NAVAL AIR STATION JOINT RESERVE BASE (NAS JRB) WILLOW GROVE
Restoration Advisory Board (RAB) Meeting Minutes

Meeting Date: September 13, 2017
Meeting Time: 2:00 p.m.
Meeting Place: Horsham Township Library

	Name	Organization
Attendance:	Brian Helland (R)	Navy, NAVFAC
	Martin Schy	NAS JRB Navy Caretaker's Office, BRAC
	Jim Rugh	Navy, BRAC
	Jen Good	Navy, BRAC
	Dave Barclift	Navy, BRAC
	Greg Preston	Navy, BRAC
	Lisa Cunningham (R)	EPA
	Larry Brown	EPA
	Mark Leipert	EPA
	Colin Wade (R)	PADEP
	Jessica Kasmari (R)	PADEP
	Andrew Frebowitz	Tetra Tech
	Lt Col Jacqueline Siciliano	PA Air National Guard
	Major Lydia Stefanik	PA Air National Guard
	Keith Freihofer	Air National Guard
	Chris Botzum	PA Air National Guard
	Sean Pearson	Air National Guard
	Lt. Christine Lloyd	ATSDR
	Lora Werner	ATSDR
	Tina O'Rourke	Horsham Water and Sewer Authority
	Craig Hudson	Horsham Water and Sewer Authority
	Farhad Ahmed	Pennsylvania Department of Health
	Amil Nair	Pennsylvania Department of Health
	Jay Mullett	AMEC Foster Wheeler
	David Side	AMEC Foster Wheeler
	Toby Kessler	Gilmore Associates/Horsham Water and Sewer
	Christian Jones	Warrington Township
	Tom Ames	HLRA
	Mike McGee	HLRA
	Larry Burns	Horsham Township
	Eric Killenbeck	Horsham Township
	Bill Walker	Horsham Township
	Matt Vest	Leidos
	Joshua Collins	AECOM/Resolution Consultants
	Carrie McGowan	AECOM/Resolution Consultants

Jim Ventrini (R)	Resident
Joseph McGrath	Former Employee at NASJRB Willow Grove
Chris Jehnert	Resident
Theresa Harris	Resident
Charles Reinhardt	Freedom Museum
Ted Roth (R)	RAB Community Member
Other Unidentified Residents	
(R) Designates RAB Member	

Martin Schy, the Navy's Base Realignment and Closure (BRAC) officer, opened the meeting by greeting the attendees. Mr. Schy noted that this meeting will include presentations from the Navy and Air National Guard (ANG). Mr. Schy acknowledged Jim Vetrini representing the Community RAB and Keith Freihofer representing the ANG. Mr. Schy asked RAB members and government representatives to introduce themselves. After introductions, Mr. Schy commenced with the Navy presentation.

Mr. Schy briefly discussed the purpose of RAB and gave an overview of the means in which regulatory agencies exchange information with the community. Mr. Schy introduced Andrew Frebowitz to provide an update on the surplus sites including landfill Sites 3 and 12 and Site 5, the former Fire Training Area. Mr. Frebowitz provided background on Sites 3 and 12 stating that they were former landfills used by the Public Works Department at the former facility. Wastes were buried in trenches and covered. Results from the remedial investigations (RIs) at both sites showed soils with elevated levels of metals, and polycyclic aromatic hydrocarbons. In addition, groundwater at Site 3 also showed elevated levels of the volatile organic compound (VOC) tetrachloroethene (PCE). Feasibility studies (FSs) are in preparation to evaluate potential remedial alternatives and select a remedy for site closure.

Groundwater at Site 5 is impacted by VOCs, with the primary parent compounds of PCE and tricholorethene (TCE). The selected remedy for groundwater includes operation of an anaerobic bioremediation system which break down VOCs. The system is being maintained and monitored in accordance with approved plans. Annual monitoring for VOCs as well as quarterly monitoring of environmental conditions to maintain anaerobic conditions will continue. Injection of nutrients for the bacteria which break down the VOCs is conducted periodically. Sampling results show decreasing trends of VOC parent compounds and other indicators that remediation is occurring.

Ted Roth inquired about the trailers sitting on Horsham Road. Brian Helland replied that the trailers are holding the water from the drilling of new wells. The water is awaiting analysis and disposal which could take a few months.

Mr. Frebowitz began the presentation for the next agenda item, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) in groundwater. Mr. Frebowitz provided background information on these compounds. In 2016, EPA established a lifetime health advisory level of 0.07 micrograms per liter, or 70 parts per trillion (ppt), for combined PFOA and PFOS in drinking water. These levels are set as a reasonable health-based concentration above which actions should

be taken to reduce exposure. The Navy's priority is eliminating exposure to PFOA and PFOS above the lifetime health advisory levels at public and private drinking water wells.

Mr. Frebowitz stated that if there are health concerns, they should be addressed with a health professional. There are links to health information at the end of the presentation handouts and there are representatives from the Agency for Toxic Substances and Disease Registry (ATSDR) and Pennsylvania Department of Health present to answer questions at the end of the meeting.

Mr. Frebowitz provided a summary of the Navy's private well sampling activities. Approximately 500 wells have been sampled in the townships around the former NASJRB Willow Grove Base, of which 92 have levels above the health advisory of 70 ppt combined PFOA and PFOS. Of the wells above the health advisory, 18 remain to be connected to the public water supply. Connections are being arranged through cooperative agreements with the townships. Bottled water is being provided to locations above the health advisory where connections have not yet been completed. About 73 wells are being monitored as these wells show levels below the health advisory but above 40 ppt combined PFOA and PFOS. The Navy is also funding treatment of impacted public supply wells though the cooperative agreements. Five Horsham Water and Sewer Authority (HSWA) wells showed levels above the lifetime health advisory. The wells are being treated with a carbon filtration system. Treated water from the five wells is now below the lifetime health advisory and the wells are back to drinking water service.

