



PFAS and Drinking Water

WHAT ARE PFAS?

Per- and polyfluoroalkyl substances (PFAS) are a group of synthetic chemicals that are resistant to heat, water, and oil and have been widely used in consumer and industrial products since the 1950s. As many as 3,000 PFAS compounds have been marketed since the chemicals were first developed. The two PFASs with the highest production volumes have been perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS).

PFOA was used in the manufacture of consumer goods such as Teflon (i.e., polytetrafluoroethylene). PFOS was the key ingredient in Scotchgard, a fabric protector made by 3M, and numerous stain repellents. In the United States, PFOA and PFOS were phased out in the early 2000s, however, they do not breakdown easily and are persistent in the environment. Furthermore, PFOA and PFOS are still produced internationally and can be imported into the United States in consumer products, such as, carpet, clothing, or packaging.

HOW IS ONE EXPOSED TO PFAS?

Exposure to PFAS can occur through food, which can become contaminated with PFAS through contaminated soil or water used to grow the food, food packaging containing PFAS, or equipment used during food processing. In addition, some foods such as fish, meat, eggs, and leafy vegetables may contain PFAS from bioaccumulation and crop uptake (SWRCB, 2019). People can also be exposed to PFAS from commercially treated products that have been treated with PFAS for non-stick, stain-repellant, or water-repellant qualities. Furthermore, people who work in a facility that manufactures goods with PFAS can be exposed to these compounds in certain occupational settings or from contaminated air (USEPA, 2018).

Most PFAS contamination of drinking water supplies is localized and associated with industrial production or waste disposal facilities. Known sources of PFAS contamination include: groundwater and surface water below former industrial facilities where PFAS compounds were produced, and groundwater near locations where fire-fighting foams containing PFAS were used (e.g., airfields, military bases, or oil refineries).

HOW CAN I REDUCE POTENTIAL PFAS EXPOSURE?

SFPUC tests on San Francisco drinking water have not detected any PFAS compounds. SFPUC will continue to conduct PFAS testing as improvements in testing methodologies are developed. In 2012/2013, 6 PFAS compounds were monitored. In 2019, 18 PFAS contaminants were monitored using an updated analytical method (EPA Method 537.1).

According to the Agency for Toxic Substances and Disease Registry (ATSDR), if PFAS in drinking water exceeds the EPA Lifetime Health Advisory of 70 ppt (PFOA + PFOS), alternative water sources should be used for drinking and food preparation. Per ATSDR guidelines, other ways to avoid PFAS exposure include: checking consumer product labels for PFAS and checking for fish advisories in water bodies where you fish.

IF PFAS ARE FOUND IN DRINKING WATER, IS THERE TREATMENT THAT CAN REMOVE PFAS?

According to USEPA, if PFAS are found in drinking water, removal is possible by several technologies including activated carbon, ion exchange, and reverse osmosis. These treatment approaches can be adopted by a utility at a treatment plant or by water system customers at individual buildings or homes (see EPA webpage: <http://www.epa.gov/pfas/treating-pfas-drinking-water>)

PFAS MONITORING IN SAN FRANCISCO DRINKING WATER SUPPLIES BY SFPUC

The SFPUC conducted PFAS monitoring on its drinking water supplies as part of a special emerging contaminant monitoring effort in 2012 and under the U.S. Environmental Protection Agency (USEPA) third Unregulated Contaminant Monitoring Rule (UCMR3) in 2013. All PFAS results in 2012 and 2013 were non-detect, which included 6 PFAS contaminants and detection levels for PFOA and PFOS of 20 and 40 parts per trillion ([ppt]), respectively. In 2019, SFPUC conducted another round of monitoring with a new, improved method for 18 PFAS contaminants and detection levels of 2 ppt (EPA Method 537.1). Similar to past results, **in 2019 SFPUC did not detect any PFAS** compounds in the San Francisco water system.

USEPA is considering the inclusion of PFAS in the fifth Unregulated Contaminant Monitoring Rule 5 (UCMR5). Similar to UCMR3 (2013 to 2015), this would require PFAS monitoring by utilities throughout the country over a 3-year period, from 2023 to 2025. UCMR5 would require much lower detection levels than UCMR3.

WHAT ARE THE RISKS?

Studies have shown that PFAS can accumulate and stay in the body for long periods of time and that elevated exposure to PFAS may lead to adverse health impacts. According to the Centers for Disease Control and Prevention (CDC), PFAS may contribute to decreased fertility, hormonal changes, increased cholesterol, weakened immune system response, increased cancer risk, and growth and learning delays in infants and children. During several national surveys, PFOA and PFOS were found in the blood of nearly all people tested. However, CDC has found that PFOA and PFOS blood levels have steadily decreased in U.S. residents since 1999 (CDC, 2019).

HOW ARE FEDERAL AND STATE REGULATORS RESPONDING TO PFAS IN DRINKING WATER?

In 2016, USEPA established an updated Drinking Water Lifetime Health Advisory for PFAS of 70 ppt (PFOA + PFOS) and, in February 2019, USEPA announced a PFAS Action Plan. As part of the PFAS Action Plan, USEPA initiated a maximum contaminant level (MCL) process for PFOA and PFOS, which could result in drinking water standards for these two contaminants (USEPA, 2019).

There are no California MCLs for PFAS, however, California has established Notification Levels for PFOA and PFOS of 5.1 ppt and 6.5 ppt, respectively. Per California Health and Safety Code, Section 116455, if Notification Levels are exceeded, utilities are required to notify their governing body and are encouraged to notify the public.

CONSUMER RESOURCES: REGULATION/HEALTH

- Centers for Disease Control and Prevention (CDC) and Agency for Toxic Substances and Disease Registry (ATSDR). 2019. PFAS and Your Health
<https://www.atsdr.cdc.gov/pfas/index.html>
- State Water Resources Control Board (SWRCB). 2019. Per and Polyfluoroalkyl Substances (PFAS).
<https://www.waterboards.ca.gov/pfas/>
- USEPA. 2018. Basis Information on PFAS.
<https://www.epa.gov/pfas/basic-information-pfas>
- USEPA. 2019. EPA's PFAS Action Plan.
<https://www.epa.gov/pfas/epas-pfas-action-plan>

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