PEATT Pilot Project PFAS Testing in the

Warrington, Warminster and Horsham areas Pennsylvania Department of Health

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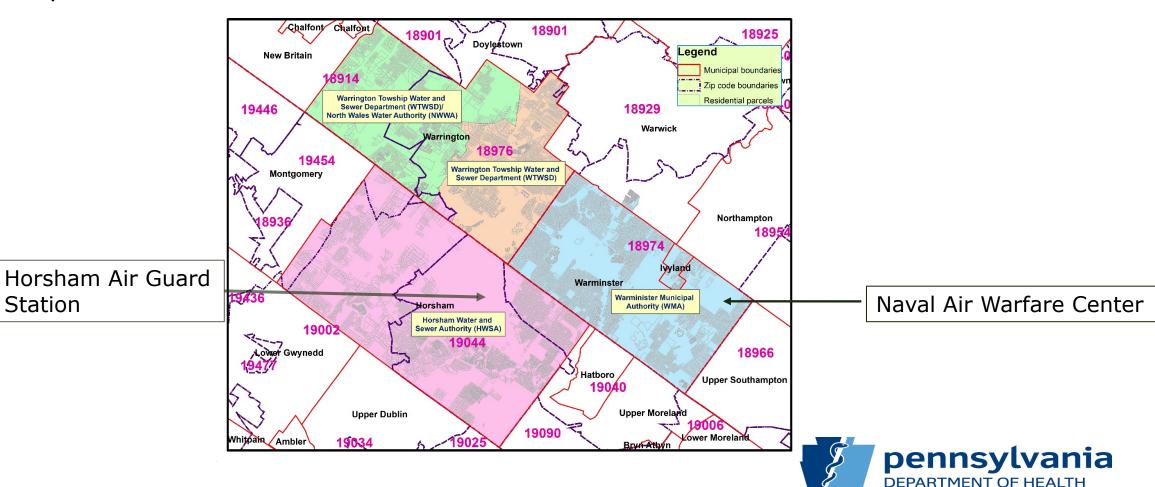
PFAS Action Team Meeting, April 15, 2019



PFAS Exposure in Southeastern PA

- Affected area = population of 84,184 (2010 census)
- 32,595 households in water service area

Station



PFAS Exposure in Southeastern PA

- The Naval Air Warfare Center Warminster and the Horsham Air Guard Station (formerly Naval Air Station Joint Reserve Base Willow Grove)
 - Military and firefighter training
 - Aqueous Film Forming Foam (AFFF) used on bases
 - PFAS in the foam
 - Exact composition of AFFF is proprietary



- PFAS levels in community drinking water
 - 1,440 ppt about 21 times higher than the Lifetime Health Advisory level (70 ppt) found in a municipal well in Warminster Municipal Authority (WMA) area



PEATT Project Participation Summary

- Total number of participants: 235 (from 118 different households)
- Participation rate: 40% (235 out of 584 eligible participants, including 113 children aged 3–17)
- Household-level participation rate: 19.6% (118 out of 600 households contacted)
- Household-level response rate: 46% (276 out of 600 households contacted)



PEATT Project Timeline

April May June July August September October November December

April 30th
Weekly conference calls
established between
DOH and stakeholders in
NY, BOL, Bucks Cunty,
Montgomery County

May 1st: Initial Letters and Eligibility Forms sent to 350 households in affected water supply area

May 16th: First Community Meeting to describe PEATT Pilot Project

May 25th: Initial Letters and Eligibility Forms sent to additional 250 households in affected area

May 29th: First Blood Draw clinic scheduled

Clinics continued through September 22nd

May 30th: Community update with DOH presentation at Dept of Defense Restoration Advisory Board Meeting (RAB) July 25th: DOH presentation at EPA community meeting

Aug 8th: First test results received from laboratory

Aug 22nd: Second round of test results received from laboratory

June 7th: Began reminder emails and phone calls to participants who had not returned paperwork

June 21st: Began reminder emails and phone calls to participants who returned paperwork, but had not scheduled clinic appointments

Reminders continued through September Sept 5th: Final Notices sent to participants to return paperwork

Sept 13th: Community update with DOH presentation at Dept of Defense Restoration Advisory Board Meeting (RAB)

Sept 17th: Final Notices sent to participants for clinic appointments

Sept 19<u>th:PFAS</u>
Action Team created by PA Governor's
Office

Sept 21st: Third round of test results received from laboratory

Sept 25-26th: Individual Results sent to most participants Nov 19th: Community level analysis sent to participants

Nov 30th: PFAS Action Team public meeting

Oct 18th: DOH presents to PFAS Action Team

Oct 22nd: Fourth round of test results received from laboratory

Oct 23rd: Individual Results sent to remaining participants

Dec 18th: Final call with ASTHO with feedback on PEATT Pilot Project

Dec 19th: Final Project Report released to community

Dec 19th: Final Community Meeting to present results/analysis to community

PEATT Project Demographics

- Mostly adults with higher education (college degree or more) who lived in area at least 10 years with public water service
 - Working on comparing demographics of the Warminster, Warrington,
 Horsham communities to the U.S. population
 - Working on comparing our study sample (235) demographics to the Warminster, Warrington, Horsham general community



Results Overall—4 main compounds

- Average serum PFAS levels (level of PFAS in the blood) were higher compared to NHANES's averages
- 94% had higher levels of PFHxS
- 81% had higher levels of PFOS
- 75% had higher levels of PFOA
- 59% had higher levels of PFNA
- Results are consistent with other studies on PFAS exposure through drinking water