Bill Walker inquired as whether the 500 wells encompassed Warminster, Warrington and Horsham. Tina O'Rourke replied that the described wells are only in Horsham.

Mr. Frebowitz announced that the sampling and provision of bottled water that was being supported by the EPA has transitioned to Tetra Tech, a Navy contractor. Mr. Frebowitz is the Tetra Tech point of contact. Mr. Schy added that anyone who needs to have their private well sampled should contact Mr. Frebowitz.

Mr. Schy introduced Carrie McGowan to discuss the on-site RI for perfluoroalkyl substances (PFAS). The first phase of the investigation started last year and included installation and sampling of monitoring wells and collection of surface water, sediment and soil samples. The results were summarized in a draft report submitted in November 2016. The report identified data gaps and strategies to collect the needed data. Since that time, the Navy has been working with the regulators to develop the scope of work for the additional investigation and work plans for various activities have been submitted or are in preparation. The work plan for installation of additional wells and surface water and sediment sampling is now being implemented.

Well installation began in May 2017 and was completed in August 2017. 18 additional deep wells have been installed. These new wells, in addition to a subset of existing site wells, were sampled for a total of 78 wells. Results are expected soon. Additional surface water and sediment sampling was completed in August 2017. The data has been received and is undergoing validation and review. Additional soil sampling is planned for October 2017. A Draft Sampling and Analysis Plan Addendum for a soil-to-groundwater evaluation has been prepared, and the field work is expected in November 2017. A Feasibility Study to evaluate remedial alternatives will be prepared after the Remedial Investigation is completed in the first quarter of 2018.

Current work also includes evaluation of potential discharges of PFAS to local surface waters. The third round of baseflow surface water and sediment sampling on Park Creek and Pennypack Creek was completed in August 2017. An outfall sampling event was conducted after a rain event in August 2017 and results indicated that PFOA/PFOS concentrations in northern outfalls to Park Creek and the outfall leading to Pennypack Creek were significantly lower following rain. There is a series of small outfalls in the northern part of the base that discharge to Park Creek. These are being sealed and the work should be completed soon. On the western edge of the base are two outfalls that flow to the Pennypack Creek system. One of the outfalls is partially fed by artesian wells where groundwater flows to the surface. These wells have been sealed to stop the flow. Work will also include investigation of storm water sewer systems and potential infiltration of contaminated groundwater into the sewer system. Results will determine potential options including sealing or replacing storm sewer lines.

Mr. Schy inquired if there were any questions regarding the PFAS remedial investigation. Joe McGrath asked about the health effects of PFCs for those who have ingested the water over a long period of time, particularly former Base employees who were drinking well water closest to the sources of contamination. Mr. Schy responded that there are representatives from the ATSDR present who are available after the meeting to discuss health effects. Laura Werner of the ATSDR explained that they have detailed offsite information since 2014 but not enough information to address the historical onsite concentrations. Mr. McGrath expressed his concerns for former employees and residents, and requested a position on the RAB be created for former employees and residents. Mr. Schy replied that he would speak to Willie Lin about the idea.

Mr. Schy asked for further questions on the remedial investigation. Mr. Vetrini asked about the effectiveness of capping the wells and outfalls. Ms. McGowan responded that the capping procedure is to ensure that impacted groundwater won't enter the surface and storm water. The ultimate goal is to find the source area and remedy it.

Bill Walker asked for a time schedule for a permanent cleanup plan being approved. Mr. Helland explained that the FS is the first step in the plan. The FS identifies potential remedies. Once that is completed, it's a relatively short process to prepare the Proposed Plan which identifies the selected remedy.

Tom Ames asked if the EPA has moved forward in establishing standards for PFOS/PFOA/PFAS that would permit further redevelopment of the base. Lisa Cunningham replied that there has been a push by EPA to establish the standard for soil, sediment, and surface water, but it is unknown when that will be.

Ms. O'Rourke asked if the USGS groundwater model has been updated, or if there was a time frame for the completion of it. Mr. Schy replied that USGS representatives were not present but they were still in the process of collecting and interpreting data.

Mr. Vetrini inquired for a summary of the progress since the last meeting of the previous RAB meeting. Mr. Schy replied that there has been progress with working on the outfalls, additional groundwater monitoring wells have been installed, and the new wells have been sampled.

Mr. Vetrini asked about the time frame for receiving data results. Mark Leipert explained that there are only three labs in the country that can process the samples. The labs have between 21-30 days for a turnaround time. The data then has to be validated and reviewed.

Toby Kessler asked if there has been a DEP or EPA testing method for leachate. Ms. McGowan responded that the AECOM is currently working with a laboratory on a suitable leaching test. This is expected to be completed soon and will allow submittal of the draft sampling plan for review.

Mr. Schy reminded attendees that information on PFAS from various sources including EPA, ATSDR, PADEP, and the townships is available and links are provided on the handouts. Mr. Schy concluded the Navy presentation and introduced Mr. Freihofer to present for the ANG.

