NAVAL AIR STATION JOINT RESERVE BASE (NAS JRB) WILLOW GROVE

Restoration Advisory Board (RAB) Meeting Minutes

RAB Meeting No. 59

Meeting Date: December 9, 2015
Meeting Time: 6:30 p.m.
Meeting Place: Horsham Township Library

	Name	Organization
Attendance:	Willie Lin (R)	Navy, BRAC PMO (Co-Chair)
	Brian Helland (R)	Navy, NAVFAC
	Jim Rugh	NAS JRB Navy Caretaker's Office
	Lisa Cunningham (R)	EPA
	Bruce Beach (R)	EPA
	Karen Johnson	EPA
	Eduardo Rovira	EPA
	Andrew Frebowitz	Tetra Tech
	Lt Col Jacqueline Siciliano	PA Air National Guard
	Keith Freihofer	Air National Guard
	Andria Allmond	PA Air National Guard
	Randy Chambers	Air National Guard
	Dennis Pinigis	Air National Guard
	Karl Markiewicz	ATSDR
	Tina O'Rourke	Horsham Water and Sewer Authority
	Rachel DeMarzio	Montgomery County Health Department
	Christian Jones	Warrington Township
	Tom Ames	HLRA
	Mike McGee	HLRA
	Mark Elser	North Wales Water Authority
	Eric Stahl	Weston Solutions
	Matt Vest	Leidos
	Jill Kovalchik	Leidos
	Jerry Birkelbach	Aldie Foundation
	Guy Sheets	AMO Environmental
	Amanda Matthews	Catellus
	Tom Schefler	Catellus
	Joseph Loftus	Tinius Olsen
	Azeem Merchant	Drexel University
	Ben Yezuita	Student
	Brian Plunkett	Resident
	Daniel Myers	Resident
	Bart Albeier	Resident
	Jean Dougherty	Resident
	Amanda Cerise	Resident

Kelley Liott	Resident
Pauline Parise	Resident
Francis Ambrose	Resident
Matthew Robinson	Resident
Frank Wheatley	Resident
William P. Morrison	Resident
Jim Ventrini (R)	Resident
Marie LeFebvre	Resident
Leigh Birkbeck	Business Owner
Jeffrey Kelley	Business Owner

(R) Designates RAB Member

Willie Lin, the Navy's Base Realignment and Closure (BRAC) environmental coordinator and RAB Co-Chair, opened the meeting by greeting the attendees. Mr. Lin indicated Mary Liz Gemmill, the RAB Co-Chair, was unable to attend. Mr. Lin acknowledged Keith Freihofer [Air National Guard (ANG)] as present. Mr. Lin indicated that announcements for this meeting were mailed out in November 2015 and posted in the local newspaper, the Horsham Land Redevelopment Authority website, the Horsham Township website, and the Navy's BRAC website.

Mr. Lin asked RAB and government members to introduce themselves.

Mr. Lin indicated the minutes from the last RAB meeting on September 16, 2015 were mailed to all members, posted to the BRAC website, and was placed in the information repository at the Horsham Township Library and on the library website. Mr. Lin asked if there were any comments or questions on the September 2015 meeting minutes. There were no comments.

Mr. Lin presented the agenda for the meeting and started the Navy presentation. The Navy has been working on a radiological survey. Eighteen potential radiologically impacted sites were identified and scoping surveys and field work was performed as an initial evaluation to identify if radionuclide contaminants exist. All the field work has been completed. The survey reports will be provided to the regulators in three groups. These include 10 building surveys, surveys of the footprints of five former buildings, and three landfill sites. Mr. Lin referred to a figure showing the site locations. The building survey reports were submitted to the regulators in September 2015. The landfill survey reports are scheduled to be submitted in January 2016 and the footprint reports will be submitted in early 2016. Mr. Lin asked if there were comments or questions about the radiological studies. An audience member asked what was done at the Base that could cause radiological problems. Mr. Lin replied that aircraft maintenance activities including use of radioluminescent paint and counterweights may have been potential sources. The Historical Radiological Assessment which provides extensive information on these activities is available in the information repository at the library. There were no other comments pertaining to the radiological work.

Mr. Lin continued with an update on Site 5, the fire training area. A Remedial Action Completion Report (RACR) was completed in September 2014. An Operation and Maintenance (O&M) Plan

was completed in May 2015 and the Navy is currently preparing a plan for long-term monitoring to include performance monitoring to make sure the system is working correctly. Biostimulation will be done based on the performance monitoring results. Mr. Lin asked if there were questions.

