





Pennsylvania Department of Environmental Protection



Open House Meeting

Actions to Address Impacts to Drinking Water

From Former Naval Air Warfare Center Warminster



August 27, 2014 5-9 pm

Warminster Township Municipal Authority (WTMA)

Sampling for Unregulated Contaminants

- As part of the third Unregulated Contaminant Monitoring Rule (UCMR3), the Environmental Protection Agency (EPA) requires public water suppliers, including WTMA, to sample for 28 contaminants that are not regulated, but may require regulatory levels in the future
 - Perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) were detected in multiple wells
 - WTMA Public Water Supply (PWS) Well 26, contained PFOS above the EPA's Provisional Health Advisory Level (HAL)
 - PWS Wells 10 and 13 also contained PFOS at levels just below the provisional HAL. Well 13 is closest to former Naval Air Warfare Center (NAWC) Warminster property.
 - Firefighting agents used at the former NAWC Warminster are a likely source of the PFOS/PFOA in groundwater.

 After EPA review of the results and consultation with the Pennsylvania Department of Environmental Protection (PADEP), Wells 13 and 26 were taken off-line and consumers were notified of the PFOS findings.

Drinking water provided by the WTMA is safe to drink. Your water continues to meet all regulatory standards.

Warminster Township Municipal Authority (WTMA)

Actions to Protect the WTMA Water Supply

Current Actions

- Wells 13 and 26 are no longer connected to the drinking water system
- Installed temporary carbon filters at Well 26 and the water is being pumped to wastewater treatment

The Navy intends to compensate WTMA for the purchase of replacement water

Future Actions

- Navy is planning to install permanent carbon filters on Wells 10 and 26 to provide long term treatment.
- The Navy is conducting further investigation and will evaluate various alternatives for Well 13 including:
 - Install permanent carbon filters and reconnect to the

drinking water system

Discontinue use of Well 13 and compensate WTMA for purchase of replacement water.

Private Well Sampling

Navy Requested EPA Assistance

- Private drinking water wells near the former Naval Air Warfare Center (NAWC) Warminster may contain PFOS/PFOA.
- EPA is seeking to sample private wells on behalf of the U.S. Navy.

Initial focus is north of former NAWC Warminster

- Additional focus is south of former NAWC Warminster.
- EPA has reached out to approximately 70 well owners for permission to sample.
- All 42 wells that EPA has permission to sample (as of August 20) have been sampled.

So far PFOS/PFOA have been detected throughout the initial area.

Private Well Sampling

Navy Actions to Ensure Water Quality Regarding PFOS/PFOA

Current

- The Navy is testing wells for PFOS/PFOA
- The Navy will provide bottled water for wells with PFOS/PFOA above provisional Health Advisory Levels (HALs)

• Future

- Permanent connection to public water supply (no cost to homeowner); or in house treatment (installed, monitored and maintained by the Navy)
- Continue monitoring private wells for PFOS/PFOA below provisional HALS

Actions Private Well Owners Can Take to Ensure Water Quality

- Agree to have your well tested for PFOS/PFOA
- If bottled water is provided, use it for cooking and drinking
- Understand well owner responsibilities for other monitoring recommendations

The Navy will continue to fund actions required to protect water quality at private wells that were impacted by Navy contamination

Does Your Well In This Area Need Testing for PFOS/PFOA?

If you have a private well and are unsure if it should be tested for **PFOS/PFOA** please contact:

> Ruth Scharr, EPA On-Scene Coordinator Scharr.ruth@epa.gov 215-756-7897

Private Well Sampling



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PFOS and **PFOA**

Perfluorinated Compounds

- PFOS and PFOA are both perfluorinated compounds (PFCs) and have similar properties
 - Man-made compounds with multiple carbonfluorine bonds
 - Break down very slowly, which makes them useful for many home and industrial purposes, but also long-lasting in the environment



Used since the 1950s in many products because of their stain and water repellant properties

Example of fire fighting foam being used for fire training

- Fire-fighting foam
- Stains, paints, and grease
- Fabric for upholstered furniture
- Carpets
- Nonstick cookware
- Floor wax,
- Food packaging (e.g., lining of microwave) popcorn bags, fast food wrappers)
- Now, widely distributed in the environment and have been detected in the blood of humans, wildlife, and fish



Example of hangar fire suppression system being tested

EPA continues to investigate and work to eliminate sources

- 3M phased out PFOS starting in 2000
- DuPont and others are phasing out PFOA by 2015

