



# Frequently Asked Questions: PFAS, PFOA, PFOS



With awareness and concern growing about the presence in some water supplies of a family of chemicals known as per- and polyfluoroalkyl substances (PFAS), the Metropolitan Water District of Southern California continues to ensure the region has a safe drinking water supply. Metropolitan has monitored for PFAS, including the two most common PFAS – perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) since 2013. We have infrequently detected four PFAS at low concentrations just above the detection level, including one-time detecting very low levels of PFOS in a source water lake that Metropolitan uses infrequently. PFOA and PFOS have more consistently been detected in some groundwater wells in the region. Metropolitan is working with its member agencies to understand how PFAS have affected the region’s water supplies and ensure Southern California continues to have safe, reliable supplies.

## What are PFAS?

- Per- and polyfluoroalkyl substances (PFAS) are a family of chemicals used widely in products that resist heat, oils, stains and water.
- Products manufactured with PFAS include: non-stick cookware; fast-food packaging and pizza boxes; and stain- and water-repellent fabrics, including clothing and carpets. They also were used in fire-fighting foam (a major source of groundwater contamination at airports and military bases).
- PFAS were first developed in the 1940s and proliferated in the '50s and '60s. Today there are more than 12,000 PFAS found in many different consumer, commercial, and industrial products.
- PFAS are extremely stable in the environment and in the human body, meaning that they don't break down and can accumulate over time. This has caused some scientists to give them the name "Forever Chemicals."
- New technology allowing chemists to detect PFAS at very low levels (parts per trillion, or ppt) has resulted in the increased detection of PFAS. They have been found in soil, air, groundwater, wastewater effluent and landfills. They also have been found in the blood of 95 percent of people tested.

## What are PFOA and PFOS? Are they harmful?

- Though there are thousands PFAS, two – **perfluorooctanoic acid (PFOA)** and **perfluorooctane sulfonate (PFOS)** – are currently considered the PFAS of greatest concern in the United States. They are the most commonly used, studied and regulated PFAS in the nation.
- Use of PFOA and PFOS in the U.S. was voluntarily phased out in the 2000s, though they are still used in products manufactured in other countries. However, many other types of PFAS continue to be used in the U.S.

- PFOA is a possible human carcinogen, and based on limited evidence it can cause testicular and kidney cancer, according to the International Agency for Research on Cancer.
- If people ingest PFAS, through food or water that contain them, the PFAS can accumulate in the body. They stay in the body for long periods of time and the level of PFAS may accumulate to the point where people experience adverse health effects.
- High concentrations in the body of PFOA and PFOS have been linked in studies to:
  - Pregnancy-induced hypertension/pre-eclampsia
  - Liver damage
  - High cholesterol
  - Thyroid disease
  - Decreased response to vaccines
  - Decreased fertility
  - Lower birth weight
- High concentrations in the body of PFOA have also been linked in studies to increased risk of asthma.

## How are we exposed to PFOA, PFOS and other PFAS? Are they in our water?

- People can become exposed to PFAS in a variety of ways, including through consumer products that contain the chemicals, food exposed to the chemicals, and drinking water that has been impacted by the chemicals.
- Groundwater impacted by PFOA and PFOS is a growing concern.
- The chemicals, which originated in manufactured products, are found at or near manufacturing sites, landfills, and firefighting training sites (where they were used in firefighting foams), such as airports and military bases. Because of their resiliency and inability to break down in the environment, and their extensive usage in global consumer products, these chemicals have sometimes accumulated near those sites, entering the water cycle through runoff and wastewater, leading to elevated levels in wastewater discharges and groundwater.
- Metropolitan has infrequently detected four PFAS compounds at low concentrations just above the reporting levels, including one-time detecting very low level of PFOS in a source water lake. The other three PFAS detected are perfluorohexanoic acid (PFHxA), perfluorobutanoic acid (PFBA), and perfluoropentanoic acid (PFPeA). No PFOS or PFOA have been found in our treated drinking water. Metropolitan has detected low levels of PFHxA and PFPeA in its treated water. These two PFAS have no proposed Maximum Contaminant Levels (MCLs), Health Advisory Levels or Hazard Indices set by the U.S. Environmental Protection Agency (EPA), or Notification Levels (NLs) or Response Levels (RLs) established by the State of California.
- PFOA and PFOS have been detected by some of Metropolitan's member agencies in their groundwater supplies.
- Several PFAS have been detected at varying levels in some groundwater wells around California.

- Although the chemicals need to be addressed at their source, the potential for these chemicals to end up in groundwater is a major concern. The process to address groundwater affected by these chemicals is underway.

## **What are PFHxA, PFBA, and PFPeA – the other PFAS found in Metropolitan’s water?**

- PFHxA is a common PFAS believed to be an impurity that is inadvertently produced during the manufacture of other PFAS. It is also a breakdown product from lubricants, coatings on food packaging, and household products. PFHxA is not considered toxic or carcinogenic.
- PFBA is a breakdown product of other PFAS that are used in stain-resistant fabrics, paper food packaging, and carpets; it is also used for manufacturing photographic film. It has been used as a substitute for longer chain perfluoroalkyl carboxylic acids in consumer products.
- PFPeA is a breakdown product of stain- and grease-proof coatings on food packaging, couches, and carpets.
- Based on available health effects data, the state of California is not currently regulating the presence of PFHxA, PFBA, or PFPeA, nor is the EPA.

## **How do Metropolitan and other water agencies monitor their water supplies for PFAS?**

- Metropolitan regularly tests for PFAS in its source and treated water.
- Current methods allow for the detection of 29 different kinds of PFAS in water. As testing methods are refined, Metropolitan will expand the number of PFAS it tests for.
- The State Water Resources Control Board’s Division of Drinking Water has started requiring monitoring of groundwater near airports, landfills, fire-fighting training centers, manufacturing facilities and other sites known to be potentially impacted by PFAS. Hundreds of wells across the state are being monitored.
- Metropolitan’s facilities are not subject to the monitoring orders, but we will continue to monitor voluntarily to establish an understanding of which PFAS may affect our systems.

