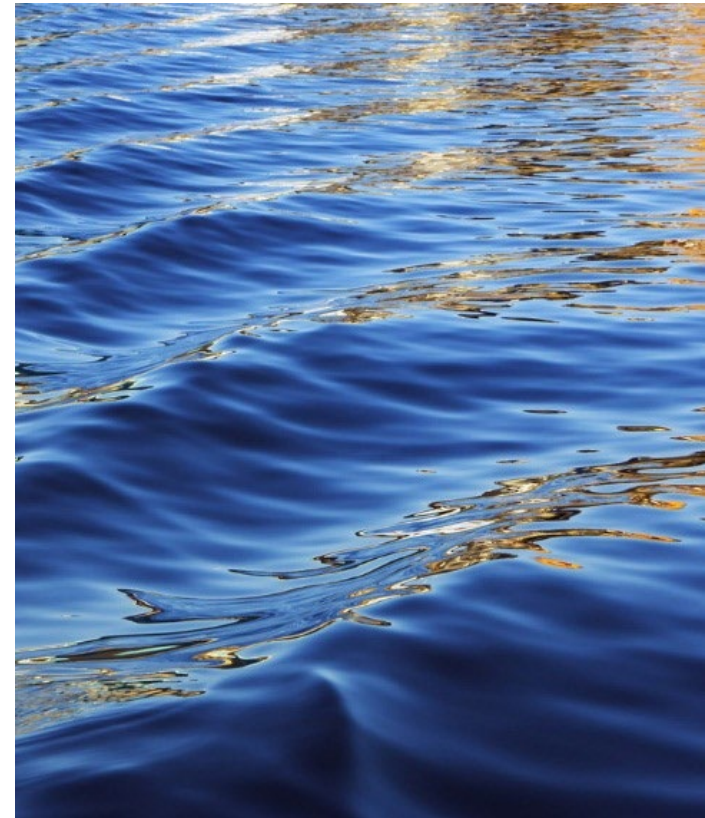


# Off-Base PFAS Sampling near Dover Air Force Base Dover, Delaware

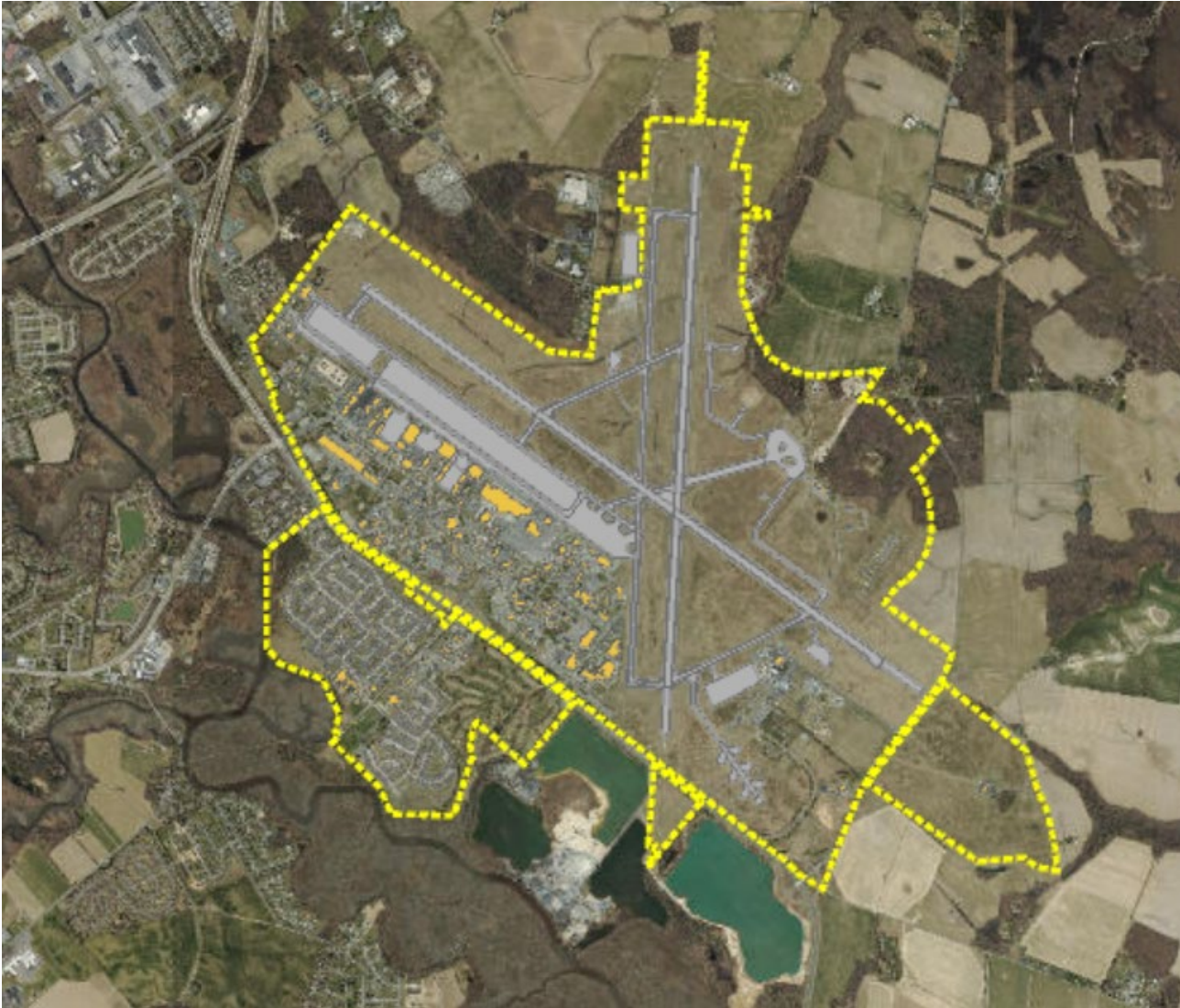
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ASTSWMO Mid-Year Meeting, April 27, 2023



# Disclaimer Statement

The views expressed in this presentation are those of the authors and do not necessarily reflect the views or policies of the Department of Defense or State of Delaware.



# Dover Air Force Base

## - Overview

- 3.5 miles southeast of the city of Dover in Kent County, Delaware
- ~4,000 acres
- Bounded by a residential area to NW, St. Jones River to SW, and agricultural fields and wooded land to the N and E.

# Dover Air Force Base Operations

- Began operations in December 1941
- Currently home to 436<sup>th</sup> Airlift Wing known for:
  - Air Force's largest aerial port
  - AMC museum
  - AF Mortuary Affairs Operation (AFMAO) and AF Medical Examiner Systems (AFMES)
  - C5 and C17 home

# Dover Air Force Base Environmental History

- Environmental Investigations began in 1983
- Listed on NPL in 1989
- Chlorinated solvents and petroleum are primary contaminants of concern
- Remedy includes in-situ bioremediation and monitored natural attenuation of groundwater and land use controls
- Construction Complete milestone achieved for all sites in 2006

**And then PFAS...**

# Dover AFB PFAS Investigations

- Air Force has used aqueous film forming foam (AFFF) to extinguish petroleum fires since 1970
- AFFF containing PFAS was released to the environment during fire training exercises, emergency responses, equipment testing and maintenance and storage activities
- PFAS investigations have focused on AFFF release areas
  - A due diligence review of non-AFFF sources is commencing

# Dover AFB PFAS Investigations – Timeline (Completion Date)

**2014 - Screening Level Investigation**

**2015 - Preliminary Assessment**

**2017 - Site Inspection**

**2022 - Expanded Site Inspection**

**Ongoing - Phase I Remedial Investigation**

# Focus on Potential Drinking Water Receptors

- Ingestion of PFAS in drinking water is primary means of exposure to humans
- Public Wells
  - All screened in confined aquifer
  - Non-detect for PFOS and PFOA
- Private Wells
  - Where are the private wells located? Are they impacted?