Mr. Freihofer began the presentation with an update on Site ST01 which was a former fuel tank farm where jet fuel had leaked in the 1970s. The biosparge remediation system was discontinued in 2016. Currently injections of persulfate and Epsom salt are being used for remediation. The tanks and approximately 175 tons of contaminated soil were recently removed. The Air Force Civil Engineer Center (AFCEC) will be conducted confirmatory sampling in the area to assess if there is residual contamination.

Mr. Freihofer provided an update on the Privet Road Site. This was a former solid waste management area that has low levels of trichloroethene and tetrachloroethene in groundwater as of the recent sampling results of June 2016. Levels are below drinking water standards. ANG is continuing to conduct biannual groundwater monitoring and land use control inspections.

Mr. Freihofer discussed the ANG response to PFAS contamination at the Horsham Air Guard Station. The ANG completed a preliminary assessment at the Horsham Air Guard Station and identified 10 potential PFC source areas. These include areas where PFCs may have been used or stored, such as hangars, or where firefighting foam may have been dispersed, such as the storm basin and waste water treatment plant. Mr. Freihofer introduced Matt Vest of LEIDOS, who is the ANG consultant for this work, to provide more details on the PFAS investigation.

Mr. Vest described the current investigation. The initial investigation included sampling of soil, surface water and sediment across the Base. Samples from tanks where firefighting foam was stored were also collected. This information is in the Technical Memorandum submitted in October 2016. Based on that information, potential source areas were targeted and shallow monitoring wells were installed and sampled. Results were then used to select locations for installation of intermediate and deep wells. ANG worked with EPA, PADEP, and USGS to select locations and where to screen the wells. More recently, perimeter wells were installed with multiple sampling ports at various depths to try to determine contamination levels at different depths. A water level study was also recently conducted. Results show that PFAS was not at high levels in soil or the rock matrix. Groundwater results indicate that PFAS levels decrease with depth in the on-Base production wells and northern boundary wells, but increase with depth in the southern portion of the ANG property. A draft Facility Investigation Report is currently with the ANG for review.

Mr. Vest stated a storm water study is planned. There will be a total of four surface water sampling events throughout the fall and the winter. A second annual groundwater sampling event will also be conducted during the fall. Currently PFOS/PFOA detections are spread out laterally as well as vertically over the base. Mr. Vetrini asked how they determined where to get the samples in the wells that were installed. Mr. Vest responded that through the use of packer testing, various intervals were sampled to see where groundwater flow occurred in the fractures. It was also noted that no specific source areas have been identified.

Mr. Ames asked if the ANG and Leidos have tanks for the well water on the ANG side of the base. Mr. Vest responded that when the wells were being installed, storage tanks were on site, but these have been removed. During sampling events the water is kept in smaller barrels until they are properly disposed at a treatment facility.

Ms. O'Rourke asked for a brief summary of the facility investigation. Mr. Vest responded that data has been gathered throughout the facility, and it will be presented to the regulatory agencies by the end of September. The comments provided from the agencies will be used to create a final document to be available to the public. This would lead to an RI, FS, and finally remediation. These documents would be submitted to the EPA, DEP, as well as the townships.

Ms. O'Rourke asked what the acceptable concentration level for storm water is and if it is the EPA's jurisdiction to develop that level. Mr. Leipert responded there is currently not an established concentration level for the storm water, but the EPA is currently in the process of creating one.

Ms. Werner asked about the current status of the onsite worker's drinking water? Mr. Freihofer replied that base wells have temporary carbon filtration systems on them. The wells are also being sampled for PFOS/PFOA. They are active and being treated, but are not for potable use. Bottled water is currently being used for potable use on the base.

Mr. Freihofer continued the presentation with a discussion on PFAS in surface water. The surface water leaving the site from the storm water basin on the northwest side of the Base contains PFAS. ANG is evaluating the source of the discharge to the basin and then to Park Creek. A temporary carbon filtration system has been installed on the outfall. Artesian conditions are present in wells in the area near the basin and it is suspected that dry weather flow from the basin is surfacing groundwater. Leidos has been tasked with the study of the storm water basin, and to propose a long term solution to filter effluent from the basin. In addition, the process of getting a new National Pollutant Discharge Elimination System (NPDES) permit is ongoing. Leidos has been tasked with the permit application with the state of Pennsylvania.

Mr. Walker asked how often the water at the outfall will be tested, and who would be the township's point of contact. Mr. Freihofer and Major Stefanik replied that company tasked with sampling the drinking wells onsite also has the contract to sample the outfall. There is bimonthly testing on the drinking water system, but they are unsure how often the outfall will be sampled. Major Stefanik stated she will be the point of contact if the Township has questions.

Ms. O'Rourke asked if the abandoned collection system was still being used to get water to the treatment facility. Mr. Freihofer responded that the abandoned collection system does feed into point where the storm water is collected, and is part of the treated water.

Mr. Kessler asked about the connection between the drinking water results on the base and the offsite drinking water supply. Mr. Freihofer responded that when the time comes for an RI, that might be addressed. Once the EPA has reviewed the information given to them, they will provide additional recommendations and requirements.

Mr. Freihofer discussed the ANG response to drinking water contamination. A cooperative agreement with Warrington Township is in place to treat three impacted municipal wells. Installation of carbon filtration systems is currently in progress. The agreement also includes connecting private wells with levels above the health advisory to the public supply. Extension of water mains is being performed. The agreement is also being amended to include treatment of two additional municipal wells that were impacted due to the change in the health advisory level and to provide an interconnection with the North Wales Water Authority to ensure adequate access to water while treatment systems are being constructed. The Horsham Air Guard Station's water supply wells are filtered with carbon and have extracted and treated over 20 million gallons of water.

