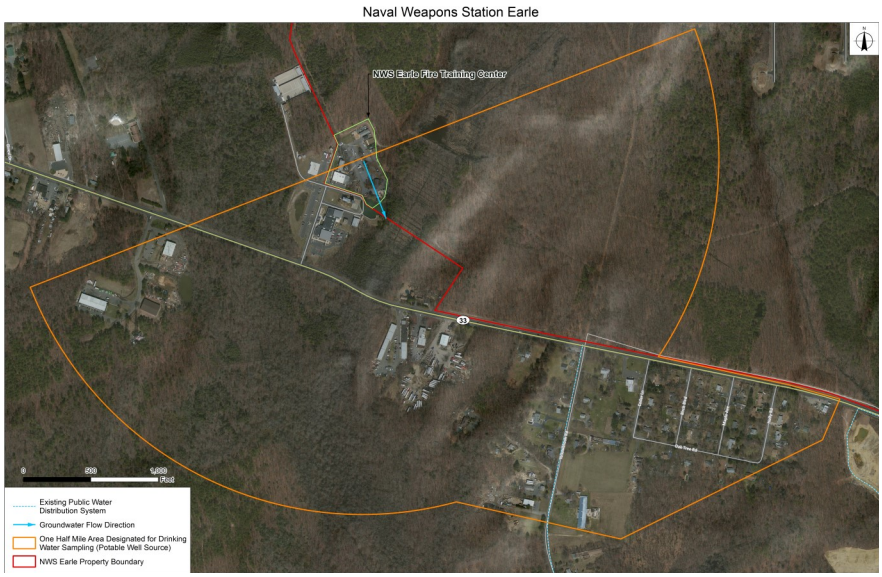
Overview of Testing Results for Perfluorinated Compounds (PFCs) and Follow-Up Actions for NWS Earle Fire Training Center

In February 2016, the *Navy sampled private drinking water from homes within a designated sampling area near Naval Weapons Station (NWS) Earle's Fire Training Center located on Route 33 in Howell Township.* The request to sample was made after recent sampling of drinking water and groundwater conducted at the NWS Earle Fire Training Center identified perfluorinated compounds (PFCs) in groundwater above health based levels.



*** PFCs were not detected in drinking water at the NWS Earle Fire Training Center.**

The Navy recognized the potential for PFCs to move off the NWS Earle property in the groundwater, which could impact the quality of private drinking water for nearby residents. ***The Navy worked with the U.S. EPA and the New Jersey Department of Environmental Protection (NJDEP) to discuss and agree upon an off-base sampling approach, including identifying the designated sampling area, as shown in the figure.***

If drinking water in any of the off-base homes in our sampling area was found to contain PFCs above the U.S. EPA or New Jersey health based levels, the Navy provided alternate drinking water supplies while a long-term solution is evaluated.

There is no legal requirement to conduct private drinking water testing. It is a voluntary measure because the water quality both on-base and for our off-base neighbors is a priority for the Navy. The Navy has provided alternate drinking water supplies to one off-base property that was found to contain PFCs in drinking water equal to the U.S. EPA Provisional Health Advisory. The Navy will continue to provide alternate drinking water to this property while a long-term solution is implemented.

This fact sheet provides additional information on PFCs and Navy policy; the off-base private drinking water sampling, and planned actions now that results are available.

WHAT ARE PFCs?

PFCs are man-made chemicals that have been used since the 1950s in many household and industrial products because of their stain- and water-repellant properties. PFCs are now present virtually everywhere in the world because of the large amounts that have been manufactured and used. Once these compounds are released to the environment, they break down very slowly. Currently, PFCs are classified as unregulated or "emerging" contaminants that have no Safe Drinking Water Act regulatory standards or routine water quality testing requirements. PFCs are being studied by the U.S. EPA to determine if regulation is needed. The U.S. EPA's Office of Water has issued provisional health advisory levels for two PFCs, perfluorooctane sulfonate

HEALTH INFORMATION

Exposure to PFOA and PFOS appears to be widespread globally. Studies have found both compounds in the blood samples of the general human population and wildlife nationwide. Exposure to PFOS, PFOA, and PFNA through ingestion is the primary health concern for people. 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. Some human and animal studies suggest a link with certain cancers.

Health effects from exposure to low levels of PFCs are not well known and studies are continuing. At this time, it is not possible to link exposures to PFCs in water to a person's individual health issues. Blood tests are available, but they are not routinely done because the results can be inconclusive and test results do not predict health effects. Long-term exposure effects are still being investigated by the U.S. EPA and State regulatory agencies.

Based on what is known and still unknown about PFCs, it is recommended people not drink water that contains these compounds above health based levels.

(PFOS) and perfluorooctanoic acid (PFOA).

