Naval Research Laboratory – Chesapeake Bay Detachment

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Drinking Water Investigation

June 2018

The Navy is requesting permission to sample drinking water from wells within designated areas near the Naval Research Laboratory – Chesapeake Bay Detachment (NRL-CBD) in Chesapeake Beach, Maryland. The Navy has developed a protective policy to address past releases of per- and polyfluoroalkyl substances (PFAS). These substances are present in the soil and shallow groundwater at NRL-CBD as a result of historical testing of extinguishing agents used for firefighting activities, specifically various formulations of aqueous film forming foam (AFFF). Since PFAS are in the shallow groundwater, there is the potential for these substances to also be present in private drinking water wells in the designated areas because of their proximity and location relative to the NRL-CBD Fire Testing Area (FTA) where the Navy performs testing of these extinguishing agents (Figure 1).

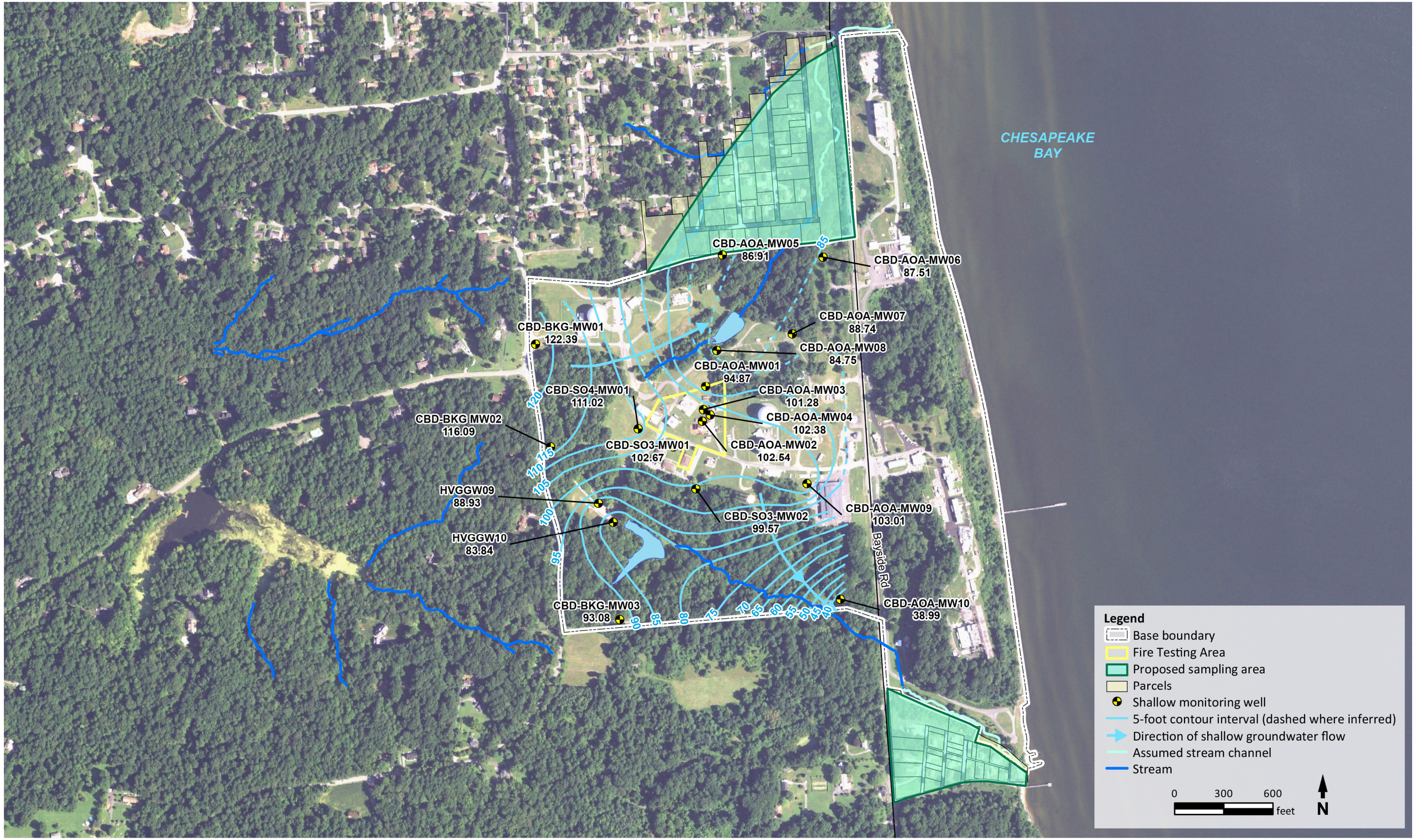
The Navy previously identified NRL-CBD as a site with potential offsite PFAS migration and exposure via groundwater used as drinking water. A review of county drinking water well records led the Navy to believe that drinking water wells located within the designated area were installed in the deeper groundwater, which is "protected" by a thick (greater than 100 feet) layer of clay. A Navy investigation of NRL-CBD found that although the shallow groundwater at the FTA contained PFAS, the deeper groundwater (specifically the Piney Point aquifer) did not contain any detectable levels of PFAS. In May 2018, the Navy learned that there may be a limited number of private drinking water wells in an area southeast of NRL-CBD using the shallow groundwater as their drinking water. Additionally, recent studies have improved our understanding of how PFAS can be transported in surface water. As such, the Navy is reconsidering the potential for PFAS transport and exposure in drinking water north of NRL-CBD. These designated areas, north and southeast of the installation, are shown on Figure 2.

