

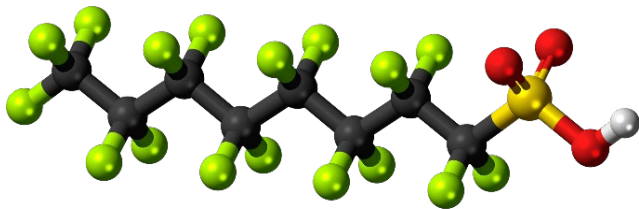


Biosolids

Focus on PFAS in Biosolids

What are PFAS?

Per- and polyfluoroalkyl substances (PFAS) are a group of thousands of manufactured chemicals that have been used in industry and consumer products since the 1940s. PFAS are resistant to breaking down over time leading to their ubiquity in our environment. PFAS are widely used for their oil- and water-resistant characteristics.



Consumer products that contain PFAS

PFAS can be found in a wide variety of personal consumer and industrial products like nonstick cookware, waterproof clothing, takeout food containers, and carpets and textiles.



How do PFAS end up in Biosolids?

Municipal wastewater treatment plants (WWTPs) do not produce PFAS, they receive them from upstream sources and are charged with cleaning them up. The wastewater that leaves our homes and industry carries PFAS from products we use and come into contact with.

Unlike many contaminants, PFAS do not break down into simpler forms during the wastewater treatment process. In certain instances, these contaminants can transform into different types of PFAS during treatment. This complicates identifying their presence and results in some PFAS moving through the treatment process and into effluent and biosolids.

How PFAS gets into biosolids



Health impacts

While the full scope of health impacts on humans from PFAS exposure is still not completely understood, experts have found probable links to adverse health impacts like immunological and cardiovascular effects.

Industrial wastewater

Some industries discharge to municipal WWTPs. Others do not and instead have their own wastewater facilities and thus do not contribute to the generation of biosolids.

Industries that do discharge to WWTPs are sometimes subject to PFAS monitoring requirements.

Removal at the WWTP vs source reduction

There is research focused on treatment technologies being developed to destroy PFAS, but they are not yet proven. Proven treatment technologies can contain or remove PFAS from wastewater. However, they are prohibitively expensive for most municipally owned WWTPs.

Decreasing the inputs of PFAS to WWTPs can reduce the need to build costly new treatment systems. Source reduction efforts like restricting the use of PFAS in products and finding safer alternatives reduces both primary exposure from consumer products, and potential secondary exposure from biosolids. By lowering the levels in consumer products, we can reduce direct exposure as well as mitigate contamination of biosolids.

Landfilling and incineration

The other management options for biosolids in Washington state include landfilling and incineration. An estimated 20% of the biosolids generated in Washington state are disposed of this way.

In some areas in Washington state, landfill leachate is piped to the local WWTP for treatment prior to discharging to state waters. This can reintroduce PFAS that was initially intended for disposal.

Landfilling biosolids contradicts state laws implemented to limit organics in the landfill and leads to increased production of greenhouse gases.

Incineration of PFAS at Sewage Sludge Incinerators (SSI) as an effective destruction method requires further investigation. Current science indicates there may be generation of PFAS byproducts due to incomplete combustion and uncontrolled air emissions. Incineration is also energy intensive.

Neither of these disposal options eliminate PFAS and have environmental impacts of their own. Washington state doesn't have adequate SSI or landfill capacity to dispose of the biosolids we generate each year.

What is Ecology doing?

Ecology is working to reduce exposure to PFAS in many ways.

Ecology and the Department of Health (DOH) partnered on a PFAS Chemical Action Plan (CAP).

This non-regulatory document assesses impacts from PFAS and provides recommendations for addressing them. Source reduction efforts were prioritized as they have shown to have the highest impact in reducing exposure.

Ecology is conducting a study on PFAS levels in biosolids based on a PFAS CAP recommendation. We will publish the findings in a report when complete. We expect those findings will help to shape our efforts to assess potential health concerns and improve our management practices.

Additional Ecology PFAS reduction efforts

- Restricting the intentional addition of PFAS to certain types of food packaging via the [food packaging prohibition](#)
- Restricting the intentional addition of PFAS to personal care products via the [Toxics-Free Cosmetics Act](#)
- Restricting the manufacture, sale, and use for training of AFFF via the [Toxics in Firefighting Law](#). And implementing the [AFFF collection and disposal program](#) to help safely dispose of stockpiled AFFF
- Adding [PFAS monitoring requirements](#) for major municipal WWTPs and for industries that use PFAS.

Reduce your exposure to PFAS

Here are some resources Ecology and DOH have put together about protecting your home and family.

- ["Keeping Your Home and Family Healthy"](#)
- [\(Video\) "How to reduce your exposure to PFAS chemicals"](#)
- ["PFAS - Washington Department of Health"](#)



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To request an ADA accommodation, contact Ecology by phone at 360-407-6000 or email at SWMPublications@ecy.wa.gov, or visit <https://ecology.wa.gov/accessibility>. For Relay Service or TTY call 711 or 877-833-6341.