PFOS and PFOA

Unregulated Contaminants

- PFOS and PFOA are unregulated contaminants that have not been previously sampled
- EPA uses the Unregulated Contaminant Monitoring Rule (UCMR) program to collect data for contaminants suspected to be present in drinking water
 - Every 5 years EPA develops a new list of contaminants. This is the third list (UCMR3)
 - Monitoring is required for public water systems serving > 10,000 persons
 - Data collection is not complete. Sampling being conducted between 2013 and 2015. Data is expected to be reported through 2016
- EPA is working to improve its understanding of these chemicals to determine if safe drinking water regulatory limits are needed
- EPA issued a Provisional Health Advisory Level (HAL) for PFOS and PFOA in 2009
 - The provisional HAL are reasonable health based hazard concentrations, above which actions should be taken to reduce exposure
 - It is important to note that provisional HALs include many safety factors to protect vulnerable populations (e.g., children)

PFOS and PFOA

Health Effects

What We Know Now

- Exposure to PFOS and PFOA appears to be widespread
 - Studies have found PFOS and PFOA in the blood samples of the general human population and wildlife nationwide (ATSDR 2009; EPA 2006a)
 - Exposure through ingestion is the primary concern
- Studies on exposed human populations indicate PFOS and/or

PFOA may cause elevated cholesterol levels and possibly low infant birth weight

 When animals are given large doses, they exhibit developmental, reproductive and liver effects. Other studies suggest a link with certain cancers

What We Don't Know

- Health effects from exposure to low levels of PFOS and PFOA are not well known and studies are continuing
- It is not known if the adverse health effects observed in

laboratory animals will also occur in humans

- Blood tests are available, but not routinely done. The results can be inconclusive and test results do not predict health effects
- Long term exposure effects are still being investigated by EPA

Former Naval Air Warfare Center (NAWC) Warminster

Timeline

<u>2011</u>

 The Five Year Review process identified PFOS/PFOA as a new environmental issue at the former NAWC Warminster. Limited sampling conducted during the Five Year Review process identified PFOA in Area C groundwater as a potential concern.

<u>2012</u>

 Navy expands groundwater sampling in Area C. Concentrations of PFOS/PFOA above the provisional Health Advisory Levels (HALs) were found in several onsite monitoring wells.

<u>2013</u>

- Navy performs additional sampling including sampling public supply well, WTMA-13. PFOS/PFOA are detected in WTMA-13
 - Navy begins investigating potential sources of PFOS and PFOA

<u>2014</u>

- UCMR3 results posted to EPA database
 - WTMA Wells 26 and 13 shut down
- Navy develops plan for additional sampling to determine the extent of contamination (Remedial Investigation) and completes PFOS/PFOA Source Investigation
- Navy and EPA begin sampling private wells

Current PFOS/PFOA Evaluation

PFOS/PFOA are suspected to be from fire fighting foam and plating processes.

- Area C (Sites 4 and 8) is the likely source of PFOS/PFOA detected in down gradient supply well WTMA-13
 - Site 4 largest disposal location at NAWC Warminster
 - Site 8 fire-fighting training activities using fire fighting foam
 - Other potential sources plane crash site and former fire station (Building 134)
- Areas A and D also may be potential sources of PFOS/PFOA (e.g., plating operations)

Existing Navy treatment plant is being upgraded to remove these contaminants. Navy is providing long term treatment to water wells at or above the provisional HALs.

Former Naval Air Warfare Center (NAWC) Warminster

Current PFOS/PFOA Evaluation

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| Public Supply Well | | CHECKED BY J. ORIENT | DATE 04/17/14 | Potential PFOS/PFOA Sources | APPROVED BY DATE | |
| Approximate On-Base Area of Study | | REVISED BY | DATE | | APPROVED BY DATE | |
| NAWC Warminster Property Line | | SCA AS NO | NLE OTED | NAWC Warminster | FIGURE NO. 3 - 1 | REV 0 |

Former Naval Air Warfare Center (NAWC) Warminster

Base History and Environmental Cleanup

For over 25 years, the Navy, EPA, and PADEP have been conducting environmental cleanup at the former NAWC Warminster.

- <u>1944 1996</u>: Used for manufacturing, research, development, testing and evaluation of Navy aircraft and aircraft components.
- <u>1989</u>: Facility was listed on the National Priorities List (NPL) due to groundwater contamination and environmental studies begin.

1996 - 1998: Base closure was initiated under

- the DoD Base Realignment and Closure (BRAC) Program and environmental cleanup continues.
- Early 2000s: Property transferred to local authorities.
- <u>2000-present</u>: The Navy continues to cleanup groundwater.

Groundwater Cleanup

- Three Areas identified for remediation (Area A, Area C, and Area D)
- Groundwater extraction and treatment system (GWETS) provides hydraulic control and removes volatile organic compounds

(VOCs) from groundwater

Monitoring Program

- 74 wells sampled annually (44 semiannually) for VOCs
- PFCs are being added to the monitoring program

