



# Restoration Advisory Board Horsham Air Guard Station

Keith Freihofer

NGB/A4VR

4 December 2019



# Updates Since September



- Environmental Restoration Program Sites:
  - No change
- PFAS Remedial Investigation:
  - Contract awarded 30 September
- PFAS surface water treatment:
  - Phase II system continuing to operate
  - Phase III system and basin upgrades in procurement
  - Draft NPDES Industrial Stormwater permit under review

# PFOS/PFOA on Horsham AGS



- In 2015, ANG completed a Preliminary Assessment of potential PFOS/PFOA release sites at the Horsham Air Guard Station (AGS). Ten potential source areas identified in the PA include:
  - Buildings that contained foam fire suppression systems
  - Areas that may have received runoff from foam releases
  - Stormwater sediment basin
  - Former waste water treatment plant
  - Former storage area for wastewater treatment sludge
- These potential source areas were further investigated by Leidos in a PFOS/PFOA Facility Investigation and additional investigation will occur in the Remedial Investigation (RI)



# Potential PFOS/PFOA Source Areas

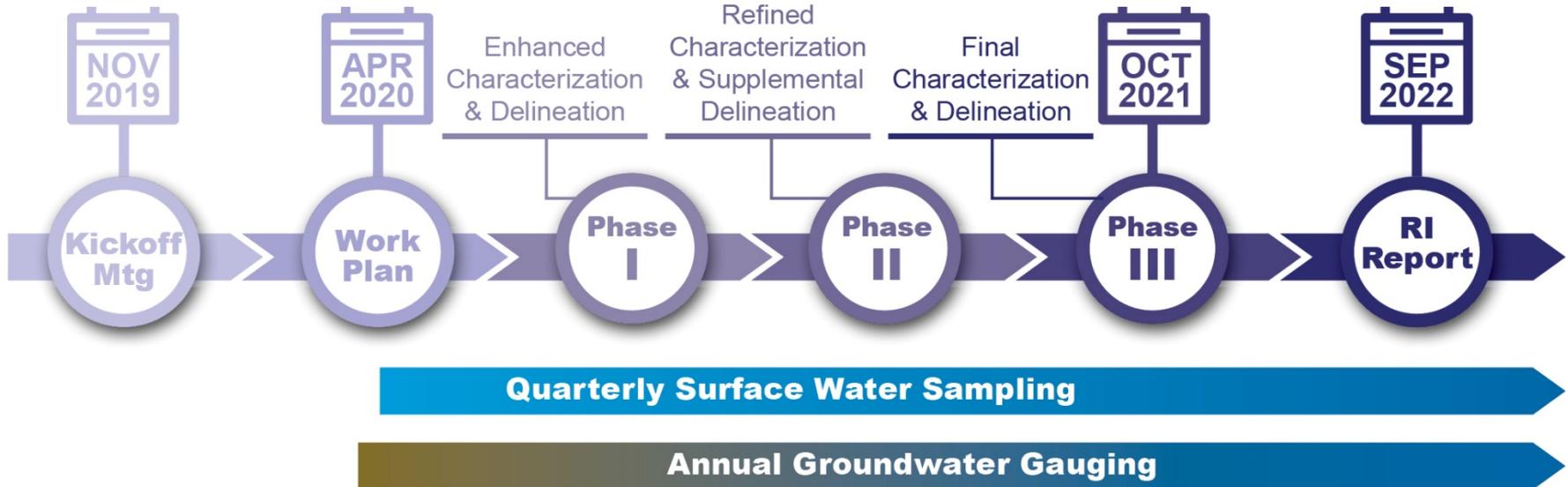


# PFAS RI Project Objectives



- Delineate the nature and extent of PFAS contamination, the threat to human health and the environment and prepare a RI Report within 36 months.
  - Collect soil, sediment, surface water, and groundwater PFAS data on and around HAGS
  - Conduct Baseline Risk Assessment (BRA)
  - Investigate link between groundwater and unnamed tributary to Park Creek
  - Obtain data required to inform future development of a Feasibility Study
  - Conduct quarterly surface water sampling for PFAS (12 quarters)
  - Conduct annual potentiometric gauging to support USGS model