Tom Ames asked how the system at Site 5 has been operating lately. Mr. Frebowitz provided an update stating the system is performing as designed. The new wells in the center of the source area show total volatile organic compounds (VOCs) in the hundreds of parts per billion (ppb) while wells within 100 feet downgradient only show volatiles in the range of 10 ppb. The volatiles are primarily contained in a small area near the treatment trailer. Monitoring of groundwater conditions also shows a good environment for continued anaerobic biodegradation with favorable pH levels and oxidation reduction potential. Results also show that the parent compounds, trichloroethene (TCE) and tetrachloroethene (PCE) are degrading to other, less toxic compounds.

An audience member asked how long ago these chemicals got into the groundwater and why it wasn't addressed earlier. Mr. Lin replied that at Site 5, firefighting training ceased in the mid-1970s. Different fuels were used as a source of fires for training, but his was standard practice during the time of operation. It wasn't until the late 1980's that environmental investigations commenced under Superfund regulations. Monitoring has shown that the contaminants related to Site 5 have not migrated from the Base and the current treatment system is reducing the concentrations present in groundwater at the source.

An audience member asked how the treatment system at Site 5 works. Mr. Lin replied that it is an anaerobic bioremediation system that where a mixture is injected to consume the volatile organics. This has been used at many sites and is being used successfully at Site 5. An audience member asked if what is injected is harmful to humans or if there are harmful byproducts. Mr. Frebowitz replied that what is injected is a more concentrated solution containing naturally occurring bacteria that are known to breakdown the contaminants. Then solutions of nutrient, which is a natural, lactose-based mixture is injected to feed the bacteria to keep the bacteria population at optimal levels. A buffering solution, consisting of baking soda and water is injected to maintain the pH at levels where the bacteria can survive. The byproducts produced during the process are less toxic than the parent compounds, and ultimately will be non-toxic when completed. There are other technologies which inject other chemicals to breakdown VOCs, but it is not being used here. In response to a follow-up question, Mr. Frebowitz explained that the injections occur in the source area and the low concentrations further downgradient will decrease naturally after the source area is remediated. Mike McGee asked for confirmation that the VOCs did not migrate off-Base to the public water system. Mr. Lin confirmed that monitoring showed they did not.

An audience member asked how long the cleanup would take at Site 5. Mr. Frebowitz replied that it was planned as a 5 to 10 year timeframe, but it is difficult to be exact as conditions are different each time a technology is used. Mr. Lin added that there are performance standards that must be met and the Navy will continue treatment until these standards are achieved. A question was asked if operating the treatment plant would impact the land transfer. Mr. Lin replied it does not and the property can be transferred with the current remedy operating. The Navy will continue to operate the system until cleanup is completed even if the property has been transferred.
A discussion ensued regarding the plans for connection of private wells to the public supply and how that related to the property transfer. Mr. Lin replied that well connections will be provided by

the Navy or Air Force depending on the well location and levels of perfluorinated compounds (PFCs) present in the private wells. This action will not prevent the transfer of the Base property. Mr. Lin reiterated that if a private well is located in Horsham Township and has PFCs above provision health advisory (PHA) levels, the Navy will be responsible for the connection to the public supply.

Mr. Lin began the presentation regarding PFCs. PFCs are unregulated emerging contaminants and are being sampled for the first time. PFCs are man-made chemicals which break down slowly. PFCs were used in many different products including Teflon and fire- fighting foams. PFCs are being sampled for the first time in public water systems under a program known as the Unregulated Contaminant Monitoring Rule (UCMR). This program is collecting data for potential contaminants in public drinking water systems serving more than 10,000 people. Sampling started in 2013 and will run through 2015. EPA is using the data to improve its understanding of these chemicals and determine if safe drinking water regulatory limits should are needed. Mr. Lin noted that representatives from EPAs drinking water department were present at the meeting to answer questions.

An audience member asked that since the program was ending, would they be testing for PFCs in the future. Karen Johnson replied that the UCMR program is a defined number of samples taken by large water companies over a set period of time. The data is then evaluated to determine if drinking water standards for these contaminants should be established. In this area; however, the Navy and Air Guard are continuing to sample because we know there is a groundwater plume.

An audience member asked about health effects related to showering with well water containing PFCs. Karl Markiewicz responded that the biggest concern is ingestion and dermal exposure is not a viable pathway for these compounds. Household use such as showering or hand washing is not a problem. An audience member asked if there would be an exposure through a cut in the skin and Dr. Markiewicz replied that the exposure would be minimal. Dr. Markiewicz provided details of the chemical properties of PFCs and how long they are retained in the body. An audience member asked about the fate of PFCs from watering gardens. Dr. Markiewicz replied that there have been no studies that show significant plant uptake of these compounds.

