



## Response to PFOS/PFOA in Drinking Water

156th Wing, Muñiz Air National Guard Base

### Identify – Respond – Prevent

The Air Force is taking specific actions at Muñiz Air National Guard Base to determine the presence of Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA).

#### BACKGROUND: WHAT ARE PFOS AND PFOA?

PFOS and PFOA are synthetic fluorinated organic compounds used in many industrial and consumer products such as nonstick cookware, stain-resistant fabric and carpet, and some food packaging.

Commonly grouped with other synthetic fluorinated chemicals using the umbrella term Perfluorinated Compounds, or PFCs, PFOS and PFOA are the only two compounds with established lifetime health advisories for drinking water.

- In 1970, the Air Force began using Aqueous Film Forming Foam (AFFF), which contains PFOS/PFOA. AFFF is the most efficient extinguishing method for petroleum fires and is widely used across the firefighting industry, including all commercial airports, to protect people and property.
- On May 19, 2016, the EPA established LHA levels of 70 parts per trillion for separate and combined PFOS and PFOA concentrations in drinking water. These compounds are classified as emerging contaminants due to evolving regulatory standards.

#### AIR FORCE RESPONSE TO PFOS/PFOA

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

- The Air Force Civil Engineer Center (AFCEC) 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.
- 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.
- In the U.S., AFCEC is conducting additional sampling to identify potential AFFF releases, determine the extent of the PFOS/PFOA contamination and map possible pathways to drinking sources.
- The Air Force’s investigation work and mitigation actions for drinking water are guided by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), applicable state laws, and EPA's drinking water health advisories.
- AFCEC is working with affected residents to identify long-term solutions to ensure their drinking water meets the EPA LHAs for PFOS and PFOA.

#### Muñiz ANGB

##### RESPONSE ACTIONS TO DATE

- \*Preliminary Assessment (PA) conducted in 2016 at the 156th Wing, Muñiz Air National Guard Base.
- \*Ten areas were identified for further investigation during the PA.
- \*Site Investigation (SI) was conducted at the 10 locations identified during the PA in 2019.
- \*Collected samples during SI were analyzed to determine presence or absence of Perfluorinated Compounds (PFC).
- \*SI results indicated presence of PFOS/PFOA compounds in all media within installation boundaries and possible off-base migration.
- \*Further investigations will be required to determine nature and extension of contamination and potential receptors and exposure pathways.
- \*Site Inspection report can be accessed at: <https://ar.afcec-cloud.af.mil/>

# PFOS/PFOA Investigation at Muñiz ANGB

## Preliminary Assessment (PA)

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

- A preliminary assessment and site visit was conducted, May 2016 at the 156th Wing, Muñiz Air National Guard Base. The PA identified 10 areas to further investigate.

## Site Inspection (SI)

Groundwater, surface water, soil and sediment sampling is conducted to verify presence or absence of PFOS/PFOA. Sampling is prioritized based on probability of contamination, possible pathways for contaminants to reach drinking water sources and proximity to groundwater.

**After conducting the SI, additional investigations are recommended for the 156th Wing, Muñiz ANGB to determine:**

- Nature and extension of contamination
- Evaluation of potential receptors
- Potential exposure pathways

- A SI was conducted from May 20 to June 4, 2019 at the 10 locations identified during the preliminary assessment.
- The purpose of the site inspection was to determine presence or absence of perfluorinated compounds, including perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA).
- Soil, groundwater, sediment and/or surface water samples were collected from the previously identified locations. The collected samples were analyzed for PFOS/PFOAS compounds. Results were compared to screening criteria from EPA drinking water lifetime health advisory.
- The results indicated presence of PFOS/PFOA compounds in all media (soil, groundwater, sediment and/or surface water). Groundwater and surface water results were above criteria for PFOS/PFOA on base and likely off-base migration.
- 156 Wing PFOS/PFOA Site Inspection Report is available for the public at AF Administrative Record website: <https://ar.afcec-cloud.af.mil/>

## What's the next step?

The next step is conducting a Remedial Investigation (RI).

A RI will be conducted at 77 Air National Guard installations, including the 156th Wing, Muñiz ANGB.

- Bases will be prioritized by risk, based on their impact to potable water resources. RI will be conducted first at 'higher-risk' bases.
- An estimated date of when a PFOS RI will be conducted at Muñiz is yet to be determine.

## Prevent Future Contamination

### AFFF Replacement

The Air Force is replacing legacy AFFF with more environmentally responsible formulations.

- The Air Force replaced all legacy AFFF in fire vehicles, stockpiles, and hangar systems at the 156th Wing, Muñiz Air National Guard Base in 2016.





**Q: Is the water at Muñiz safe to drink?**

**A:** Muñiz ANG Base has sampled their drinking water distribution system to verify if our water supply shows high levels of PFOA's. At this time, results have demonstrated we are not in violation of the EPA's established health advisory levels.

**Q: Is it safe to work at or near Muñiz ANG Base, based on this Preliminary Assessment?**

**A:** Yes, it is safe to work at or near Muñiz ANG Base.

**Q: Are there any potable water wells located in or around Muñiz?**

**A:** There are no potable water wells located in or around Muñiz.

**Q: Is the local drinking water around Muñiz impacted and is it safe to drink?**

**A:** The drinking water in the vicinity of Muñiz is provided by the local municipal water supply and therefore is safe. Also, the surface waters around Muñiz are not drinking water sources.

