

**Background: What are PFAS?**

Per- and polyfluoroalkyl substances, or PFAS are a group of synthetic fluorinated chemicals. Perfluorooctane Sulfonate, or PFOS and Perfluorooctanoic Acid, or PFOA are two organic chemicals within the PFAS group that were used in industrial and consumer products such as nonstick cookware, stain-resistant fabric and carpet, some food packaging and specialized foam.

PFOS and PFOA are the only two compounds of the PFAS group with established Environmental Protection Agency health advisories for drinking water.

- In 1970, the Department of the Air Force DAF began using the firefighting agent Aqueous Film Forming Foam which contained PFOS and PFOA. AFFF is the most efficient extinguishing method for petroleum-based fires and is widely used across the firefighting industry, to include all commercial airports, to protect people and property. AFFF is being phased out.
- The Air Force Civil Engineer Center began a comprehensive assessment process in 2010 to identify locations where PFOS/PFOA may have been released across the Air Force at active, Reserve, Air National Guard and closed installations.
- On May 19, 2016, the EPA established a lifetime Health Advisory or HA level of 70 parts per trillion for a combined PFOS and PFOA in drinking water. For context, one ppt is equivalent to one drop of water in 20 Olympic-sized swimming pools. The EPA classifies these compounds as "emerging contaminants" for which the risk to human health is not yet known and regulatory standards are evolving.

**Air Force Response**

AFCEC is taking a three-step approach – identify, respond, prevent – to assess and respond to potential PFOS/PFOA in drinking water.

- In 2017, the Air Force completed enterprise-wide sampling of drinking water at all installations — stateside and overseas — to ensure drinking water supplies meet EPA guidelines.
- To-date, the Air Force continues to meet PFAS monitoring requirements as mandated in the 2020 Assistant Secretary of Defense and Deputy Assistant Secretary of the Air Force for Environment, Safety, and Infrastructure memoranda.
- In the United States, AFCEC is conducting additional sampling to identify potential AFFF releases, determine the extent of the PFOS/PFOA and map possible pathways to drinking sources.

**CERCLA**

The Air Force's investigation work and response actions are guided by the Comprehensive Environmental Response, Compensation and Liability Act, applicable state laws and the EPA's HA for drinking water.

The Air Force is moving forward aggressively in accordance with the CERCLA process to fully investigate releases, prioritize responses and determine appropriate response actions based on risk. Following the CERCLA process makes certain thorough investigative work is done; the process also promotes accountability, community involvement and long-term protectiveness.

## Identify — Respond — Prevent

The following chart outlines the Air Force's three-step approach to identifying releases, investigating and responding to PFOS/PFOA in drinking water.

### IDENTIFY releases

#### Preliminary Assessment

In the United States, the Air Force conducted base-wide records reviews to identify fire training areas, crash sites and areas at installations where AFFF was used. AFCEC has completed 99 percent of PAs.

#### Site Inspection

Once the PA identifies potential AFFF release areas, AFCEC conducts groundwater, surface water, soil and sediment sampling to verify releases and map possible pathways to drinking water sources.

If SI sampling indicates potential pathways to off-base drinking water supplies, AFCEC may test public water systems and private wells.

Once the SI is complete, AFCEC determines if more investigation work is needed.

#### Remedial Investigation

The RI is a more detailed investigation into PFAS to determine if it is in surrounding soil, sediment, surface water, fish and wildlife. The investigation also collects data about site conditions, conducts risk assessments to determine whether PFOS and PFOA present unacceptable risks, and further identifies what is needed for a comprehensive cleanup at current and former installations.

### RESPOND to PFOS/PFOA in drinking water

#### Response Action

When AFCEC determines PFOS/PFOA levels exceed the HA in drinking water due to the Air Force mission, the Air Force will reduce risk and, if needed, provide an alternate drinking water source, like bottled water, until longer-term measures are in place. Permanent solutions may include installation of a filtration system or connecting private well owners with PFOS/PFOA over the EPA Lifetime Health Advisory level to a public drinking water supply.

If sample results are detectable but below the HA in drinking water, the Air Force may conduct additional sampling as needed to track concentration changes and determine if further action is necessary.

### PREVENT and PROTECT

#### AFFF Replacement

The Department of the Air Force has replaced AFFF with a foam that meets EPA recommendations at all installations, and we no longer allow uncontrolled AFFF discharges for maintenance, testing or training. In the event of a discharge, we respond as if it were a hazardous spill to limit environmental effects. We changed out AFFF in hangars, trucks and any storage tanks and dispose of the "waste" AFFF. Transition to the new formula was completed in 2019 in fire trucks, stockpiles and hangar systems.

#### Retrofit Fire Vehicles

The Air Force retrofitted all fire vehicles with an Eco-logic system that prevents foam discharge during equipment testing and training. Approximately 850 fire trucks were retrofitted in 2019.