An audience member asked if the sewer system treats PFCs. Dr. Markiewicz and Ms. Johnson provided a detailed discussion on the fate of these compounds in sewer systems and available studies. In summary, sewer systems do not treat PFCs and these compounds are retained in sewage sludge. However, even if the sludge is used for other purposes, such as agricultural, the exposure pathway to humans is eliminated as plants do not uptake these compounds. Ms. Johnson reiterated that the most viable exposure pathway is ingestion of water containing PFCs.

Dr. Markiewicz and several audience members had a detailed discussion on levels of exposure, toxicological effects and treatment options such as filtering water at the tap. Dr. Markiewicz indicated any steps to reduce exposure are beneficial. Common carbon filtering systems for the tap have been shown to be effective providing they are changed frequently before breakthrough occurs.

Mr. Lin and Dr. Markiewicz indicated that his contact information was on the EPA Fact Sheet that was available at the meeting and Dr. Markiewicz would respond to calls and emails from any community members who wanted to discuss their individual situations or concerns.

Mr. Lin continued with the Navy presentation on PFCs. Two PFCs, perfluorooctane sulfate (PFOS) and perfluorooctanoic acid (PFOA), have PHA levels established by EPA. The PHA level of PFOS is 0.2 micrograms per liter, which is parts per billion (ppb) and the PHA level of PFOA is 0.4 ppb. Because PFOA and PFOS were detected in Horsham Water and Sewer Authority (HWSA) public supply wells during UCMR sampling, the Navy asked EPA for assistance to sample private wells.

Mr. Lin provided an update on the Horsham Township PFC response. More than 200 private wells have been sampled. Thirty eight (38) wells are at or above the PHA. These properties have been provided bottled water for drinking and cooking purposes. An additional 29 wells are being monitored that have PFCs in the water, but at levels below the PHA. An audience member asked if the 29 wells below the PHA will continue to be monitored and for how long. Mr. Lin responded that the wells with PFCs at levels below the PHA will be monitored, but there is no end date at this time. Monitoring will continue because levels can fluctuate and the Navy wants to ensure that the levels remain below the PHA. An audience member asked if the public supply wells would be monitored. Mr. Lin replied that the wells that are closest to the Base will continue to be monitored.

An audience member stated that their property was near a crash site where foam was used to put out the fire. They asked why sampling was not conducted at that time. Ms. Johnson replied that PFCs are an emerging contaminant and there was no testing being done for these contaminants at the time of the crash. The audience member stated that after the crash there was a meeting to discuss potential connection to public water. Mr. Freihofer replied that was likely due to potential contamination from the fuel that was leaked during the crash.

An audience member asked if there was still firefighting training occurring at the Base. Mr. Lin replied that the Navy does not conduct any operations at the former Navy side of the Base. Lt. Col. Jacqueline Siciliano added that the ANG does not conduct fire training activities on the active section of the Base.

Mr. Lin continued the presentation and referred to a slide that showed the wells which were sampled and which contained levels above the PHAs as well as wells were PFCs were not detected.

Mr. Lin stated the Navy has finalized an agreement with HWSA that will allow the HWSA to take action on public and private wells in their service area. Private wells with levels above the PHA will be connected to the public supply. The Navy will also reimburse HWSA for treatment systems on their supply wells. Connections to the public supply have begun to be offered to private well locations where HWSA mains already exist. Other offers will be coming as soon as HWSA engineers can schedule running new water mains in areas where they do not currently exist.

The Navy is also initiating an investigation to better understand the PFC contamination at the Navy Base. The investigation has started and a large number of new monitoring wells will be installed

and sampled. The Navy is planning to complete the investigation around the end of 2016. Mr. Lin asked if there were any questions regarding the investigation. There were no questions.

Mr. Lin proceeded to show slides from the Navy's website that contains information on Willow Grove as well as all the Navy BRAC installations on the East Coast. There are also links to the Horsham Township, redevelopment authority, and Horsham Library websites. Information on RAB meetings from at least 2005 as well as PFC information from previous public meetings are also posted on the website. Documents specific to the Base are also posted and include the Navy's Site Management Plan. Also, at the bottom of the agenda, there are links to the information repository, the ANG Administrative Record, and the BRAC website. Mr. Lin also stated his contact information was on the agenda and anyone should feel free to contact him with questions.

Mr. Lin asked if there were any questions. There were no questions and Mr. Lin stated that the Navy presentation was concluded.

Mr. Freihofer commenced with the ANG presentation starting with site restoration activities at ST-01, the former Air Force petroleum tank area. In response to an audience question, Mr. Freihofer identified the location of the tank area and its location to the surrounding community. The site originated from a jet fuel leak in the 1970s. The Air Force is commenced cleanup using a biosparging system. In 2016, injections to complete the cleanup are planned and the tanks will be dismantled.