Mr. Walker asked if the wastewater test results for the water leaving the base have been received. Mr. Freihofer provided the latest results that stated PFOA was 14 parts per trillion and PFOS was 170 parts per trillion for a total exceeding the HAL for drinking water. Major Stefanik added that the sample with these results was collected in August 2017.

Mr. Freihofer continued with an update of the private well sampling program. In Horsham Township, four wells were above the health advisory and have been connected to public water. A fifth well has been sampled; however the results were not yet received. In Warrington Township, 133 wells were sampled and 45 were above the health advisory. Connections for 29 wells have been completed with the remaining receiving bottled water until the connections are completed. In Warminster Township, 14 wells have been sampled with 11 wells being above the health advisory. Four of those wells have been connected. ANG has transitioned the sampling and bottled water deliveries from EPA to an ANG contractor. Ms. O'Rourke noted that ANG also has cooperative agreements is place with Warminster and Horsham Townships in the ANG area of responsibility. Mr. Freihofer introduced David Side as the point of contact for residents who need their wells tested inside the ANG area of responsibility.

Mr. Vetrini asked who will be paying for cost of the Warrington water. Mr. Freihofer replied that the ANG is funding Warrington Township to install the carbon filtration on the five impacted wells above the HAL. In addition, they will pay for the water they purchased while the wells were offline during construction.

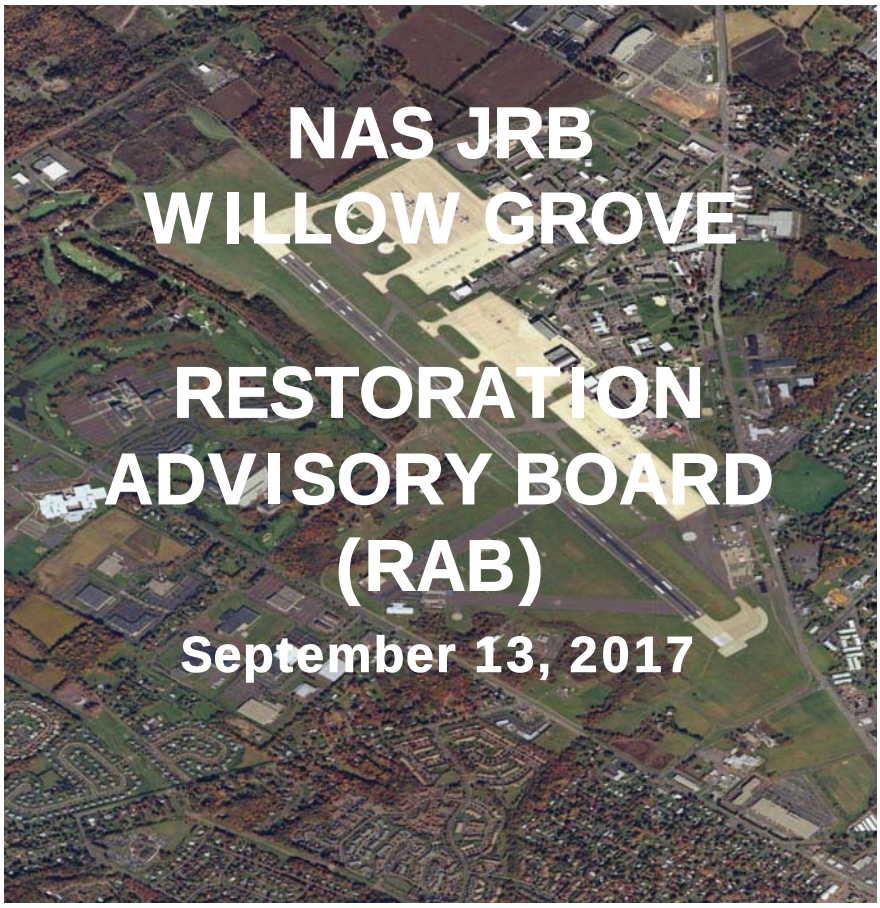
Mr. Vetrini asked about the radiological issue. Mr. Schy replied that the issue has been resolved. Mr. Schy added that details were discussed during the May 2017 RAB meeting and are available in the meeting minutes, but there are no radiological impacts.

Mr. Freihofer continued the presentation with an overview of the Air National Guard Administrative Record. All of the restoration documents that have been completed and finalized are available to the public on their website. Mr.Ames asked when the water test results would be uploaded to the site. Mr. Freihofer responded that test results in completed formal reports are currently available. Mr. Freihofer offered that if any additional information is needed, the ANG should be contacted and they will attempt to formally compile the data and add it to the website. Major Stefanik added that if any basic information is needed that she could be contacted by email.

Mr. Ames asked if the Navy, ANG, and their consultants are sharing data. Mr. Freihofer confirmed there is cooperation between all parties.

Mr. Schy brought the meeting to a close by thanking attendees and noting the next RAB meeting will be scheduled for December 13, 2017.

Meeting adjourned.



NAS JRB WILLOW GROVE

RESTORATION ADVISORY BOARD (RAB)

September 13, 2017

RAB Agenda

- Welcome Community and RAB Members
- Environmental Restoration Status
- Perfluorinated Compounds Status
- Questions
- Closing Remarks

What is a RAB?