Provisional health advisory levels are not regulatory standards. They are health-based concentrations above which the U.S. EPA recommends action should be taken to reduce exposure. The U.S. EPA provisional health advisory level for short-term exposure is 200 parts per trillion (ppt) for PFOS and 400 ppt for PFOA. The NJDEP has a preliminary drinking water guidance value for PFOA of 40 ppt based on a lifetime exposure and in November 2015 issued an Interim Ground Water Quality Standard for PFNA of 10 ppt.

PFCs and Navy Policy

Until a decision on regulating PFCs is made, the Navy has proactively developed a policy to ensure drinking water has not been impacted by PFC contamination at installations where there has been a nearby known or suspected release of PFCs to the environment. The most common historical Navy use of PFCs has been during activities involving fire-fighting foam.

The drinking water and groundwater at the NWS Earle Fire Training Center was tested in response to Navy policy because PFC-containing foam was used in years past for fire-fighting training. Results received in January 2016 from samples of the NWS Earle Fire Training Center on-base groundwater monitoring wells (see table below) show that the water contains PFOS above the U.S. EPA provisional health advisory levels and PFNA above the New Jersey interim ground water quality standard. **PFCs were not detected in drinking water at NWS Earle above health based levels.**

The Navy has started an investigation under our Environmental Restoration Program to determine if PFCs have moved off the NWS Earle Fire Training Center property in the groundwater. Our first priority in the investigation was to determine if PFCs were present in the private drinking water of nearby residents, and to take appropriate action as needed.

GROUNDWATER RESULTS

PARAMETER	MAXIMUM RESULTS DETECTED IN EARLE GROUNDWATER	HBL	EXCEEDS HBL?
Perfluorooctane Sulfonate (PFOS)	2,800 ppt	200 ppt	Yes
Perfluorooctanoic Acid (PFOA)	94 ppt	400 ppt	No
Perfluorononanoic Acid (PFNA)	15 ppt	10 ppt	Yes

ppt = part per trillion
HBL = Health Based Level
For PFOS and PFOA, health based level is U.S. EPA Provisional Health Advisory Level based on a short-term exposure.
For PFNA, health based level is NJDEP Interim Ground Water Quality Standard.

OFF-BASE PRIVATE DRINKING WATER SAMPLING

The Navy began notifying residents in the designated sampling area on February 12, 2016, to request to sample their drinking water. Off-base drinking water sampling was conducted at no cost to residents in the sampling area in late-February 2016. The sampling process took approximately 30 minutes and involved a team of two technicians coming into the home to collect a sample from one indoor tap location. The technicians also used hand-held equipment to collect additional information on the water (e.g. pH and temperature). Prior to collecting the sample, the technicians also went over a homeowner questionnaire.

The questionnaire was designed to gather information about the private drinking water well and any filtration systems being used to help with selecting the appropriate tap to sample, and to assist with evaluating the sampling results and developing follow-up investigation plans as needed.

ACTIONS BASED ON RESULTS

Results were received in late-March 2016. The Navy provided notification to each resident of their personal drinking water results and follow-up actions if needed for their home on or before April 6, 2016. The Navy hosted an additional Open House Public Meeting on April 14, 2016 to share a summary of results and our next steps of the investigation. The following is a summary of planned actions based on private drinking water sampling results:

ACTION CRITERIA	PFOA RESULTS	PFOS RESULTS	PFNA RESULTS	ACTION	PROPERTIES
At or greater than U.S. EPA Provisional Health Advisory or NJDEP Interim Ground Water Quality Standard for PFNA	400 ppt or greater	200 ppt or greater	10 ppt or greater	Provide alternate drinking water at no cost until long-term solution can be implemented	1 property affected
Greater than 25% of U.S. EPA Provisional Health Advisory or above detection limit for PFNA	100 ppt to less than 400 ppt	50 ppt to less than 200 ppt	Above detection limit (3 ppt) to less than 10 ppt	Follow up sampling with further evaluation of potential action	1 property affected, same property as above
Less than 25% of U.S. EPA Provisional Health Advisory and below the detection limit for PFNA	Below 100 ppt	Below 50 ppt	Not detected	No further action at this time	All remaining sampled properties

OFF-BASE PFC SAMPLE RESULTS—NJDEP ACTIONS

The NJDEP has developed a preliminary drinking water guidance value for PFOA of 40 ppt based on a lifetime exposure of 40 ppt. The NJDEP will take corrective action for any drinking water sample above their preliminary value. Based on the sampling conducted to date, one property's drinking water sample was above the preliminary PFOA value. The NJDEP will contact the property owner directly to coordinate future actions.

For more information:
www.cnic.navy.mil/earleinfo
If you have specific questions, contact the Navy Public Affairs office:
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The Navy has determined the private drinking water sample results indicate the off-base investigation area does not need to be expanded to include additional homes. The Navy will work with the U.S. EPA and NJDEP to plan the next steps for a groundwater investigation on NWS Earle and long term groundwater solutions.