# RI General Project Steps and Schedule



# PFOS/PFOA in Surface Water on Horsham AGS



- PFOS/PFOA has been detected in surface water leaving the Horsham Air Guard Station. This water flows from a stormwater detention basin on the northwest boundary of the Base to Park Creek which flows to the Little Neshaminy Creek.
  - ANG is taking actions to reduce this release of PFOS/PFOA to the Creek:
    - An updated carbon filtration system was installed on the outfall in August 2018 replacing the original system from September 2017. The system is designed to reduce dry weather flow PFOS/PFOA concentrations to below 70 PPT. Treats 60-100 gallons per minute.
    - Improved system in design now with target of treating 250 gallons per minute. This will treat all dry weather flow with capacity to treat some wet weather flow. Improvements to the stormwater basin will retain some precipitation runoff to allow system time to treat it

# PFOS/PFOA in Drinking Water



- Warrington Township recently sold its drinking water system to North Wales Water Authority (NWWA). ANG will negotiate with NWWA to transfer the \$13.5 million Warrington Township cooperative agreement to them for installation of filtration on five municipal wells.



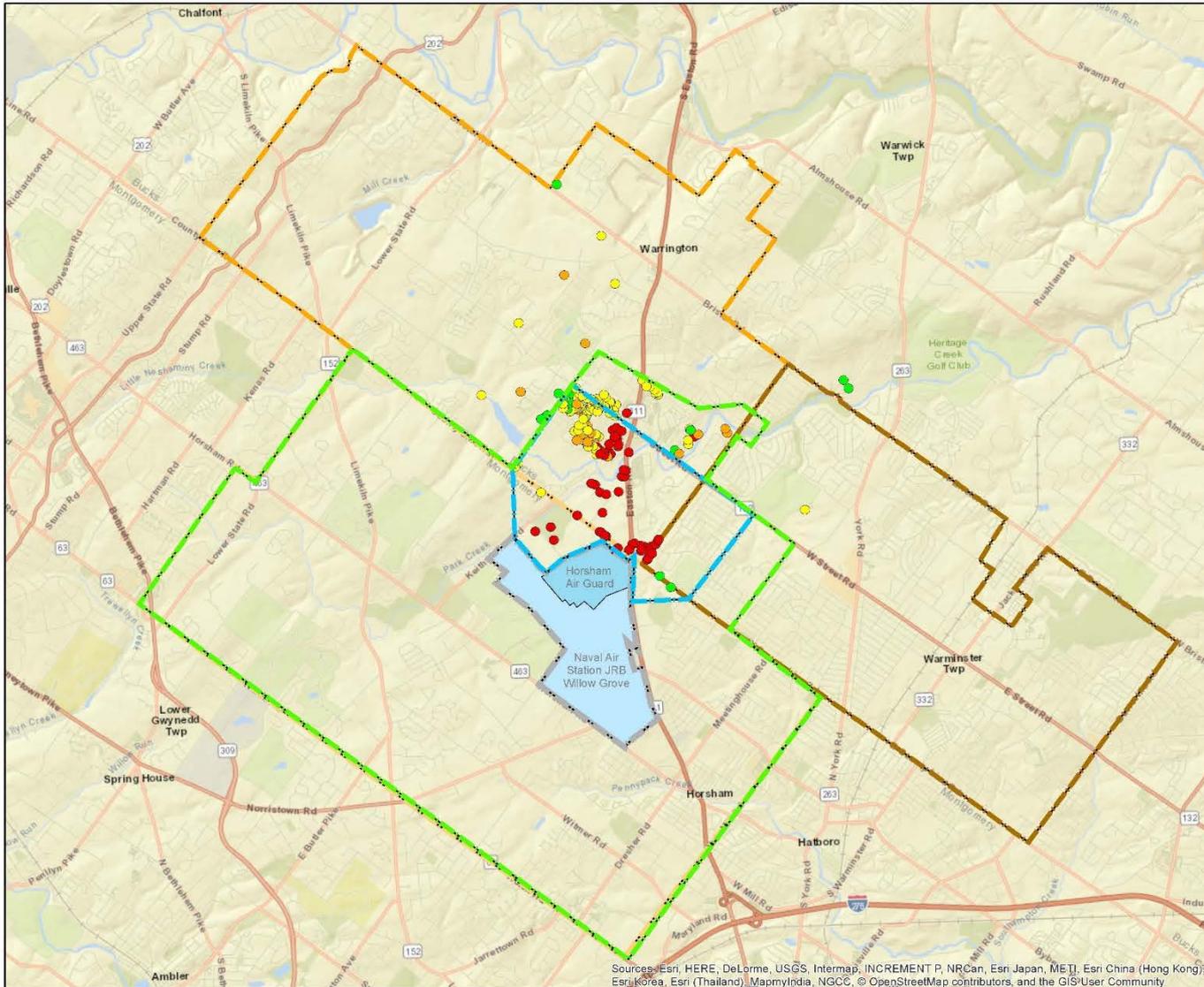
# Private Well Sampling



- ANG has contract in place with Wood to provide PFOS/PFOA testing of private drinking water wells and supply bottled water to properties with PFOS/PFOA at or above the lifetime health advisory level (HAL) for residents within our area of responsibility in Horsham, Warminster, and Warrington
