

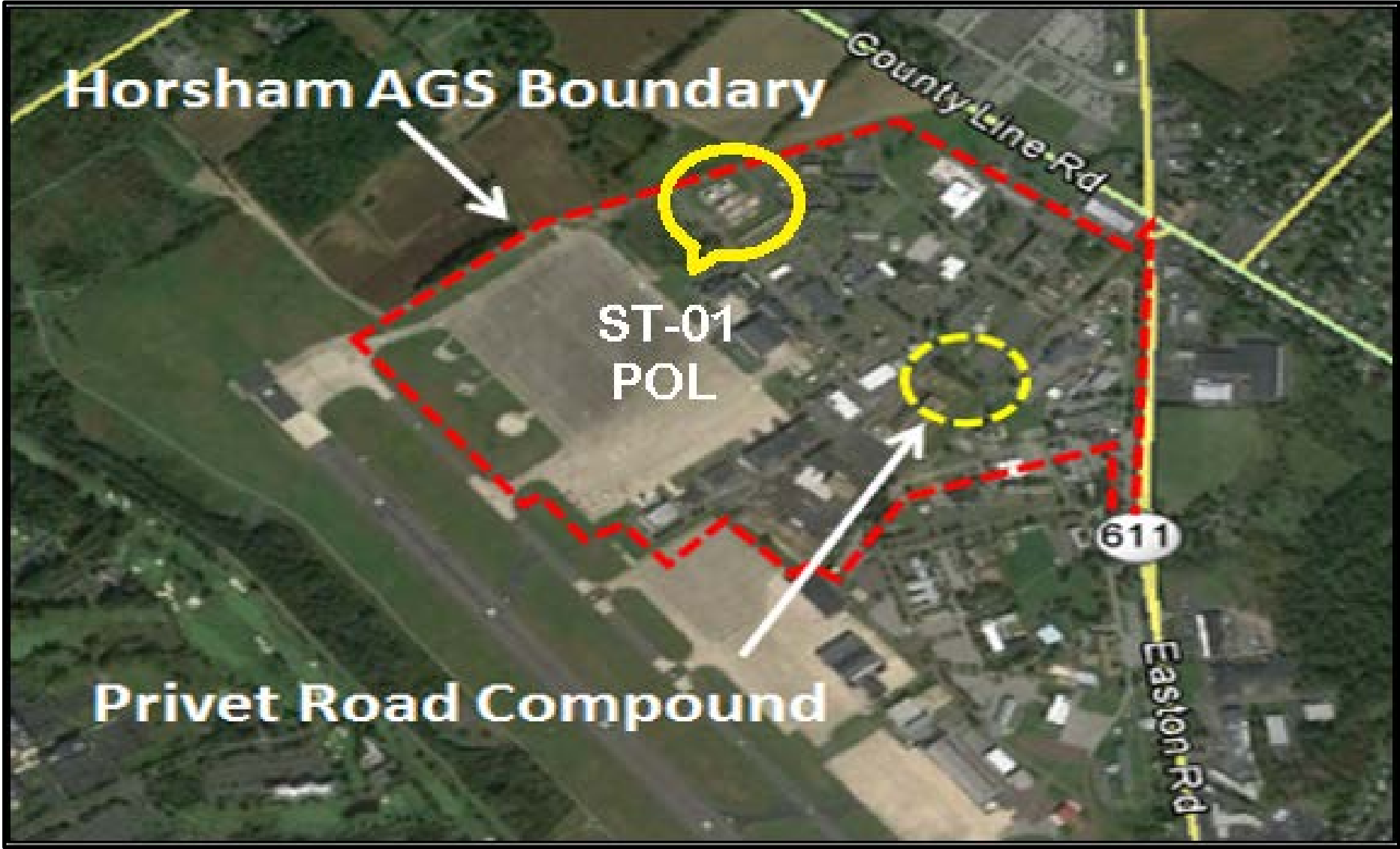
Restoration Advisory Board

Horsham Air Guard Station

May 10, 2017



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- Former Air Force Reserve Petroleum Tank Area
 - Site 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 allowing for removal of any petroleum impacted soil that may be present under the tanks. 175 tons of presumed petroleum impacted soil removed from beneath tanks and disposed of at licensed facility. Confirmatory sampling programmed for 2018.