	Community Results				NHANES Results (2013-2014)	
PFAS Compound	Average	95% Confidence Interval	Median	Range	Average	95% Confidence Interval
PFOA	3.13	2.81-3.50	3.06	0.55-24.8	1.94	1.76-2.14
PFOS	10.24	8.86-11.83	9.86	1.02- 105.00	4.99	4.50-5.52
PFHxS	6.64	5.51-7.99	6.61	0.54- 116.00	1.35	1.20-1.52
PFNA	0.74	0.67-0.80	0.76	0.50-2.56	0.68	0.61-0.74

Results shown in ug/L. Range excludes <LOD



Results Overall – Univariate Analyses

- In general, PFAS levels increased with:
 - Age
 - Male gender
 - Residence time
 - BMI
 - Private well use
 - Quantity of tap water consumed
 - Water service area's proximity to military base
- We are hoping to compare water PFAS levels with serum levels.
 - Need access to water testing data



Results—Multivariate analysis

- Multivariate analysis = more than two variables (e.g. age, sex, water source, serum PFAS levels, etc.) are included in the same analysis.
- Analysis determined that average serum levels for PFOA, PFOS, PFHxS and PFNA were positively associated with drinking water source, and total length of residence in the study area.

Multivariate analysis did not account for the location of private wells/bottled water users



Results—Multivariate analysis

- Higher serum PFAS levels associated with proximity to the HAGS base
- HWSA consumers compared to WTWSD/NWWA consumers:
 - 157% higher PFOA
 - 169% higher PFOS
 - 257% higher PFHxS
 - 34% higher PFNA

WMA compared to WTWSD/NWWA

105% higher PFOA 89% higher PFOS 137% higher PFHxS

WTWSD compared to WTWSD/NWWA

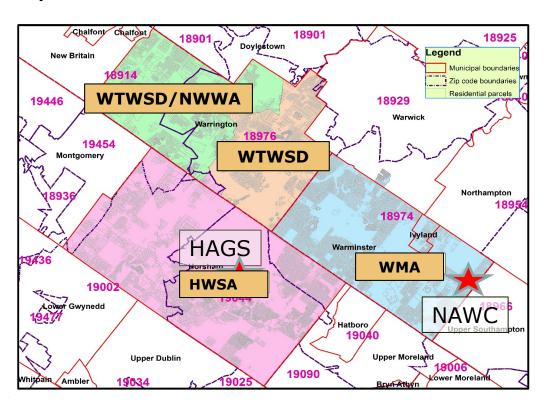
94% higher PFOA 99% higher PFOS 114% higher PFHxS

Bottled water/unknown category compared to WTWSD/NWWA

78% higher PFOA 98% higher PFOS 30% higher PFNA

Private well users compared to WTWSD/NWWA

106% higher PFOA 101% higher PFOS 39% higher PFNA





Multivariate analysis - Results

- Participants with more than 10 years' residence time generally had higher PFAS mean serum levels than reference group (less than 10 yrs.)
- Mean PFHxS serum levels were 32 percent higher in men than women
- Mean PFHxS serum levels were 35 percent higher in those employed in the area



Multivariate analysis - Results

- Mean serum levels of PFOA, PFOS and PFNA were positively associated with age
- Mean PFOA serum levels of participants consuming 4-7 cups of tap water daily were 29% higher than participants consuming 0-3 cups daily



CDC/ASTHO Report Presentation

- Atlanta, March 18–19, 2019
 - PA DOH and NY DOH presented PEATT findings
 - New York saw similar results to ours
 - New York had many more resources available to them



Community Meeting

A community meeting to present final results is scheduled

April 29, 2019, 6:30 to 8:30 pm

at

Horsham Township Public Library 435 Babylon Rd, Horsham, PA 19044



PEATT Expansion—Exposure Assessment

- Expansion project Kickoff call April 15th
- Urine, dust and water sampling of current participants
 - Will collect urine from all of our initial participants (235)
 - Will analyze 10% of samples
 - If geometric mean exceeds 95th percentile—all samples will be analyzed
- Dust and water sampling on 10% of current participating households



PEATT Expansion—Exposure Assessment

- PA DOH will collect and ship urine samples
- CDC will store and analyze urine (no cost)
- PA DOH will contract with outside lab to collect and analyze dust and water
- Community meeting—Horsham Library April 29th



Multi-Site Health Study Opportunity

- CDC/ATSDR taking applications to participate in Multi-Site National Health Study
- Will study health implications of exposure to PFAScontaminated drinking water
- Six sites will be accepted and given grants
- Goal is to enroll at least 6,000 adults and 2,000 children (in total across all sites)



Multi-Site Health Study Opportunity

- Historical reconstruction of water and serum PFAS concentrations using models
- Will study health conditions including high cholesterol, immunity issues and thyroid function
- Can propose additional research questions for study
- Application due May 30th



Our Partners

- Centers for Disease Control and Prevention (CDC)
- Association of State and Territorial Health Officials (ASTHO)
- Agency for Toxic Substances and Disease Registry (ATSDR)
- Bucks County Health Department
- Montgomery County Health Department
- New York State Health Department Laboratory
- Pennsylvania Department of Environmental Protection



Contact Information

Should you have any questions or concerns, feel free to contact us at env.health.concern@pa.gov or by phone at 717-787-3350

For more information:

https://www.health.pa.gov/topics/envirohealth/Pages/PFAS.aspx



PEATT Pilot Project Team

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- Dr. Farhad Ahmed
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