The second site restoration site is the Privet Road Compound which was a former waste management area for the former Navy Base. This area has been transferred to the ANG. ANG has conducted sampling in 2013 and 2014 and low levels of TCE and PCE were detected in groundwater. A contract for long-term monitoring has been awarded and additional sampling is scheduled for spring 2016. An audience member asked to show the location of the site and if contaminants were leaving the site. Mr. Freihofer showed the location on a map and stated that the monitoring program is to determine groundwater flow conditions, but no off-site contamination has been detected. Mr. Freihofer asked if there any questions on the site restoration activities. There were no questions.

Mr. Freihofer continued with the ANG presentation regarding PFCs. The ANG has completed an interagency agreement with EPA to conduct private well sampling and provide bottled water to properties with levels of PFCs above the PHAs. Mr. Freihofer showed the areas of ANG responsibility on a map. To date, three wells in Horsham Township were sampled and all had PFCs above the PHA. In Warrington Township, 40 wells were sampled and 23 were at or above the PHA levels. In Warminster Township, 5 of the 6 wells sampled have PFCs above the PHA levels. ANG has entered into agreements with the three townships to provide connections to public water supplies and abandon private wells.

A discussion between Mr. Freihofer and several audience members resulted in clarifying the boundaries were ANG is responsible for sampling. An audience member asked why sampling in Warrington occurred later than sampling in Horsham Township. Ms. Johnson replied that as information became available sampling extended further from the Base. Warrington was not scheduled to conduct UCMR sampling until this year, but expedited the sampling after PFCs were

found in Horsham. There was additional discussion on the schedule for resampling. Mr. Freihofer and Ms. Johnson reiterated that properties with levels above the PHA will not be resampled as bottled water is being supplied and wells with levels less than 25 percent of the PHA will not be resampled since they have been shown the be safe. Only wells with levels greater than 25 percent but less than the PHA will be resampled.

In response to additional questions regarding health effects related to PFCs, Dr. Markiewicz provided an explanation of available studies. PFCs are present in blood serum of almost 100% of the population tested, but there is no predictability of effects based on blood levels. There are some associations, but without definitive certainty, of kidney and liver effects, but they may just be changes in weight of size but not necessarily disease. Dr. Markiewicz also stated that the ATSDR has asked their agency [Center for Disease Control (CDC)] and other agencies to update and review cancer data in the area around the Base and a report is being prepared but is not finalized. Dr. Markiewicz has looked at the data from 2005 to 2013 and there is nothing apparent that indicates a cancer cluster in the area.

Mr. Freihofer continued with more details regarding the cooperative agreements established with the townships. For Horsham Township, two of the three impacted wells have already been connected to the public supply. In Warrington Township, the water and sewer department is in the planning process for connecting residents to the public supply. The township is also installing carbon filtration on the existing supply wells as part of the cooperative agreement. In Warminster, it is anticipated that the five impacted residences will be connected to the public supply by February 2016.

A discussion regarding rights of access to the properties to make connections to public water and warranties for the work performed to connect the properties ensued. The audience expressed concerns that they do not have control of the contractor performing the work and the fact that they have to sign paperwork to grant access to the township and their contractors to perform the work. Tina O'Rourke of Horsham Water and Sewer Authority (HSWA) stated the agreement is only specific to connect the public water to the home. The HSWA hires contractors to perform the work. The HSWA requires consent to do the work and if consent from the property owner is not given, the work cannot be performed.

There was additional discussion regarding individual circumstances and audience members were requested to aske specific questions to the available Navy, ANG, EPA, and township representatives after conclusion of the meeting.

Mr. Freihofer stated that ANG has recently contracted Leidos Incorporated to conduct a PFC investigation at the ANG Station. Mr. Freihofer introduced Matt Vest of Leidos to provide an update of the investigation. Mr. Vest stated that ANG had performed a preliminary study to identify potential sources of PFCs at the Station. That study looked at approximately 20 locations and determined that there were potentially 10 areas that required further investigation to determine if they were potential sources. These areas include buildings that contained foam fire suppression systems, areas that may have received runoff from foam, the stormwater sediment basin, and a wastewater treatment sludge area. Mr. Vest showed the potential locations on a figure.

Mr. Vest said the next phase of the investigation will be to collect soil, surface water, sediment, and groundwater samples to confirm the presence or absence of PFCs which will enable an evaluation of the nature and extent of contamination across the ANG Station. There will also be additional tests to evaluate hydrogeological conditions and determine groundwater flow pathways. Multi-level groundwater monitoring systems will be installed to depths of 350 to 400 feet along the perimeter of the ANG station to evaluate the possibility of off-site migration.

