



U.S. ARMY

FACT SHEET

PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)

What are they?

PFAS refers to a large group of man-made chemicals found in many industrial applications and consumer products such as carpeting, apparel, upholstery, food packaging, fire-fighting foams, and metal plating. In use since the 1940s, PFAS are resistant to heat, oils, stains, grease, and water—properties which contribute to their persistence in the environment.

The entire class of fluorinated substances known as PFAS includes thousands of compounds. The Environmental Protection Agency's (EPA) unregulated contaminant monitoring rule 3 (USMR3) included six compounds: perfluoro-octanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), perfluorohexanesulfonic acid (PFHxS), perfluoroheptanoic acid (PFHpA), perfluorononanoic acid (PFNA), and perfluorobutanesulfonic acid (PFBS).

PFAS are contaminants of emerging concern, which are materials characterized by a perceived, potential, or real threat to human health or the environment or by a lack of published health standards. PFAS have no Safe Drinking Water Act (SDWA) enforceable regulatory standards or routine water quality testing requirements. The EPA is currently studying PFAS to determine if regulation is needed, by developing and validating analytical methods, assessing PFAS toxicity, and researching PFAS exposure.

Why is this important?

PFAS are now virtually everywhere in the world due to their widespread use and manufacturing. During production and use, PFAS can migrate into the soil, water, and air, and once PFAS are released to the environment, they break down very slowly,

and are considered persistent and bioaccumulative.

While it is difficult to show that PFAS substances directly cause health conditions in humans, scientific studies have shown that exposure to some PFAS in the environment may be linked to harmful health effects in humans and animals. For the most part, laboratory animals exposed to high doses of one or more of these PFAS have shown changes in liver, thyroid, and pancreatic function, as well as some changes in hormone levels. Because animals and humans process these chemicals differently, more research will help scientists fully understand how PFAS affect human health. (Reference: <https://www.atsdr.cdc.gov/pfas/index.html>) In May 2016, the EPA announced lifetime health advisory (LHA) levels for the two most studied PFAS, perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA). Health advisory levels are health-based concentrations which EPA reports offer a margin of protection for all Americans throughout their lifetime from adverse health effects resulting from exposure to PFOS and PFOA in drinking water. The EPA health advisory level for lifetime exposure is 70 parts per trillion (ppt) for PFOS/PFOA, individually or combined.

Since the 1970s, the Army has used Aqueous Film Forming Foam (AFFF), a mission-critical firefighting agent used to rapidly suppress dangerous fuel fires. AFFF contains both PFOS and PFOA, and is also commonly used by civilian firefighters at commercial airports, the oil and gas





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industry, and local fire departments. The Army no longer uses AFFF for testing, training, or maintenance. Army organizations only use AFFF to respond to petroleum-related fire emergencies, and each use of AFFF is treated as a spill response, to limit environmental effects.

PFOS and PFOA are a national issue that requires a national regulatory solution. The Army supports EPA establishing a maximum contaminant level (MCL) for drinking water and consistent cleanup approach for PFOS/PFOA based on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

What has the Army done?

In August 2016, the Army proactively implemented a comprehensive approach to manage exposure to Army Soldiers, families, and civilians from PFOS/PFOA in drinking water from Army activities. In November 2017, the Army completed its PFOS/PFOA water sampling at 2,905 Army locations including 380 Army drinking water systems, both inside and outside the United States.

In October 2017 the Army began a review of its installations to identify potential PFOS/PFOA source areas, including areas where AFFF was stored or used (e.g. fire training areas, aviation assets, PFOS/PFOA mist suppressant use). The Army has initiated CERCLA Preliminary Assessments (PAs) at more than 290 installations and Site Inspections (SI) have begun at more than half of those.

In 2016, the Army ceased the use of PFOS-containing AFFF except for emergencies, and in 2019 began replacing AFFF in first responder vehicles with the shorter chain PFAS AFFF formulations that have been certified to meet military specifications.

What is the Army doing?

The Army takes our cleanup responsibility seriously and conducts our cleanups in an open and transparent manner. The Army will continue identifying PFOA/PFOS source areas through PAs in accordance with CERCLA. Where the results of the PAs indicate that a release may have occurred, the Army is initiating SIs to assess site conditions.

The Army's priority is to quickly address PFOS and PFOA in drinking water from Army activities. If PFOS/PFOA is detected at installation boundaries, the Army conducts off-post drinking water sampling at no cost to residents and provides the sampling results to the well owner.

If PFOS/PFOA sampling identifies any drinking water exceeding EPA's LHA of 70 ppt, the Army provides an alternative water source until a long-term solution is implemented. All emerging chemicals, like PFAS, follow DoD Instruction 4715.18 Emerging Chemicals (ECs) of Environmental Concern, revised Sep. 4, 2019.