- Former waste management area for Naval Air Station Joint Reserve Base Willow Grove
- Sampling completed in June 2016 indicates very low levels of trichloroethene (TCE) and tetrachloroethene (PCE) exist in the groundwater; however, both TCE and PCE were below maximum contaminant levels 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

- In 2015, ANG completed a Preliminary Assessment of potential perfluorinated compound (PFC) release sites at the Horsham Air Guard Station (AGS)
 - Ten potential PFC 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 are being further investigated by Leidos in a PFC Facility Investigation
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Potential PFC Source Areas



- Initial results reported in Technical Memorandum (soil, surface water, sediment, existing wells, and tank sampling). Draft Memo – June 2016, Final Memo – October 2016.
- Shallow (11), intermediate (8), and deep (7) wells installed. Shallow wells sampled, intermediate and deep sampling completed.
- Perimeter multiport well installation completed and two rounds of sampling completed; results pending.
- Geophysical logging conducted at 15 locations
- Packer Testing conducted at base supply wells and a deep monitoring well.
- Month long water level monitoring completed on 6 monitoring wells near the Base supply wells. Drawdown was observed at each well confirming hydraulic connection in each compass direction and at various depths.



LEGEND:

- Shallow Well
- Proposed Multilevel Well
- Proposed Deep/Intermediate Well
- Existing Horsham AGS Well
- Building*
- Installation*
- Generalized Regional Groundwater Flow Direction
- Surface Water Flow Direction

NOTES:

* Source: Common Installation Picture (CIP) geodatabase provided by ANG GeoBase on 09/14/2015.

1. Existing well locations are approximate; additional wells may be present.
2. Background Source: ESRI World Imagery (USDA NAIP, 06/2013).



HORSHAM AIR GUARD STATION
HORSHAM TOWNSHIP,
PENNSYLVANIA

PROPOSED MONITORING
WELL LOCATIONS

- Well installations confirm artesian conditions and confined to semi-confined aquifers.
- Shallow well sample results are similar to pre-existing well results. No new source areas directly indicated.
- Packer tests conducted on supply well NAS-2 indicate higher concentrations of PFOA/PFOA in central portion of the borehole. Concentrations at supply well NAS-1 and monitoring well DMW-07 decline with depth.
- Additional rock sampling indicates PFOS/PFOA not present in rock matrix.
- Rock core samples illustrate the vertical and horizontal variation in lithology.
- Deep and intermediate well pair along northern boundary indicate low PFOS/PFOA concentrations.
- Deep and intermediate well pair along southern boundary indicate high PFOS/PFOA concentrations.

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- Prepare draft Facility Investigation Report (FIR). Anticipated date for draft is mid-July 2017.
 - FIR will contain results and discussion of all PFC Facility Investigation work conducted to date.

PFCs in Surface Water on Horsham Air Guard Station

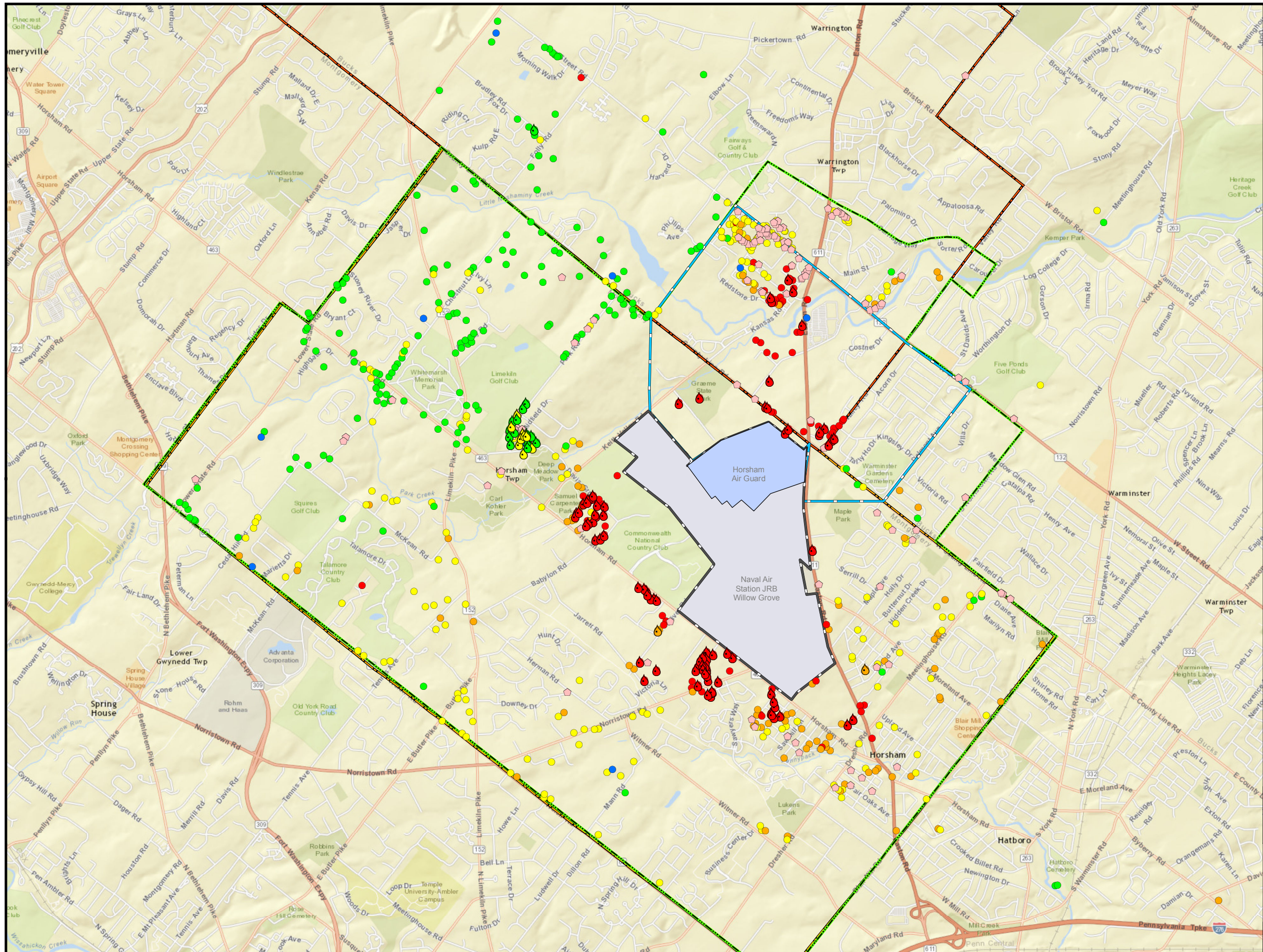
- PFCs have been detected in surface water leaving the Horsham Air Guard Station. This water flows from a storm water detention basin on the northwest boundary of the Base to Park Creek which flows to the Little Neshaminy Creek.
- The ANG is investigating this release of PFCs to the Creek:
 - Carbon filtration installed on Base supply wells in July 2016. Since then over 20 million gallons of water have been treated by the filters. Leaking water supply infrastructure removed from service in late 2016.
 - Artesian conditions are present in groundwater monitoring wells near the storm water basin. Therefore the source of the PFCs in the pond is likely surfacing groundwater.
 - Investigating engineered solutions to filter effluent from detention basin.