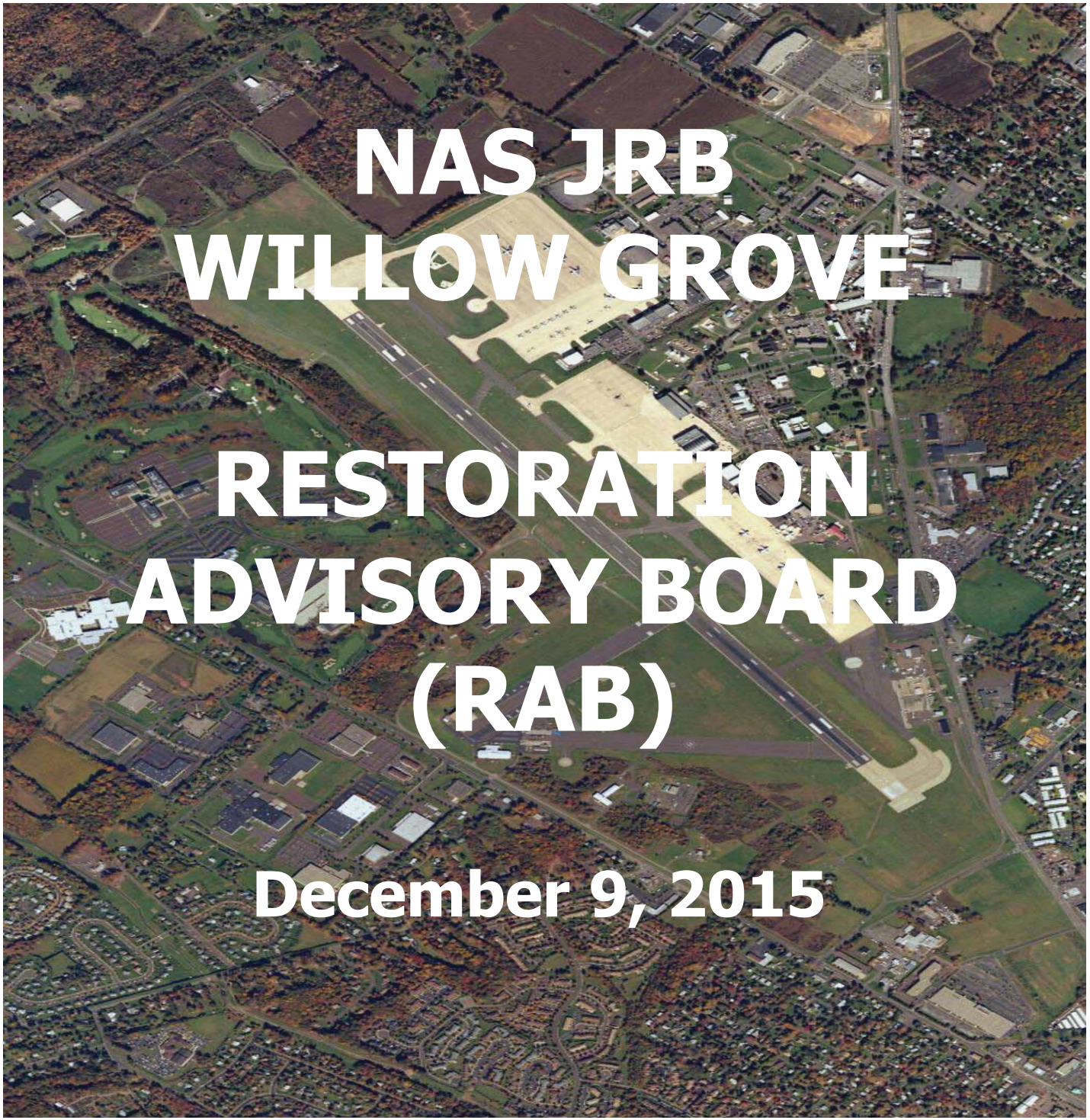
A draft work plan is planned to be submitted to the regulators in December 2015. After regulatory approval, the field investigation will commence with the goal to start in spring 2016. The investigation will take approximately one year to complete and a report of results in anticipated in fall 2017.

In response to questions from Mike McGee, Mr. Vest confirmed that in addition to groundwater samples, the outfalls from the stormwater basin and sewage treatment plant will be sampled. Mr. McGee asked if the Horsham Land Reuse Authority (HLRA) could get a copy of the draft work plan. After some discussion, it was determined that ANG will provide copies of the draft plan to all interested stakeholders including the HLRA. ANG requested that comments on the draft work plan be provided within 45 days after receipt.