  - The number of private wells sampled by ANG are:
    - Horsham: 5, all above HAL; 4 have been connected to municipal water (remaining one not in use)
    - Warrington: 150, 46 are above HAL; 35 have been connected
    - Warminster: 12\*, 11 are above HAL; 8 have been connected
- \*Some of these properties are on Valley Road with Warminster mailing addresses but are located in Warrington Township
- Sampling contact for ANG area of responsibility: David Side at [david.side@woodplc.com](mailto:david.side@woodplc.com) or (610) 877-6111



# Private Well Sampling Map



PFC Sample Location Map  
as of October 2018

Horsham Air Guard Station  
Horsham and Warrington Township

### Legend

**Health Advisory Level (HAL)**  
HAL is the sum of both PFOA+PFOS (PFOA 0.070 ug/L, PFOS 0.70 ug/L)

- Sum of PFOA+PFOS concentrations above 0.070 ug/L
- Sum of PFOA+PFOS concentrations detected between 0.040 ug/L and 0.070 ug/L
- Sum of PFOA+PFOS concentrations detected at or below 0.040 ug/L
- PFOA & PFOS not detected

- Horsham Air Guard
- Former NAS JRB Willow Grove
- Sampling Area
- Air Force Administrative Order Boundary
- Horsham Township
- Warrington Township
- Warminster Township

### Notes & Sources

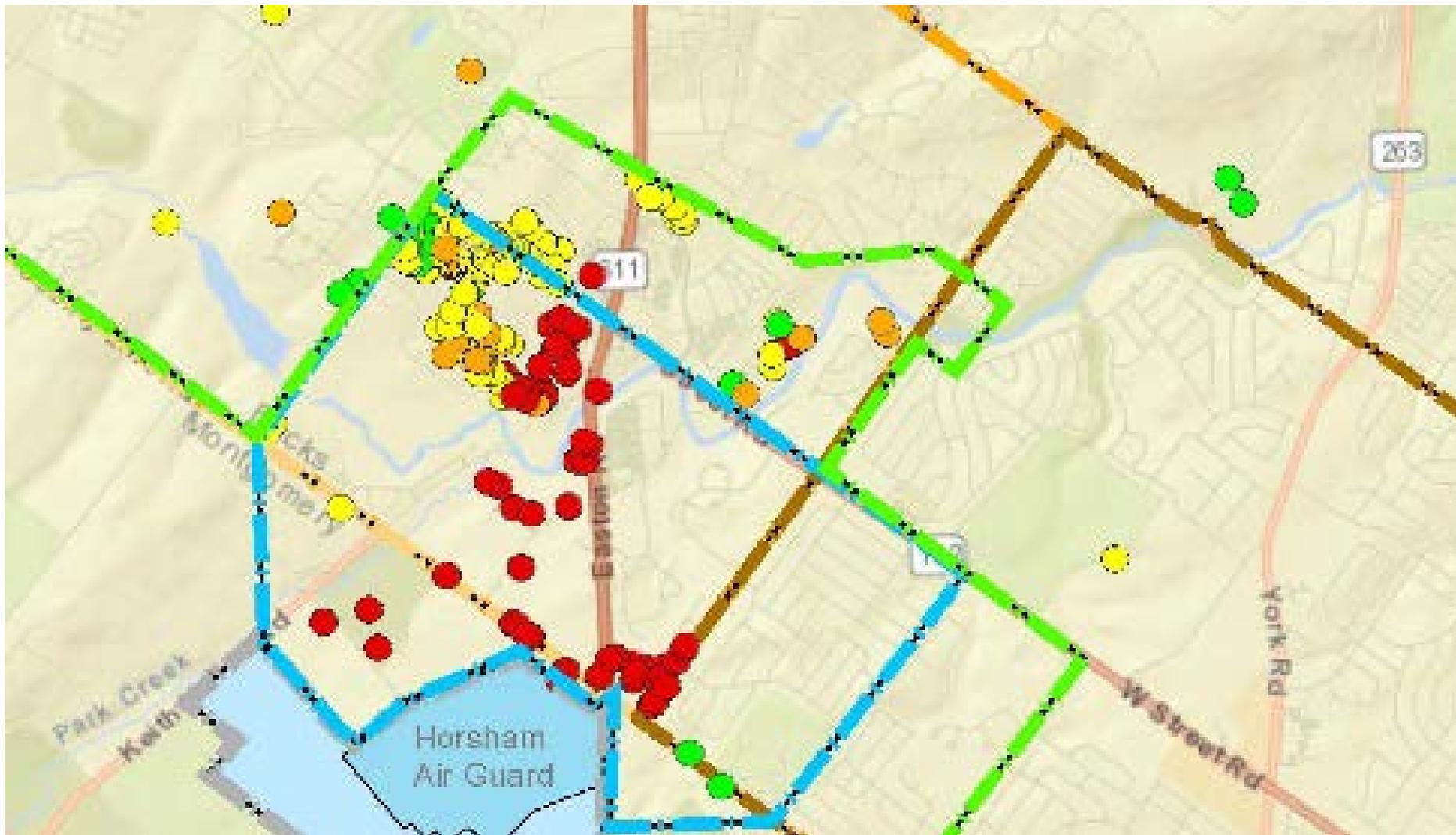
Sources:  
Street Base Map hosted by ESRI.