- In October 2015, Air National Guard and Warrington Township entered into a \$5.8 million Cooperative Agreement to:
 - Connect residents with Perfluorinated Compound (PFC) impacted drinking water wells above the Health Advisory to municipal water and abandon the impacted private wells. Water connections to begin at end of this month.
 - Install water mains as needed
 - Installation and maintenance of carbon filters on three Township wells
- Cooperative Agreement amended in 2017 adding \$7.7 million to:
 - Install carbon filtration on two municipal wells taken off line in May 2016 due to lowering the Health Advisory Level to 70 parts per trillion
 - Install municipal water system interconnections with North Wales Water Authority to ensure Warrington Township has adequate access to water until carbon filtration is installed on municipal wells

Private Well Sampling

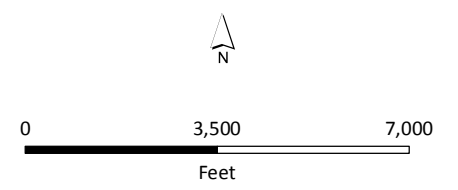
- Interagency Agreement in place with EPA to provide PFC testing of private drinking water wells and supply bottled water to properties with Perfluorinated Compounds at or above the lifetime health advisory level (HAL) for residents within our area of responsibility in Horsham, Warminster, and Warrington Townships
- The number of private wells sampled by ANG are:
 - Horsham Township: 4, all are above HAL; 4 have been connected to municipal water
 - Warrington: 130, 43 are above HAL; 14 have been connected
 - Warminster: 14*, 10 are above HAL; 3 have been connected

*Some of these properties are on Valley Road with Warminster mailing addresses but are located in Warrington Township
- Private well sampling transitioning to new contractor Summer 2017
 - Sampling contact for ANG area of responsibility: keith.e.freihofer.civ@mail.mil



- Legend**
- Health Advisory Level (HAL)
HAL is the sum of both PFOA and PFOS
PFOA 0.070 µg/L, PFOS 0.070 µg/L
 - Sum of PFOA & PFOS concentrations above 0.070 µg/L
 - Sum of PFOA & PFOS concentrations detected between 0.040 µg/L and 0.070 µg/L
 - Sum of PFOA & PFOS concentrations detected at or below 0.040 µg/L
 - PFOA & PFOS not detected
 - Location sampled (no results yet)
 - Not scheduled for sampling yet
 - Converted to Public Water (Some not by Navy or Air National Guard)
 - Horsham Air Guard
 - Former NAS JRB Willow Grove
 - Air Force Administrative Order Boundary
 - Sampling Area
 - Horsham Township
 - Warrington Township

