

AIR FORCE PFOS/PFOA SNAPSHOT PETERSON AFB

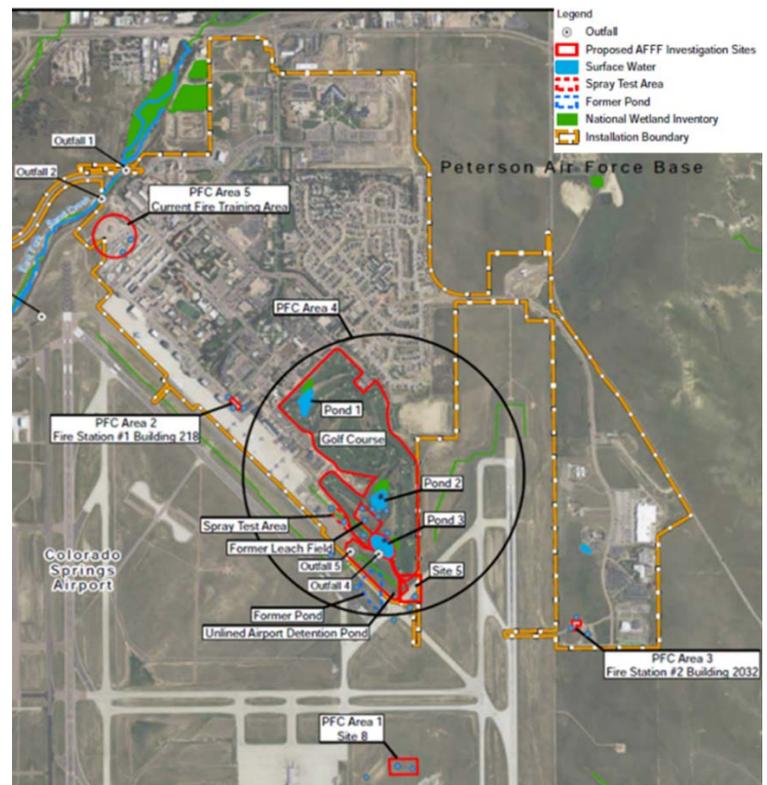
Peterson Air Force Base (PAFB), Colorado, is home to the 21st Space Wing, which provides missile warning and space control to the North American Aerospace Defense Command and United States Strategic Command through a network of ground-based radars and sensors located around the globe. The wing operates the base supporting 53 mission partners, including Air Force Space Command, NORAD and the 302nd Airlift Wing, providing communications, utilities, housing and force protection. The base also provides first-responder services to all military and civilian aircraft emergencies at the Colorado Springs Municipal Airport, and operates a fire training area for area first responders to exercise life-saving training skills. The Air Force is committed to transparency and working with Colorado regulators and community stakeholders to protect human health and promote environmental awareness.

EMERGING CONTAMINANTS: PFOS/PFOA

Perfluorinated compounds are a class of synthetic fluorinated organic compounds used in many industrial and consumer products — to include aqueous film forming foam (AFFF) used by commercial industries and the armed services to extinguish petroleum-based fires. In 1970, the Air Force began using AFFF, which contains perfluorooctanesulfonic and perfluorooctanoic acids, or PFOS and PFOA, to extinguish petroleum fires to protect people and property.

On May 19, 2016, the Environmental Protection Agency (EPA) established lifetime health advisory (HA) levels of 70 parts per trillion (ppt) for PFOS and PFOA in drinking water. These two compounds are classified as emerging contaminants due to evolving regulatory standards.

The Air Force is using a comprehensive approach – **identify, respond, prevent** – to assess potential risk to drinking water, on and off installations, and react appropriately.



AIR FORCE RESPONSE TO PFOS/PFOA AT PETERSON

The Air Force is committed to protecting human health on and around the base and is working with regulators and community leaders to identify drinking water exposures above the EPA HA and address concerns.

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

PFOS/PFOA Investigation

Preliminary Assessment (PA)

Base-wide records review identifies fire training areas, crash sites and areas AFFF was stored, used or potentially released.