**wood.**  
Wood  
Environment & Infrastructure, Inc.  
751 Arbor Way  
Blue Bell, PA 19422  
(610) 828-8100

Figure  
**2**



# Private Well Sampling Map





# Actions Planned for Next 3 Months



- PFAS Remedial Investigation:
  - Work plan development
- Surface water treatment:
  - Phase III system to be built
  - Draft NPDES Stormwater Permit is under review
- Continued private well sampling



# Questions?

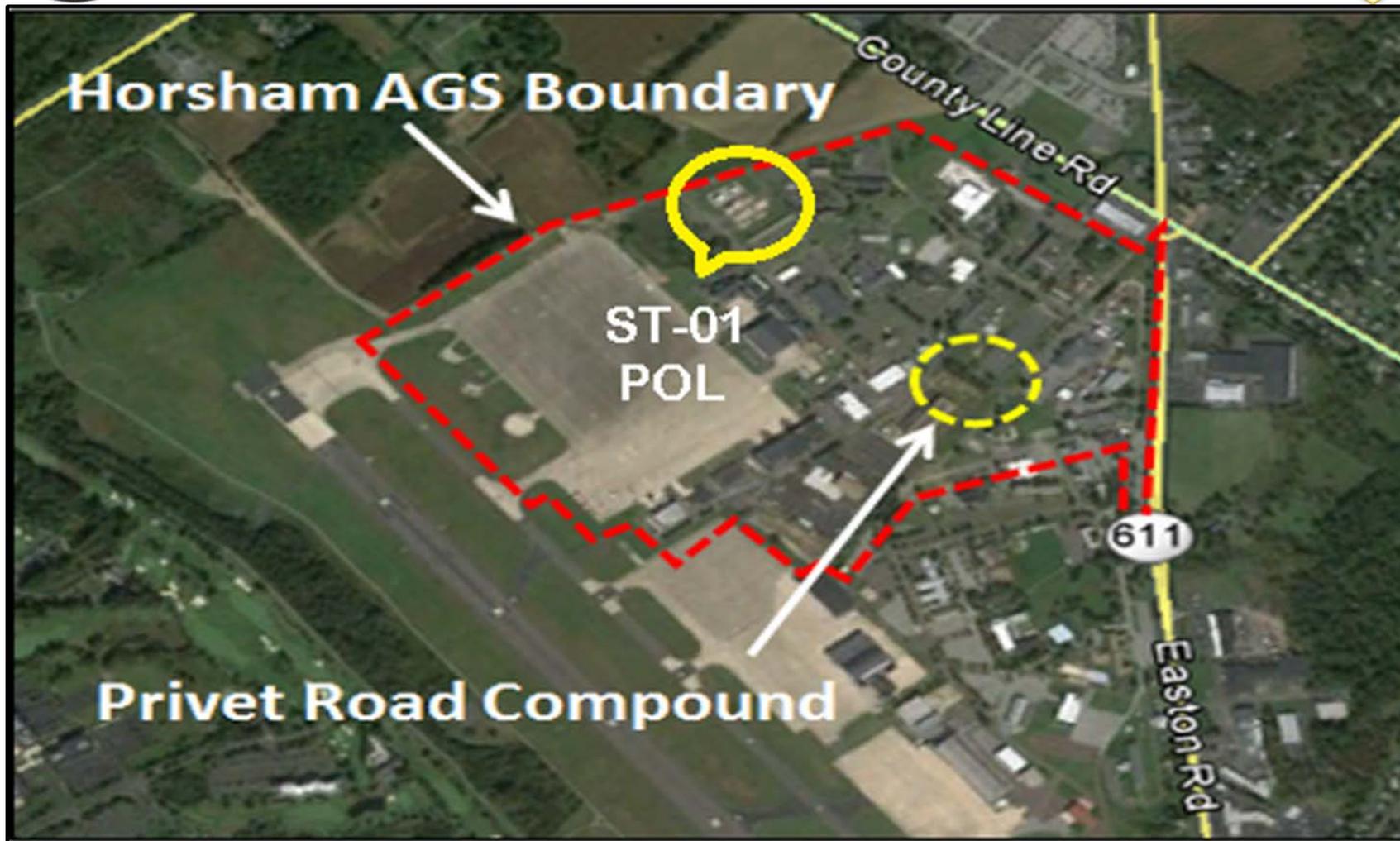
**Keith Freihofer**  
**keith.e.freihofer.civ@mail.mil**  
**240-612-8762**