Imagery: ESRI, GeoEye, Digital Globe 2013
 Sample Data: Weston Generated
 Coordinate System:
 WGS84 UTM Zone 18N Feet



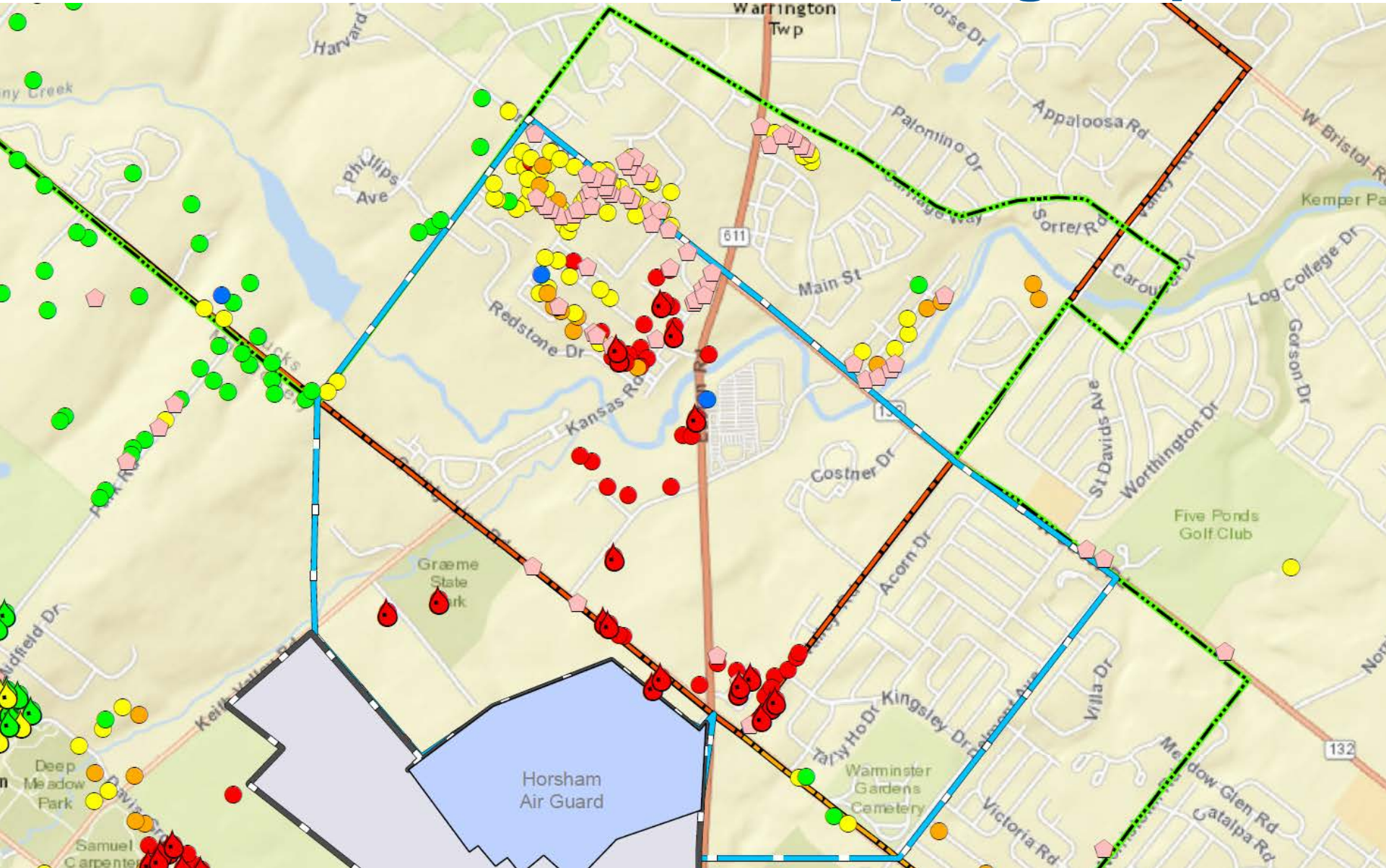
Naval Air Station Joint Reserve Base
 Willow Grove
 Horsham Air Guard Station

Figure 1
 PFC Sample Location Map
 as of 04/11/2017

TDD#: W501-15-07-022/027
 Contract: EP-S3-15-02
 Prepared: 4/11/2017



Private Well Sampling Map



QUESTIONS?

Air National Guard Administrative Record:

<http://afcec.publicadmin-record.us.af.mil/Search.aspx>

select “Air National Guard”, then “Horsham AGS”, then click Search