

Compliance with the MCL for the regulated PFAS compounds will be calculated based upon a Running Annual Average (RAA), which is similar to the current DBP compliance testing. If a system exceeds the MCL for any regulated PFAS contaminant, they will be required to come into compliance with the MCL within one year of the date of the MCL exceedance. In most cases that would involve treatment, but a system can opt to take a source offline, drill a new well, etc. Finally, data collected prior to 2021 can be used for reduced monitoring determinations but cannot be used for calculating compliance with the MCL. Systems may only use 2021 monitoring data to determine compliance with the MCL for PFOA and PFOS.

How can water be treated for PFAS?
In addition to regulatory requirements and guidance, community groups are becoming more active. In some instances, they are asking water purveyors to supply water treated to nondetectable levels of PFOA and PFOS. Instruments can currently measure PFOA and PFOS to 2 ng/L, but the actual minimum reporting level (MRL) can vary among laboratories.

Currently, the most common form of treatment for PFAS contaminants, including PFOA and PFOS, is granular activated carbon. Single use anion exchange resins are also a treatment option that can be considered as an alternative to granular activated carbon, especially for smaller molecular weight PFAS contaminants. In certain circumstances, nanofiltration and reverse osmosis can also be an option for removing PFAS.

When choosing a treatment strategy, one should consider the following: PFAS type(s) and levels, existing plant design, source water characteristics, simultaneous compliance issues, waste disposal, and operational costs. Currently available treatment processes will remove the contaminants to varying degrees and each have strengths and weaknesses with respect to capital, operational and maintenance costs.

Be proactive! Contact Mott MacDonald who have the experts that can assist you, and help you make the right decision for your specific treatment needs.

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