## **What is the government doing to protect us from PFOA and PFOS?**

- In March 2023, the U.S. EPA [took action](#) to regulate PFAS in drinking water.
  - The EPA proposed Maximum Contaminant Levels (MCLs) for PFOS and PFOA of 4 parts per trillion (ppt), which is the concentration at which they can be reliably measured.
  - MCLs are the maximum level of a contaminant allowed in drinking water delivered through a public water system. They are enforceable and require monitoring, notification of the public of MCL violations, and treatment to remove the contaminant if the MCL is exceeded.

- EPA is requesting public comment on the proposed regulation and expects to finalize the rule by the end of 2023.
- The new EPA regulation also includes proposed limits for four other PFAS compounds (PFHxS, PFNA, PFBS, and GenX) based on a combined Hazard Index, rather than MCLs.
- **In California**, the Division of Drinking Water has required monitoring for PFOA and PFOS in some high-impact areas and established notification and response levels for the chemicals.
  - The DDW recently established the notification level for PFOA at 5.1 ppt and for PFOS at 6.5 ppt. If this level is exceeded:
    - Wholesale water agencies must notify governing bodies and water systems directly supplied with the water;
    - Retail agencies must notify their governing body and the governing bodies of any local agencies (i.e., city and/or county) whose jurisdictions include areas supplied with their drinking water; and
    - The DDW requires agencies under a monitoring order to notify customers through their consumer confidence reports.
  - The DDW recently established the response level for PFOA at 10 ppt and for PFOS at 40 ppt. If this level is exceeded:
    - Wholesale water agencies must notify governing bodies and water systems directly supplied with the water;
    - Retail agencies must notify their governing body and the governing bodies of any local agencies (i.e., city and/or county) whose jurisdictions include areas supplied with their drinking water; and
    - Agencies required by the State Board to monitor for PFAS must either remove the impacted drinking water source from operation or notify the public.
- Regulation of PFAS in water is becoming stricter both nationally and in California:
  - The SWRCB has initiated a process to establish public health goals and maximum contaminant levels for PFOA and PFOS. Other PFAS chemicals may be considered for similar actions in the future.
  - The California Legislature and U.S. Congress are both considering a variety of additional legislative actions related to PFAS detection and exposure.

## Can PFOA and PFOS be removed from the water?

- If a water agency detects PFOA or PFOS in its water at unacceptable levels, it can:
  - Remove the supply from service;
  - Blend it with other, unaffected supplies; or
  - Treat it using activated carbon, reverse osmosis, ion exchange, or nanofiltration.
- Metropolitan stands prepared to handle any increased demands for its imported water to help offset the potential loss of any affected local supplies.

## What about my home water treatment device – will it remove PFOA, PFOS and other PFAS?

- The EPA has conducted studies on the effectiveness of several reverse osmosis and granular activated carbon devices for removal of PFAS. A summary of these studies can be found at [www.onlinelibrary.wiley.com/doi/epdf/10.1002/aws2.1131](http://www.onlinelibrary.wiley.com/doi/epdf/10.1002/aws2.1131).
- The National Sanitation Foundation, an independent accredited organization that tests and certifies products to protect and improve human health, has conducted studies on filters that can remove PFOA and PFOS. A [list of NSF-certified products](http://www.nsf.org/certified-products-systems) for reduction of PFOA and PFOS can be found under the water and wastewater section of their website at [www.nsf.org/certified-products-systems](http://www.nsf.org/certified-products-systems) or by contacting them at [info@nsf.org](mailto:info@nsf.org) or 1.800.673.8010.
- A summary of in-home treatment devices for removing PFAS can also be found at the New Hampshire Department of Environmental Services website: [www4.des.state.nh.us/nh-pfas-investigation/?page\\_id=171](http://www4.des.state.nh.us/nh-pfas-investigation/?page_id=171).

## I saw in a report there was a high level of PFOA detected in a well near me. Why haven't I been notified?

- Your water agency may have removed the impacted source from its supplies, blended it with other supplies to reduce the concentration of the chemical, or treated the water to remove the chemical.
- To find out if you have PFAS in your drinking water, contact your water provider. Please check your recent water bill for contact information.

## Where can I learn more?

- State Water Resources Control Board:
  - <https://www.waterboards.ca.gov/pfas/>,
  - [https://www.waterboards.ca.gov/drinking\\_water/certlic/drinkingwater/documents/pfos\\_and\\_pfoa/pfas\\_ab756\\_factsheet.pdf](https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/pfos_and_pfoa/pfas_ab756_factsheet.pdf)
- EPA: [www.epa.gov/pfas](http://www.epa.gov/pfas)
- Orange County Water District: <https://www.ocwd.com/what-we-do/water-quality/pfoapfos/>
- PFAS and Drinking Water State Revolving Fund: [https://www.epa.gov/sites/production/files/2019-03/documents/pfas\\_fact\\_sheet\\_and\\_case\\_studies\\_final.pdf](https://www.epa.gov/sites/production/files/2019-03/documents/pfas_fact_sheet_and_case_studies_final.pdf)
- Association of California Water Agencies: [Guide to compliance with AB756](http://www.acwa.org/Guide-to-compliance-with-AB756)
- American Water Works Association: [https://www.awwa.org/Portals/0/AWWA/ETS/Resources/15683PFAS\\_web.pdf](https://www.awwa.org/Portals/0/AWWA/ETS/Resources/15683PFAS_web.pdf)