- A Restoration Advisory Board (RAB) is a stakeholder group that meets on a regular basis to discuss environmental restoration at a specific property that is either currently or was formerly owned by DoD, but where DoD oversees the environmental restoration process.
- RABs enable people interested in the environmental cleanup at a specific installation to exchange information with representatives of regulatory agencies, the installation, and the community.
- RABs may only address issues associated with environmental restoration activities.

Source: DoD RAB Rule Handbook

Environmental Restoration Status

Site 3 and Site 12 Landfills

- Former landfills used by the Base Public Works Dept.
- Waste buried in trenches
- Remedial Investigations showed elevated levels of metals and PAHs in surface and subsurface soils
- Site 3 groundwater showed low levels of PCE
- Feasibility Studies in preparation to evaluate remedial alternatives. Drafts to be submitted to EPA/PADEP in Fall 2017.

Site 5 – Fire Training Area Groundwater

Site 5 Groundwater Remedial Action

- Anaerobic bioremediation system continues to operate
- Annual performance monitoring is being conducted in accordance with approved Operation, Maintenance, and Monitoring Plan
- Additional injections of amendments will be conducted based on monitoring results
- Results continue to show good conditions for continued biodegradation of volatile organic compounds (VOCs) and decreasing trends of VOCs

Perfluorinated Compounds Status

PFOA / PFOS Background

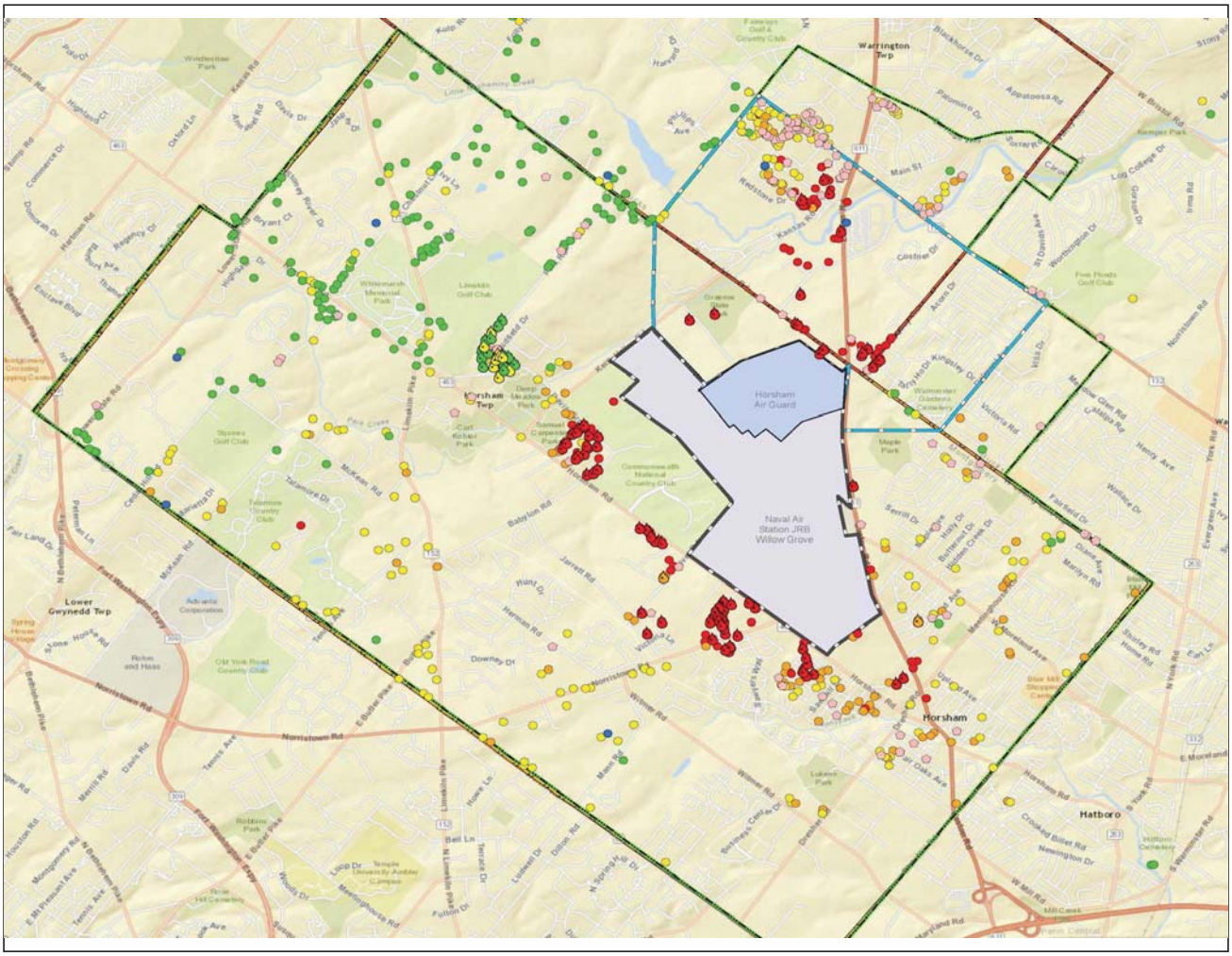
- In 2016, EPA set a lifetime Health Advisory (HA) level of 70 parts per trillion (0.07 µg/L) for combined Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA).
- Per the EPA, the lifetime HA level are reasonable health based concentrations, above which actions should be taken to reduce exposure. HA levels include many safety factors to protect vulnerable populations (e.g., children).
- The Navy's priority is eliminating exposure to PFOA/PFOS above the lifetime HA levels at public and private drinking water wells.
- Any health concerns should be addressed with your health professional. Weblinks to health information is provided at the end of this presentation.