If your preliminary results show that your drinking water contains PFOS and/or PFOA above the EPA lifetime health advisory, then the Navy will provide bottled water or an alternate water supply until a long-term solution is implemented.

Figure 1

In an abundance of caution and concern for our neighbors, before the ongoing investigation and delineation of PFAS in groundwater at NRL-CBD is complete, the Navy is initiating an investigation of off-base drinking water wells within these designated areas to identify and address any current exposure to PFAS in drinking water. There is no legal requirement to conduct drinking water testing. It is a voluntary measure because water quality for our off-base neighbors is a priority for the Navy. The Navy is performing this drinking water investigation in coordination with partners such as the United States Environmental Protection Agency (EPA) Region 3, Agency for Toxic Substances and Disease Registry, Maryland Department of the Environment, and Maryland Department of Health – Calvert County.

Figure 2


CHESAPEAKE BAY
CBD-AOA-MW05
86.91
CBD-AOA-MW06
87.51
CBD-AOA-MW07
88.74
CBD-AOA-MW08
84.75
CBD-BKG-MW01
122.39
CBD-AOA-MW01
94.87
CBD-SO4-MW01
111.02
CBD-AOA-MW03
101.28
CBD-AOA-MW04
102.38
CBD-BKG MW02
116.09
CBD-SO3-MW01
102.67
CBD-AOA-MW02
102.54
HVGGW09
88.93
CBD-SO3-MW02
99.57
CBD-AOA-MW09
103.01
HVGGW10
83.84
CBD-BKG-MW03
93.08
CBD-AOA-MW10
38.99
Bayside Rd
85
120
115
110
105
100
95
90
85
80
75
70
65
60
55
50
45
40
Legend
Base boundary
Fire Testing Area
Proposed sampling area
Parcels
Shallow monitoring well
5-foot contour interval (dashed where inferred)
Direction of shallow groundwater flow
Assumed stream channel
Stream
0
300
600
feet
N

BACKGROUND

PFAS 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. PFAS 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.

PFAS are "emerging" contaminants, which have no Safe Drinking Water Act regulatory standards or routine water quality testing requirements. The EPA is currently studying PFAS to determine if regulation is needed. In May 2016, the EPA released lifetime health advisory (LHA) levels for two PFAS, specifically perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA). **Health advisory levels are not regulatory standards. They are health-based concentrations which offer a margin of protection for all Americans given a lifetime of exposure to PFOS and PFOA in drinking water.** The EPA health advisory level for lifetime exposure is 70 parts per trillion (ppt) for PFOS and 70 ppt for PFOA. When both PFOS and PFOA are found in drinking water, the combined concentrations should not exceed 70 ppt.

NAVY POLICY

The Navy has developed a proactive policy to assess potentially impacted drinking water and eliminate exposure to PFOS and/or PFOA near installations where there were known or suspected releases of PFAS to the environment. Navy policy is to sample drinking water sources downgradient (in the direction of groundwater flow) from a suspected release of PFAS. To ensure protectiveness, the Navy will offer this drinking water sampling to all residents in the designated area (Figure 2), regardless of the depth of their drinking water well. This area includes approximately 79 private drinking water wells which the Navy is requesting permission to sample to ensure our neighbors are not being exposed to PFAS in their drinking water at concentrations exceeding the EPA LHA.

HEALTH INFORMATION

Exposure to PFOS and PFOA appears to be global. Studies have found both compounds in the blood samples of the general population. Studies on exposed populations indicate that PFOS and/or PFOA may cause elevated cholesterol levels and possibly low infant birth weight. In studies conducted using laboratory animals, effects on developmental, neurological, immune, thyroid, and liver function were observed.

Health effects from exposure to low levels of PFAS are not well known and studies are continuing. Blood tests are available to measure these chemicals, 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 EPA.

Based on what is known and still unknown about PFOS and PFOA, it is recommended people not drink or cook with water that contains these compounds above the EPA LHA.

ACTIONS BASED ON RESULTS

The preliminary results from the off-base drinking water sampling are expected within a few weeks after collecting the samples. The Navy will do its best to keep the result confidential to the extent permitted by law. We will provide notification to the property owners of their personal drinking water results and provide follow-up actions, if needed.

The Navy will provide an alternate water source, likely bottled water, for drinking and cooking to any resident in the sampling area whose water contains PFOS and/or PFOA above the EPA LHA. The Navy will continue to provide the alternate water until a permanent solution can be implemented.

For updates about this investigation, visit: **https://go.usa.gov/xQFuw/**

If you have specific questions, contact: **NRLCBDWATER@navy.mil** or **1-855-NRLCBD1 (1-855-675-2231)**