# Dover AFB PFAS Private Well Sampling

- **2015 – 2016:** off-base drinking water sampling near SS510P/C-5 Crash Site
- **2019:** off-base drinking water sampling near SSo65P/Hangar Release and FT003P/Former Fire Training Area
- **2020 – 2021:** additional off-base drinking water sampling near SSo65P/Hangar Release and re-sampling near SS510P/C-5 Crash Site
- **Ongoing-** periodic off-base drinking water sampling for select wells

# PFOS+PFOA Detections On- & Off-Base

## SS065P - Hanger Release

Max PFOA: 110,000  
Max PFOS: 2,000  
Max PFOS/PFOA: 112,000  
Highest off-Base: 170,360



## FT003P - Former Fire Training Area

Max PFOA: 30,000  
Max PFOS: 170,000  
Max PFOS/PFOA: 200,000  
Highest off-Base: 88.5

## SS510P - C5 Crash Site

Max PFOA: 19,000  
Max PFOS: 700,000  
Max PFOS/PFOA: 719,000  
Highest off-Base: 130.9

# Response to Exceedances of HA

- Air Force current policy lists 70 ng/L PFOA+PFOS as basis for taking action
- 70 ng/L or greater – Air Force provided bottled water within 24-48 hrs and later installed POET
- 35 to 69 ng/L – additional sampling (quarterly, semi-annually, etc.)
- Less 34 ng/L – no additional sampling
- Overall – 9 off-Base private wells were impacted by PFOA and/or PFOS over 70 ng/L

# Challenge - Identifying Private Wells & Community Outreach

- Tier 1 team - USEPA, DNREC, DPH-ODW, AFCEC – coordinated to identify properties within ~1 mile of Base
- DNREC's well database used to identify some wells; drive around to fill data gaps
- Excluded confined potable wells and wells not used for human consumption (i.e. irrigation wells)
- Door to door outreach by Dover AFB RPM and EPA CIC
- Connected with community one-on-one; not much interest from community in Restoration Advisory Board (RAB) at the time

## Challenge – Protecting PII and Sharing Data

- Protecting personally identifiable information (PII) of property owners w/ private wells
- Initial understanding between DNREC and Air Force regarding data sharing and PII
- Later documents with PII required redaction before sharing w/ DNREC (state)

# Challenge – Reconciling Federal and State PFAS Policies and Guidance



Health Advisories and Regional Screening Levels have changed several times over course of off-Base sampling as science of PFAS evolves



DNREC under HSCA considers PFOA and PFOS (and other PFAS) to be hazardous substances and has own PFAS policy



EPA proposed PFOA and PFOS as hazardous substances and has issued RSLs for several PFAS based on updated toxicity information



Delaware proposed MCLs for PFOA and PFOS in 2022. EPA proposed MCLs for PFOA, PFOS, and other PFAS in 2023



Air Force will consider implementing MCLs as cleanup levels once promulgated. Action level of 70 ng/L for PFOA+PFOS.



Disagreement over appropriate action level but agree with Removal Actions for wells over 70 ng/L

## Success – Treatment of Off-Base Private Wells

- Nine private wells treated w/ POETs by Air Force
- Six private wells provided POU filters by DNREC
- Air Force plans to extend City of Dover water line or install deeper wells in non-impacted aquifer as permanent remedy

## Success - Filters Offered by DNREC in Interim

- DNREC's practice to offer **point of use filters** at other state-lead sites and an NPL site w/ elevated PFOS+PFOA as a **protective measure**
- DNREC distributed point of use filters to six residents with PFOS+PFOA exceedances of proposed state MCLs in off-Base private wells but below DoD action level of 70 ng/L
- DNREC anticipates offering additional POU filters to residents with PFOS and PFOA above the proposed federal MCLs of 4 ng/L





# Questions?

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