NASJRB Willow Grove PFAS Actions

- Private drinking water wells sampled by the Navy for PFOA/PFOS (all townships) near NASJRB Willow Grove:
  - Private wells sampled: ~ 500
  - Private wells above lifetime HA (>70 ppt): 92
  - Private wells remaining to be connected: 18
  - Private wells below HA/monitored (>40 ppt): 73
- The Navy has funded carbon filtration systems at five Horsham Water and Sewer Authority (HSWA) public wells (#10, 17, 21, 26, and 40) which are above the lifetime HA. All are filtering water below the lifetime HA and back to drinking water service.
- The Navy has provided additional funds to HWSA, over $7 million, for filtration system costs and drinking water connections above the lifetime HA. The total funding is over $16 million.

NASJRB Willow Grove
PFAS Private Well Sampling

- In 2014, the Navy requested support from the EPA to sample nearby private wells for PFOA and PFOS.
- Private drinking water well sampling or provision of bottled drinking water for perfluoroalkyl substances (PFAS) is now being performed by Tetra Tech, a U.S. Navy contractor.
- The primary point-of-contact is:
  - Mr. Andrew Frebowitz, Tetra Tech Project Manager
  - E-mail: andy.frebowitz@tetratech.com
  - Phone: (610) 382-1170



NASJRB Willow Grove PFAS Investigation

- The Navy is performing a Remedial Investigation (RI) to better understand the nature and extent of the PFAS contamination at the Navy base. The investigation included the installation and sampling of numerous groundwater wells and sampling of soils and surface water/sediment.
- Draft RI Data Report submitted November 2016
  - Identifies data gaps for further investigation
  - Additional field investigation is ongoing
  - Source control actions are developed from RI information

NASJRB Willow Grove PFAS Investigation (cont.)

Timetable for Phase II of the RI

- Work Plan for installation of additional monitoring wells and further groundwater, soil, surface water and sediment submitted early May 2017.
- Well installation began in May 2017 and was completed in August 2017. 18 deep wells installed and sampling completed early Sep. (78 wells). Awaiting results.
- Additional surface water and sediment sampling completed in August 2017. Data received and undergoing validation and review.

NASJRB Willow Grove PFAS Investigation (cont.)

Timetable for next actions of the RI

- Additional soil sampling planned for October 2017.
- Draft SAP Addendum for soil-to-groundwater evaluation by the end of September 2017. Field work expected in November 2017.
- Draft RI Report by early 2018
- Feasibility Study in 2018

NASJRB Willow Grove PFAS Investigation (cont.)

Preliminary Surface Water/Outfall Sampling Results

- 3rd round of baseflow surface water and sediment sampling conducted on Park and Pennypack Creek systems in early August 2017.
- Outfall sampling was conducted after rain event in early August 2017. PFOA/PFOS concentrations in northern outfalls to Park Creek and outfall leading to Pennypack Creek were significantly lower after rain event.

NASJRB Willow Grove
PFAS Stormwater Evaluation

Outfalls/Storm Sewers

- Outfalls along the northern end of the base that discharge to Park Creek are being sealed. Work is on-going. Evaluating options to modify retention basin to hold additional storm water.
- Two artesian (free-flowing) wells have been capped to prevent PFAS-impacted groundwater discharge to Park Creek.

NASJRB Willow Grove
PFAS Stormwater Evaluation

Outfalls/Storm Sewers (continued)

- Stormwater system being evaluated to locate portions where PFAS-impacted groundwater may infiltrate and discharge to local surface water. Over two miles of storm sewer lines may be at or below the water table.
- Next step is to conduct a visual survey of the systems to identify lines for remote TV inspections in Fall 2017.
- Report recommendations for possible storm sewer rehabilitation options and inlet closures by early 2018.

PFAS Information and Resources

Department of the Navy (DON) Perfluorinated Compounds (PFC) / Perfluoroalkyl Substances (PFAS) website
http://www.secnav.navy.mil/eie/pages/pfc-pfas.aspx#

NAVFAC BRAC PMO Websites (includes links to environmental information and the administrative record):

- http://bracpmo.navy.mil/brac_bases/northeast/reserve_base_willow_grove/documents.html
- http://bracpmo.navy.mil/brac_bases/northeast/former_warfare_center_warminster/documents.html

PFAS Information and Resources (continued)

Environmental Protection Agency
https://www.epa.gov/pfas

Agency for Toxic Substances and Disease Registry
https://www.atsdr.cdc.gov/pfc/index.html

Pennsylvania Department of Environmental Protection
http://www.dep.pa.gov/Citizens/My-Water/drinking_water/Pages/default.aspx

Horsham Township
http://www.Horsham.org/default.aspx

Warminster Township
http://warminstertownship.org/information-on-perfluorinated-chemicals-pfoa-and-pfos/

- Questions or comments from the RAB?
- Community questions or comments?
- Next Meetings
  - December 13, 2017 @ 2:00 pm
  - March 14, 2018 @ 2:00 pm
- Closing Navy Remarks

