



## Health Effects of PFAS

PFAS compounds are associated with adverse health effects for people and animals. Studies in animals show that exposure to PFAS compounds may affect liver function, reproductive hormones, development of offspring, and mortality.

As with most chemicals, the toxicity in humans is less understood. A panel of experts found probable links to PFAS exposures for residents near a chemical manufacturing plant in Parkersburg, West Virginia. Local residents had higher instances of diseases, such as high cholesterol, ulcerative colitis, thyroid disease, testicular cancer, kidney cancer, and pregnancy-induced hypertension.

Scientists continue to study possible health effects.



## What are PFAS?

PFAS is an acronym for “per- and poly-fluorinated alkyl substances.” PFAS compounds are a group of very stable, manmade chemicals that remain in the environment for a long time without breaking down. They are of special concern because some of them build up in people and the environment, a process known as bioaccumulation.

For decades, PFAS chemicals were used to make fluoropolymer coatings and products that are resistant to oil, stains, grease, and water. They are still used today in many applications due to their durability, heat resistance, UV resistance, and anti-corrosive properties.

Currently known uses of PFAS chemicals include:

- Carpets in homes, businesses, cars, and planes
- Textiles used in outdoor clothing and equipment
- Fire-fighting foam used to put out petroleum fires
- Paper wrappers for fast food and microwave popcorn

In 2009, the U.S. Environmental Protection Agency estimated that textiles and apparel account for about half the volume of consumer product uses of PFAS chemicals in the United States. Carpet and carpet care products account for the next largest share followed by coatings (including coatings for paper products).

## Exposure

PFAS compounds are not manufactured in Washington. They enter our environment through consumer and industrial products that contain the chemicals, and through atmospheric deposition. The federal Centers for Disease Control has documented widespread exposure to PFAS chemicals in people throughout the U.S.

## PFAS Action Plan

Ecology and the Washington State Department of Health are developing a statewide Chemical Action Plan for PFAS. This will identify sources and provide recommendations on how to reduce or eliminate the most important sources

An advisory committee was formed and began meeting in winter 2016. The committee will assist with collecting information and identifying potential solutions.

The draft PFAS CAP is expected to be ready for public review and comment and then finalized in 2017.

To learn more about the PFAS chemical action plan or process, visit:

[www.ecy.wa.gov/programs/hwtr/RTT/pbt/pfas.html](http://www.ecy.wa.gov/programs/hwtr/RTT/pbt/pfas.html)

For questions on the chemical action plan or process, contact:

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### Special accommodations

To request ADA accommodation for disabilities, or printed materials in a format for the visually impaired, call the Hazardous Waste and Toxics Reduction Program at 360-407-6700 or visit

[www.ecy.wa.gov/accessibility.html](http://www.ecy.wa.gov/accessibility.html).

Persons with impaired hearing may call Washington Relay Service at 711. Persons with speech disability may call TTY at 877-833-6341.

In 2008, Ecology conducted a study to assess levels of PFAS in freshwater areas of Washington. The study looked at 13 PFAS compounds in a range of environmental media, including surface water, wastewater treatment plant effluent, fish tissue (fillet and liver), and osprey eggs.

The study found widespread occurrence of PFAS in Washington in all media. Concentrations were generally within or below the range of values recorded at other U.S. locations. PFAS concentrations increased from water to fish to osprey.

Ecology is doing a follow up study to characterize current levels of PFAS in freshwater systems and assess whether the concentration and/or compound make-up has changed. The follow up study includes additional PFAS compounds and three additional sites to include potential PFAS sources that weren't captured in the 2008 study. We expect to publish the study in 2017.

More recently, PFAS have been detected in drinking water across the U.S. PFAS compounds have been found at federal cleanup sites addressing other contaminants, often associated with firefighting practices or the disposal of consumer products. PFAS contamination is a concern at several sites in Washington.



**Firefighting foam entered the Columbia River after a 2008 training exercise.**