**Q: The Preliminary Assessment determined that Muñiz ANGB has 10 Potential Release Locations (PRL). What does that mean?**

**A:** A Potential Release Location (PRL) is a location identified where previous activities using AFFF were likely to be performed. AFFF contain PFAS. PFAS are found in everyday commercial and household items such as food wrappings, Teflon pans, carpets (stain resistant), water proofed clothing, medical devices and many more everyday items.

**Q: If the site inspection was focused on drinking water, why does it include information about potential impacts of non-potable groundwater, surface water, soil and sediment?**

**A:** This is an issue of completeness. If there were potable water wells in the vicinity of base, PFAS has the potential to migrate to potable water sources via groundwater, outfalls (sediments) and surface water. Because the residences and business in the vicinity of Muniz ANGB obtain water from the local water authority (and NOT personal drinking water wells), there should be no issues with contamination of drinking water sources.

**Q: Will the Air National Guard be testing wells off base?**

**A:** Yes.

**Q: What are your next steps?**

**A:** Conduct more comprehensive investigations (known as Remedial Investigation) to determine the extension of the PFOS contamination, evaluate potential receptors (who could be affected by people, wildlife) and potential exposure pathways (how you could you be affected) and to determine health risk. The RI will also provide data to support cleanup actions.

**General PFOS/PFOA FAQs:**

**Q: What are PFCs?**

**A:** Perfluorinated compounds, or PFCs, are a group of manmade chemicals used for a wide variety of residential, commercial and industrial purposes. The Environmental Protection Agency established drinking water health advisory levels for two types of PFCs - PFOS and PFOA - at 70 parts per trillion

(ppt) in 2016 because of a potential risk to human health. The EPA classifies PFOS and PFOA as unregulated emerging contaminants.

**Q: What are Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA)?**

**A:** PFOS/PFOA are common compounds found in many water and stain-resistant products around the world, including a legacy formula of Aqueous Film Forming Foam (AFFF), a firefighting agent widely used by commercial and military emergency fire response teams to combat petroleum-based fires.

**Q: Why is PFOS/PFOA being discovered on closed and active installations?**

**A:** In 1970, the Air Force began using a legacy formula of Aqueous Film Forming Foam (AFFF) which contained PFOS and PFOA to extinguish petroleum fires, commonly associated with burning aircraft. 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. We replaced the legacy AFFF in all emergency response vehicles with more environmentally responsible formula, and legacy AFFF in hangars was replaced in 2016.

**Q: How many Air Force locations have had PFOS/PFOA releases?**

**A:** The Air Force identified approximately 200 installations in the U.S. (active, Reserve, Air National Guard and closed) where AFFF may have been released and is conducting site inspections to confirm if releases occurred.

**Q: How is the Air Force addressing PFOS/PFOA on closed and active installations?**

**A:** The Air Force's investigation work and mitigation actions for drinking water are guided by federal and any applicable state laws, as well as the EPA's lifetime drinking water health advisories of 70 parts per trillion for PFOS and PFOA, when found separately or combined. We are using a comprehensive approach – identify, respond, prevent – to address the potential for PFOS/PFOA contamination of drinking water and respond appropriately.

When drinking water sample results indicate PFOS/PFOA concentrations exceed 70 ppt and there is evidence the Air Force is likely a source of the contamination, we determine an appropriate mitigation action, such as providing an alternate drinking water source, filtration system and/or providing bottled water if needed.

When PFOS/PFOA are detectable but below the LHAs' level in drinking water, we may conduct well monitoring as needed to track level changes and determine if further action is needed.

**Q: Why doesn't the Air Force just use PFOS/PFOA free foam?**

**A:** AFFF agents that contain some form of PFOS/PFOA or related fluorosurfactants are the most effective foams currently available to fight flammable liquid fires. They provide rapid extinguishment, burn-back resistance and protection against vapor release.

Foam manufacturers are transitioning to the use of more environmentally responsible formulas that do not contain long-chain perfluorinated compounds. These short-chain formulas are low in toxicity and not considered bio-accumulative or bio-persistent.

**Q: If the site inspection was focused on drinking water, why does it include information about**

**potential impacts of non-potable groundwater, surface water, soil and sediment?**

**A:** According to the process AFCEC is using to assess sites nationwide, each site inspection uses groundwater, surface water, soil and sediment sampling to verify releases and map possible contamination. If a pathway to drinking water sources is found during a site inspection, the Air Force takes steps to identify and address mission-related drinking-water impacts.

The Air Force is conducting site inspections at approximately 200 locations; Muñiz ANG Base is unique because there are no drinking water sources on or near the base. Additionally, there are no known impacts to human health related to PFOS/PFOA exposure via non-potable groundwater, surface water, soil and sediment

**Q: What mission activities may contributed to or caused the contamination?**

**A:** PFOS/PFOA was an ingredient in aqueous film forming foam (AFFF), a firefighting foam used by commercial industries and the military to extinguish petroleum-based fires. The Air Force began using AFFF in the 1970s. Currently, we must conduct a comprehensive investigation – in accordance with state and federal regulations

– to identify where our activities may have contributed to PFOS/PFOA concentrations above the EPA’s Lifetime Health Advisories and take appropriate action.

**RESOURCE LINKS:**

[PFAS INFORMATIONAL VIDEO](#)

<https://health.mil/Military-Health-Topics/Combat-Support/Public-Health/PFAS>