Mr. Freihofer asked if there were any more questions related to ANG activities. There were no questions.

Mr. Lin stated the next RAB meeting is scheduled for March 9, 2016. That meeting will be focused specifically on Navy and Horsham Township. There were no other questions. Mr. Lin thanked the audience for attending.

Meeting adjourned.



NAS JRB WILLOW GROVE

RESTORATION ADVISORY BOARD (RAB)

December 9, 2015

Navy RAB Agenda

- Welcome Community RAB Members
- Radiological Status
- Environmental Restoration Status
- Perfluorinated Compounds Status
- Navy Closing Remarks

Radiological Update

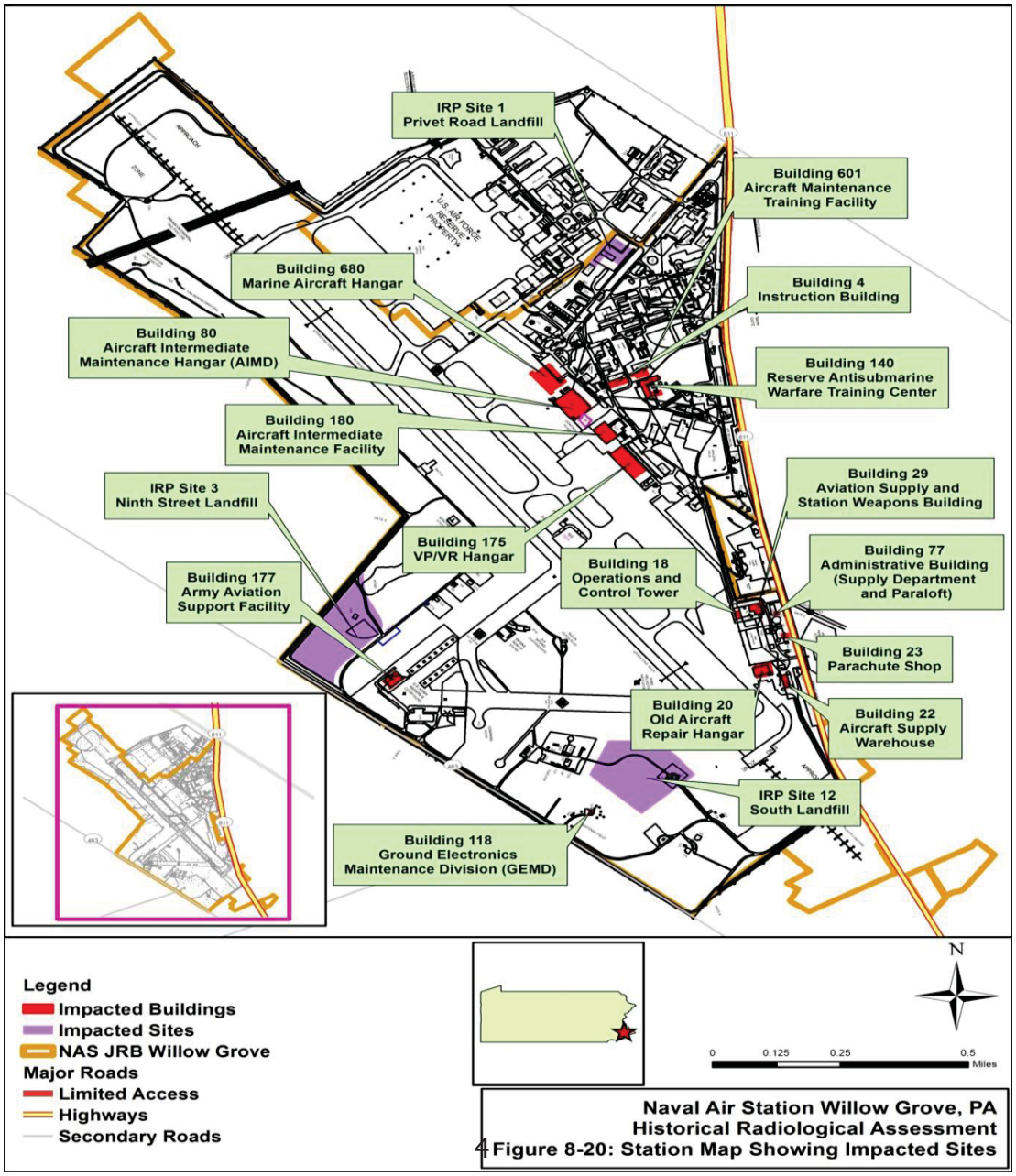
- 18 potential radiological impacted sites were identified

- A scoping survey was performed as an initial evaluation to identify if radionuclide contaminants exist. All field work is complete.

