FACT SHEET:
PFAS AND THE WATER SECTOR (PER AND POLYFLUOROALKYL SUBSTANCES)

APRIL 2024

About PFAS

PFAS (per and polyfluoroalkyl substances) are a group of human-made chemicals that have been widely used in industrial and consumer products since the mid-1900s. Due to the unique physical and chemical properties of PFAS to resist heat, stains, grease, and water, they have been used in:

- textiles and leather products
- metal plating
- food packaging
- firefighting foams
- floor polishes
- shampoos
- cosmetics
- sunscreens
- denture cleaner
- coatings and coating additives
- photographic and photolithographic processes
- medical devices
- hydraulic fluids.

PFAS are of concern because they can persist for a long time in humans and in the environment. These substances are now commonly detected at trace levels in groundwater, surface water and soils in urban areas worldwide.

While many essential uses of PFAS are still permitted, as a precautionary measure there now are efforts, both nationally and internationally, to restrict non-essential uses and reduce or ban the use of the most hazardous PFAS chemicals. From 1 July 2025, the Australian Government is banning the manufacture, importation, exportation or use of PFOS, PFOA, and PFHxS or any products containing them.

PFAS and health

The content is this section is from the Environmental Health Standing Committee (enHealth)'s factsheet on PFAS.

For most people, the level of exposure to PFAS is likely to be small. No public health and safety issues with PFAS have been identified from the overall dietary exposure for the general Australian population.

In locations where PFAS have been used as an active ingredient in firefighting foams, there may be higher PFAS levels in the local environment. In these communities, people may have increased exposure to certain PFAS, including perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA) and perfluorohexane sulfonate (PFHxS), and have elevated blood concentrations above the general population of these PFAS.

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In Australia, enHealth describes various health effects associated with PFAS exposure, but also notes that to date, a causative relationship between health effects and PFAS exposure has not been established. The science and understanding of these issues will continue to evolve. As a precaution, enHealth continues to recommend exposure to PFAS be minimised wherever possible. More information about potential health effects of PFAS are available from enHealth.

PFAS and drinking water

To ensure the safety of drinking water and provide a basis for determining the quality of water supplied to consumers in all parts of Australia, the National Health and Medical Research Council (NHMRC) has developed the Australian Drinking Water Guidelines.

The Guidelines are underpinned by available scientific evidence and are used by state and territory health departments, drinking water regulators, local health authorities and water utilities. The Guidelines include maximum health-based guideline values for PFOA and PFOS plus PFHxS in drinking water. These were published in 2018 and were derived using Tolerable Daily Intake values recommended by the Department of Health and Aged Care. The Guidelines undergo rolling revisions to ensure they represent the latest scientific evidence on safe drinking water.

The current health-based guideline values for PFAS in the Australian Drinking Water Guidelines are:

- less than 0.07 micrograms per litre for the sum of PFOS and PFHxS (combined)
- less than 0.56 micrograms per litre for PFOA.

Australia's drinking water guidelines for PFAS are currently being reviewed by the NHMRC. This independent review will consider recent guidance and reviews from international and national jurisdictions and determine whether they are suitable to adopt or adapt for Australia.

In consultation with drinking water regulators, water utilities apply a preventative risk-based approach to the management of drinking water quality. Water utilities routinely conduct a range of tests to ensure drinking water quality complies with the Guidelines. As with other threats to water safety, based on the different risks of PFAS in different areas, PFAS testing will vary across water utilities and locations.

The most effective way to limit PFAS in drinking water is to identify potential point sources of contamination within drinking water catchments, and then work with relevant stakeholders to put in place effective control measures. Governments and industry continue to work together to look at ways to identify and control PFAS at their source.

The removal of PFAS by existing conventional water treatment processes is challenging because of the very strong chemical structure of these substances. There are known water treatment technologies that can remove PFAS, however these can be high cost and energy intensive. In terms of filters in the home, drinking water is already filtered at a water treatment plant so using a home filter is not necessary for health reasons, although some people prefer to

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use them for enhancing taste. Current research shows that effectiveness of home filters in removing PFAS is highly variable and may be quite costly. Water utilities continue to participate in research and explore treatment options for managing PFAS. However, source control is generally lower cost, less energy intensive and more effective than implementing treatment technology to remove PFAS from drinking water.

PFAS and wastewater

The water sector manages hazards in wastewater and associated risks to public health and the environment.

The use of PFAS in everyday household items and consumer products, including cosmetics, detergents, dental floss, and sunscreen, is a challenge for wastewater systems and existing conventional treatment processes. The most effective way to limit PFAS in wastewater is to reduce the potential sources of contamination before they enter the wastewater system. While solids and liquid treatment technologies exist to reduce PFAS, most current wastewater treatment plants do not reduce PFAS in the incoming wastewater. Governments and industry continue to work together to look at ways to identify and control PFAS at their source.

Due to the presence of PFAS in wastewater, PFAS can be present in:

- biosolids, the dried by-product of sludge from wastewater treatment
- treated water discharged to waterways and the ocean
- recycled water.

Requirements for the management of wastewater are governed by individual states and territories, their respective regulators and associated legislation and guidelines. National guidance is provided by the PFAS National Environmental Management Plan (NEMP). This plan provides national guidance on actions and limits to better manage exposure to and the spread of PFAS, and to implement more effective source control. The PFAS NEMP is currently under review, with the next revision (NEMP 3.0) expected to be released in late 2024, and include guideline values for PFAS in biosolids.

Reducing PFAS in the wastewater system requires effective source control, through a combination of localised treatment at known point sources and/or minimising the use of these substances in industrial and consumer products. Source control is generally lower cost, less energy intensive and more effective than implementing treatment technology at a wastewater treatment plant scale.

Water sector response

The water sector has proactively recognised the evidence-based risks associated with PFAS. The Water Services Association of Australia takes the lead on behalf of our water utility members, to work with Australian, state and territory governments on policy, legislation, guidelines and management approaches for PFAS.

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The water sector invests in research projects and initiatives which provide the evidence base that helps inform monitoring, treatment, and policy decisions. The outputs of such research include more effective and cost-efficient processes and technologies to treat and remove PFAS. This research also enhances our understanding of the specific human health and environment risks associated with PFAS.

Research organisations, such as Water Research Australia, play an important role in coordinating these activities and getting water sector stakeholders to collaborate to deliver these research outcomes.

Effective collaboration with organisations such as the Australian New Zealand Biosolids Partnership helps to characterise risks and impacts associated with the presence of PFAS in biosolids.

The water sector is committed to ensuring the provision of safe and secure drinking water to customers and communities, and that biosolids are used in the best and safest way possible.

More information on PFAS

Australian Government PFAS Taskforce | PFAS

enHealth 2024 Fact sheet on PFAS | Australian Government Department of Health and Aged Care

Australian Drinking Water Guidelines

Per- and poly-fluoroalkyl substances (PFASs) - DCCEEW

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