Restoration Advisory Board
Horsham Air Guard Station

Keith Freihofer - Air National Guard
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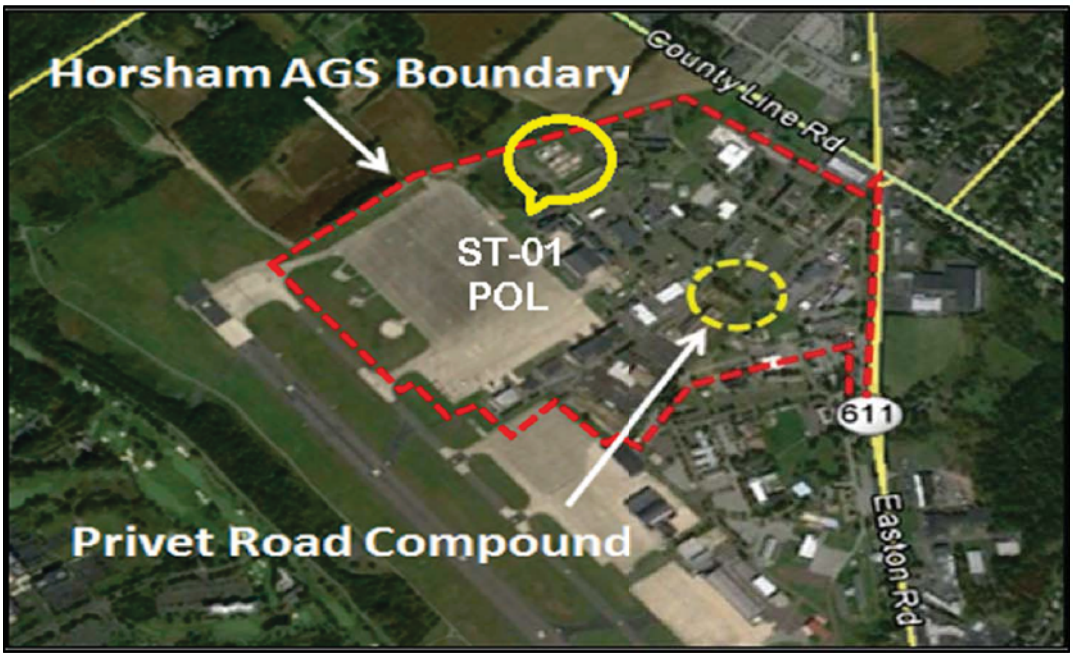
13 September 2017

This Briefing is **UNCLASSIFIED**

Environmental Restoration Program Sites



Air Force ST-01 POL

- 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 future.

Privet Road Compound

- 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

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 are being further investigated by Leidos in a PFOS/PFOA Facility Investigation

Potential PFOS/PFOA Source Areas

Leidos Facility Investigation Project Scope

- Leidos tasked by the National Guard Bureau to complete a facility investigation (FI) for PFOS/PFOA at the Horsham Air Guard Station.
- The FI is being conducted in response to paragraph 41 of the Administrative Order issued by the U.S. Environmental Protection Agency (EPA) dated May 29, 2015.
- Project scope outlined in the *Statement of Objectives for Perfluorinated Compound Facility Investigation at Horsham Air Guard Station* for Project ZAQA20159150 (NGB 2015) and finalized in the March 2015 work plan approved by EPA and PADEP.
- Scope includes: records review; sampling of soil, sediment, fire suppression storage tanks, surface water, and groundwater across Horsham AGS.
- The scope also includes: well installation (11 shallow, 8 intermediate, 7 deep, and 8 multilevel), borehole geophysics, packer testing, rock coring, water level monitoring and potentiometric mapping, stratigraphic correlation, contaminant pathway analysis and receptor evaluation.

Completed Tasks:

- 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), deep (7), and multi-level perimeter (8) wells installed. All new wells sampled twice.
- Rock coring at PMWs and geophysical logging conducted at 15 locations
- Packer Testing conducted at base supply wells and DMW-7.
- Draft drilling data, sampling results, and geophysical data provided to PADEP, EPA, and USGS.
- Completed water level monitoring study.
- Selected monitoring network and completed annual GW sampling event.

Status Update:

- Draft Facility Investigation Report under review by ANG
  - Elevated concentrations detected at PMW-01
  - Widespread detections between 1,000 and 5,000 ng/l
  - Deep zone contained several samples below Health Advisory
  - Draft Final FIR anticipated by 29 September 2017
- PFOS/PFOA Stormwater study will be performed to include four surface water sampling events:
  - Baseflow event during early Fall 2017 and Winter 2018
  - Precipitation event during early Fall 2017 and Winter 2018
  - Monitor surface water concentrations on-Base, off-base, entering and leaving Base.
- 2nd Annual PFOS/PFOA Ground Water Sampling Report
  - Anticipated 12 October 2017

PFOA/PFOS Concentrations: Existing Wells

leidos

PFOA/PFOS Concentrations: New Wells

leidos

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 storm water detention basin on the northwest boundary of the Base to Park Creek which flows to the Little Neshaminy Creek.
  - ANG is taking action to reduce this release of PFOS/PFOA to the Creek:
    - Temporary carbon filtration was installed on the outfall in September 2017. The system is designed to treat the dry weather flow; heavy storm flow will bypass the treatment.
    - Leidos to study the storm water basin, determine the source of dry weather flow and propose long term engineered solutions to filter effluent from detention basin.