- The scoping survey reports for the 18 sites will be submitted to regulators for review, in three groups:

  - Building Surveys (10 Buildings)
  - Building Footprints (5 Former Buildings)
  - Landfills (3 Sites)

Radiological Investigation Potentially Impacted Sites



Naval Air Station Willow Grove, PA
Historical Radiological Assessment
Figure 8-20: Station Map Showing Impacted Sites

Radiological Update

- Draft Building survey reports were submitted to EPA/PADEP in September 2015. Final survey reports anticipated to be completed in early 2016.
- Draft Landfill survey reports will be submitted to EPA/PADEP in January 2016
- Draft Building Footprint reports will be submitted in early 2016
- The Navy, EPA, and PADEP are discussing future actions at each site.

Site 5 – Fire Training Area Groundwater

Site 5 Groundwater
Remedial Design/Remedial Action

- Remedial Action Completion Report finalized September 2014
- Operation, Maintenance, and Monitoring (OM&M) Plan and Long-Term Monitoring (LTM) Plan being finalized
- Performance monitoring to be conducted in accordance with OM&M Plan
- Additional injections will be conducted based on monitoring results

PFOA / PFOS Background

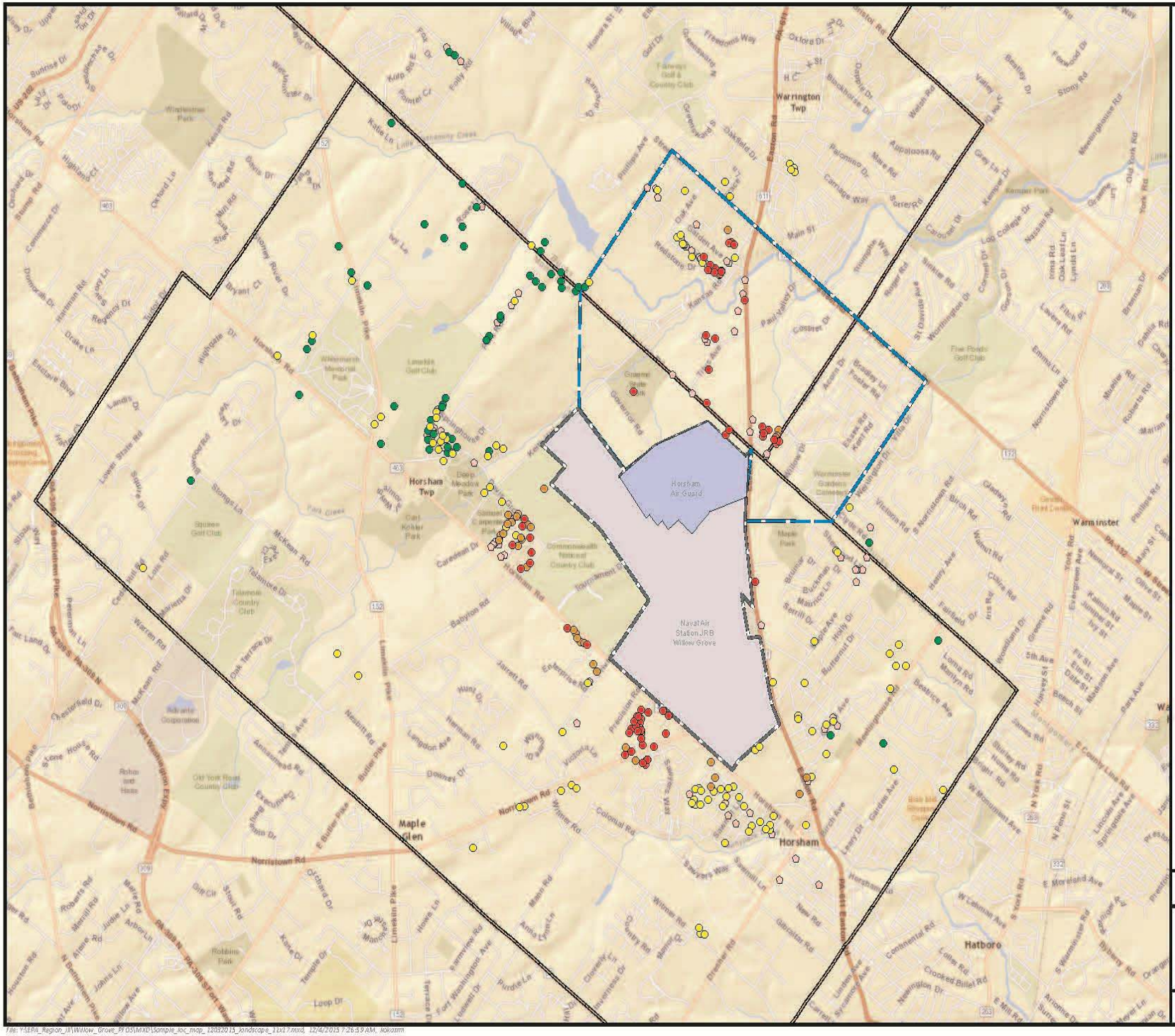
- PFOS, PFOA and other emerging contaminants are unregulated contaminants that are being sampled for the first time in Public Water Systems. PFOS and PFOA are man-made chemicals, break-down slowly, and are used in many different products including cookware and fire-fighting foams.
- EPA uses the Unregulated Contaminant Monitoring Rule (UCMR) program to collect data for contaminants suspected to be present in drinking water.
  - UCMR Monitoring is required for public water systems serving greater than 10,000 persons. Data collection was from 2013 through 2015.
  - EPA is working to improve its understanding of the prevalence and toxicity of these chemicals to determine if safe drinking water regulatory limits are needed.