- AF completed the PA in March 2016; seven potential AFFF release areas were identified; the Final PA Report was released in October 2016. Document location <http://afcec.publicadmin-record.us.af.mil/>

Site Inspection (SI) -- Groundwater, surface water, soil and sediment sampling is conducted

- Air Force completed SI field work in November 2016; SI included sampling for possible PFOS/PFOA at seven release areas combined

for verification. Potential source areas are tested for further evaluation	into five study areas. The Final SI Report was released 25 July 2017. Document location http://afcec.publicadmin-record.us.af.mil/
Expanded SI -- Additional soil and groundwater sampling to fill in data gaps found in the initial SI to scope RI	<ul style="list-style-type: none"> • Air Force will launch an expanded SI in the fall of 2017 to define source areas and fill data gaps on potential movement and understand plume extent.
Remedial Investigation (RI) -- Characterizes and defines contamination found during SI phase and investigates off-site contamination	<ul style="list-style-type: none"> • Air Force will launch an RI in 2019 to define plume locations, potential movement and understand plume extent.
Mitigation -- If sample concentrations exceed the EPA HA, the Air Force takes measures to target the source and reduce risk and provide an alternate drinking water source.	<ul style="list-style-type: none"> • Private drinking water wells exceeding the EPA HA were provided bottled water until time a treatment system was installed and operational. One private well was connected to city water. • Public drinking water wells were offered treatment units to help systems provide PFOS/PFOA free drinking water to their customers. Some of the systems have been delivered and/or installed

SUMMARY OF FINDINGS FROM THE SITE INSPECTION REPORT

AFFF AREA 1 - SITE 8 (FT003) – Site 8, a former Fire Training Area (FTA), was active from 1977 until late 1991 or early 1992. AFFF was apparently used at the FTA, as evidenced by low detections of PFOS and PFOA in soil and groundwater. However, none of the analytes were detected at concentrations above screening values. This Area does not appear to be a source.

AFFF AREA 2 - FIRE STATION # 1 (BUILDING 218) – AFFF was released to the environment at Fire Station #1 during spray testing conducted over a volleyball court during freezing weather. Although concentrations in soil were below screening levels at Fire Station #1, combined PFOA/PFOS concentrations in two groundwater samples both exceeded the EPA HA at estimated concentrations of 0.178 µg/L and 0.077. However this could be coming from Area 5 and Area 2 may not be the source, this is a data gap to look at in the expanded SI.

AFFF AREA 3 - FIRE STATION #2 (BUILDING 2032) – Time and distance tests were conducted periodically at Fire Station #2 from 1996 until 2016. Testing was typically conducted on the west side of the fire station along the airport access road. Concentrations of PFOA in soil and groundwater were below screening levels. PFOS, however, was detected in one surface soil sample (PETER03-003 at a concentration of 2,400 µg/kg) outside the limits of the spray test area. There is also the potential for PFOS impacts to groundwater, however there is currently not a soil screening level protective of groundwater for PFOS.

AFFF AREA 4 - GOLF COURSE/LEACH FIELD (WP006), DETENTION POND #3, AND SITE 5 (FT002) – AFFF Area 4 includes the golf course/leach field, Detention Pond #3, and Site 5. AFFF releases at the sites included likely discharge of impacted wastewater to the leach field, irrigation at the golf course using impacted surface water from Detention Pond #3, historical discharge of impacted storm water to the original unlined Pond #3, discharge of impacted storm water from existing Detention Pond #3 to unlined COS detention pond, and use of AFFF during training exercises at Site 5 (a former FTA). PFOS/PFOA concentrations in soil and sediment were below screening levels at all AFFF Area 4 sites. Combined PFOS/PFOA concentrations in groundwater samples collected from five wells exceeded the EPA HA at estimated combined concentrations ranging from 0.079 µg/L to 0.98 µg/L. Combined PFOS/PFOA concentrations in surface water samples collected from Pond #2 on the golf course and nearby Detention Pond #3 also exceeded the EPA HA at concentrations of 0.826 µg/L and 0.73 µg/L respectively.

AFFF AREA 5 - CURRENT FTA – Although only water is used to extinguish fires now, AFFF was used during past training exercises at the FTA. The FTA includes a burn pit with a dual HDPE liner and a mock aircraft. PFOS were detected at concentrations below screening levels in subsurface soil at AFFF Area 5, indicating the soil pathway is incomplete for subsurface soil. Surface soil was not sampled at the FTA. Combined PFOA/PFOS concentrations exceeded the EPA HA in three groundwater samples collected at the current FTA. PFOS/PFOA exceeded the EPA HA in a sample collected from an existing well just outside the fire pit liner at a combined concentration of 88.4 µg/L. Samples collected from two downgradient wells exceeded the EPA HA at estimated combined concentrations of 3.24 µg/L and 15 µg/L. Impacted groundwater is migrating from the FTA to the southeast and may be flowing under Area 2, Fire Station 1.



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Note: 1 ug/L = 1,000 ppt