**Air National Guard Administrative Record:**  
**<http://afcec.publicadmin-record.us.af.mil/Search.aspx>**  
**select "Air National Guard", then "Horsham AGS", then click Search**



# Previously Presented Data

# Environmental Restoration Program Sites





# Air Force Reserve ST-01 POL



- Former Air Force Reserve Petroleum Tank Area
  - Originated from a jet fuel spill in the 1970's
  - Injections of persulfate and Epsom salt replaced the biosparge system in 2016
  - Petroleum tanks were dismantled in 2016
    - Disposed 175 tons of petroleum impacted soil at licensed facility
    - Confirmatory sampling contract underway in accordance with 25 Pennsylvania Code, Section 245.310 of the Department of Environmental Protection (DEP)'s Rules and Regulations
- Results were provided and accepted by PADEP on 10 September 2019 in a Supplemental Remedial Investigation Report and a Site Characterization Report in accordance with:
  - Closure Requirements for Aboveground Storage Tank Systems Technical Guidance Number 263-4200-001 (PADEP, 2017)
  - Pennsylvania Code, Chapter 245-310 Site Characterization Report
- POC: Ms. Margaret Patterson: [margaret.patterson@us.af.mil](mailto:margaret.patterson@us.af.mil)

# Privet Road Compound



- Former waste management area for Naval Air Station Joint Reserve Base Willow Grove
- Sampling completed in 2017 indicates trichloroethene (TCE) and tetrachloroethene (PCE) exist in the groundwater but levels are below maximum contaminant levels (MCL) set by the U.S. Environmental Protection Agency for drinking water quality
- Leidos, Inc. is contracted for continued long-term monitoring. Biannual groundwater sampling and land use control inspections will continue to be conducted pending a final site remedy
- Second Five-Year Review for Privet Road groundwater contamination was finalized in September 2018 and is available on the ANG Admin Record

# PFAS Investigation Update



- GW sampling event conducted in March 2018
- Joint gauging event conducted 8-9 March 2018
- Baseflow SW sampling conducted 19 March 2018
- Rain event SW sampling conducted 28-29 June 2018
  
- Documents available on Administrative Record
  - Final Facility Investigation Report
  - Final Groundwater Monitoring Reports for December 2017 Sampling Event
  - Final Groundwater Monitoring Reports for March 2018 Sampling Event
  - <http://afcec.publicadmin-record.us.af.mil/Search.aspx>
- Final Stormwater Study Tech Memo submitted March 2019
- Final Conceptual Design Report submitted to ANG
- NPDES stormwater permit application submitted to PADEP 28 August

# Groundwater Data Update



- Gauging conducted 8-9 March 2018
  - Semi-confined multilayer aquifer system, subdivided into four zones for contouring
  - Gradients trends northwest in each zone
- Sampling event conducted 5-15 March, 2018
  - Concentrations similar to previous events
  - 78 of 85 locations exceeded 70 PPT (ng/l) (combined PFOA/PFOS)
  - Highest concentrations found in three general areas: along the southern boundary, near Building 335, and near Building 201.
  - Highest concentrations at PMW01, Zones A, B, and C: 329,500 PPT, 147,400 PPT, and 186,900 PPT, respectively.
  - Next highest concentration at IMW-06 (49,000 PPT) along the southern boundary).
  - Four wells near Buildings 201 and 335 contained concentrations above 10,000 PPT.

# GW Results: March 2018