PFOA / PFOS Background

- Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA) have provisional health advisory (PHA) values established by EPA.
  - PFOS: 0.2 µg/L (parts-per-billion)
  - PFOA: 0.4 µg/L (parts-per-billion)
- The PHA values are reasonable health based concentrations, above which actions should be taken to reduce exposure. PHA values include many safety factors to protect vulnerable populations (e.g., children).
- Under the UCMR3 public water sampling, PFOA and PFOS was detected above the PHA levels in area public water systems in 2014.
- The Navy requested support from the EPA to sample nearby private wells for PFOA and PFOS.

NASJRB Willow Grove PFCs

- On February 24 and 25, 2015, an open-house public meeting was held for area residents. Approximately 150 attended. All agencies and local water suppliers participated.
- The June 2015 and September 2015 RAB meetings also provided PFC information updates.
- More than 200 private wells around NASJRB Willow Grove have been sampled for PFCs by the Navy.
  - 38 private wells are at/above the PHA levels and are provided bottled water for drinking and cooking purposes.
  - 29 additional private wells, that are below but near the PHA levels, are being monitored.
- Please review the Fact Sheet for additional information



Legend

Provisional Health Advisory Level (PHAL)
PFOA 0.4 µg/L, PFOS 0.2 µg/L

- PFOS and/or PFOA detected at/above the PHALs
- PFOS and/or PFOA detected at/above ¼ the PHALs
- PFOS and/or PFOA detected but below ¼ the PHALs
- Non-detect for PFOS or PFOA
- Location sampled (no results yet)
- Not scheduled for sampling yet
- Horsham Air Guard
- Former NAS JRB Willow Grove
- Air Force Admininstrative Order Boundary
- Horsham Township
- Warrington Township

Imagery: ESRI GeoEye, Digital Globe 2013
Sample Data: Weston Generated

Coordinate System:
WGS84 UTM Zone 18N Feet

N

0 3,000 6,000
Feet

Willow Grove Naval Air Station Site

Figure 1
PFC Sample Location Map
as of 12/01/2015

TDD#: W501-15-07-022/027
Contract: EP-S3-15-02
Prepared: 12/4/2015

WESTON SOLUTIONS

File: Y:\EPA_Region_III\Willow_Grove_PFOS\MXD\Sample_loc_map_12032015_landscape_11x17.mxd, 12/4/2015 7:26:59 AM, kokazim

NASJRB Willow Grove PFCs

- The Navy has an agreement with Horsham Water and Sewer Authority (HWSA) on public and private wells in HWSA's service area that are at/above the PHA levels for PFOA or PFOS. The Navy will reimburse for treatment systems on HWSA wells, and connect private well users to public water.
- The Navy has formally offered connections to private well locations where water mains already exist. Other offers will be coming as soon as new water mains are completed.
- The Navy and EPA can answer questions about your individual Horsham Township private well after the RAB meeting.

NASJRB Willow Grove PFCs

- The Navy has initiated an investigation to better understand the nature and extent of the PFC contamination at the Navy base. The investigation requires the installation of numerous groundwater wells. The investigation is expected to be complete around the end of 2016.
- PFC actions at public and private wells in Warrington Township and other specific locations will be addressed separately by the Air Force/Air National Guard.

NAS JRB Willow Grove
RAB Meeting

- Closing Navy Remarks
- Questions or Comments From The Community?
- Next Meetings
  - March 9, 2015; time TBD

Navy Meeting Adjourned