PFOS/PFOA in Drinking Water

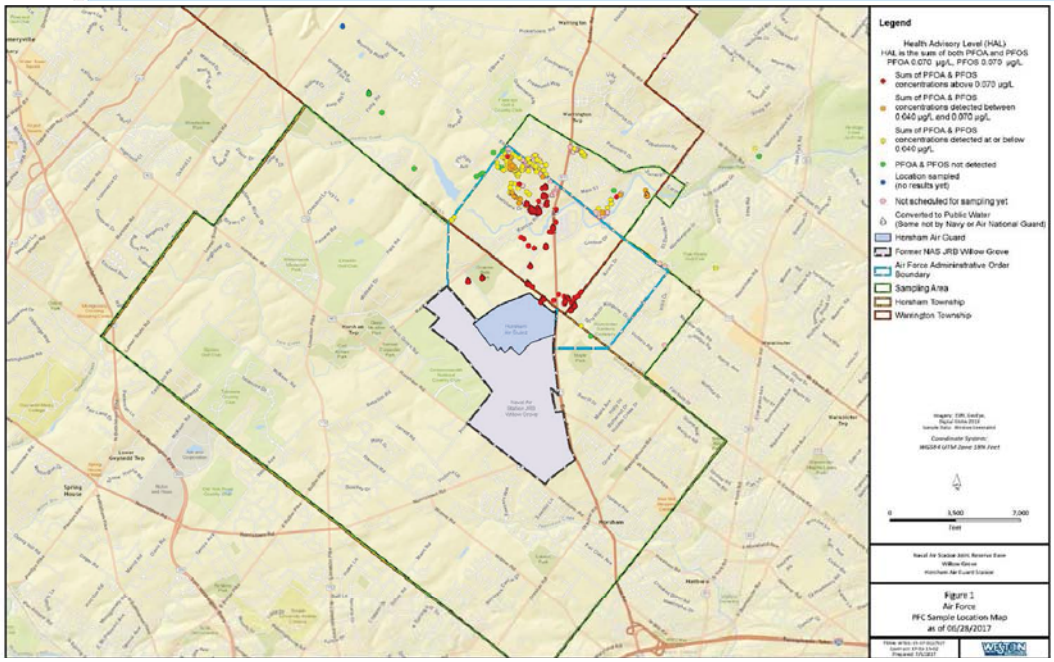
- In October 2015, Air National Guard and Warrington Township entered into a $5.8 million Cooperative Agreement to:
  - Connect residents with PFOS/PFOA impacted drinking water wells above the Health Advisory to municipal water and abandon the impacted private wells
  - Install water mains as needed
  - Installation and maintenance of carbon filters on three Township wells
- Cooperative Agreement amended in 2017 adding $7.6 million to:
  - Install carbon filtration on two municipal wells taken off line in May 2016 due to the new Health Advisory Level of 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
- The Horsham AGS water supply wells are filtered with carbon and have extracted and treated over 20 million gallons of water

Private Well Sampling

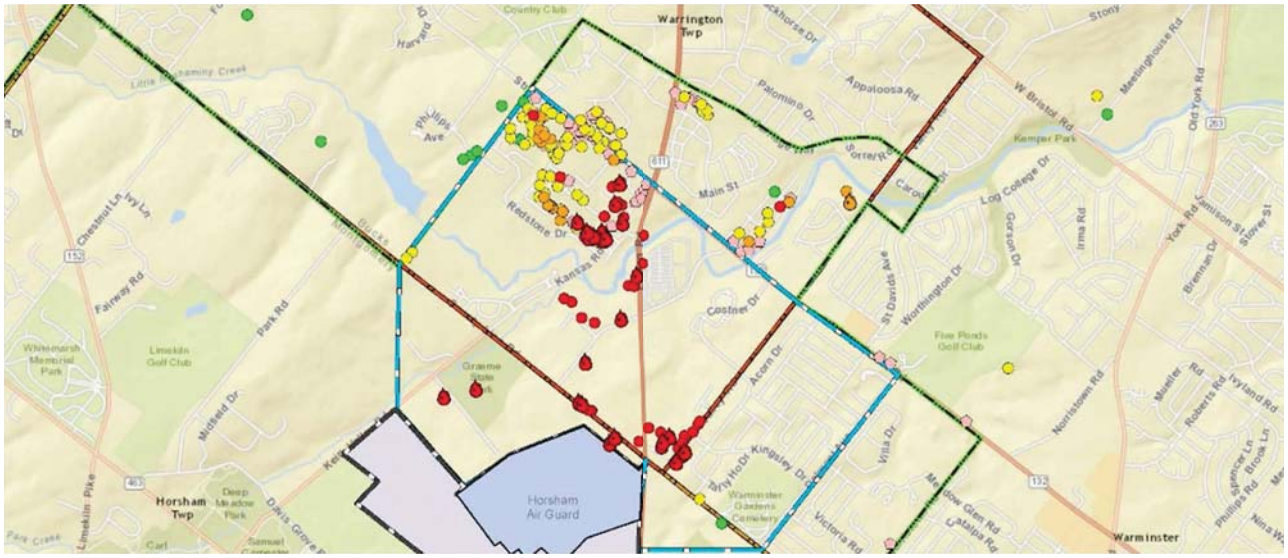
- ANG has contract in place with Amec Foster Wheeler to provide PFOS/PFOA testing of private drinking water wells and supply bottled water to properties with PFOS/PFOA at or above the lifetime health advisory level (HAL) for residents within our area of responsibility in Horsham, Warminster, and Warrington
- The number of private wells sampled by ANG are:
  - Horsham: 4, all above HAL; 4 have been connected to municipal water
  - Warrington: 133, 45 are above HAL; 29 have been connected
  - Warminster: 14*, 11 are above HAL; 4 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@amecfw.com or (610) 877-6111

Private Well Sampling Map



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