NEXT STEPS

The Navy will continue to provide bottled water for drinking and cooking purposes to mitigate exposure to PFAS for residences served by the five drinking water wells with PFAS exceedances near Area 6 until a long-term solution is implemented.

Based on the results of Phase 1 sampling, the Navy is conducting a Phase 2 off-base drinking water and groundwater investigation for PFAS, vinyl chloride, and 1,4-dioxane. The Phase 2 Sampling Area includes parcels within one-half mile in the direction of groundwater flow to the southwest of the Phase 1 PFAS exceedance area. If you are located within either the Phase 2 Sampling Area or the Phase 1 Sampling Area and have not had your well tested, the Navy will sample your well. If you do not have a well on your property and receive water from the City of Oak Harbor, please let us know. The City of Oak Harbor's drinking water supply comes from the Skagit River in Anacortes, Washington, and is not part of this investigation. The City of Oak Harbor's drinking water supply was sampled for six PFAS compounds under the Unregulated Contaminants Monitoring Rule Number 3 in 2013 and 2014. The results were non-detect for the six PFAS analyzed.

The Navy encourages you to schedule sampling of your well by calling 650-823-4947 or by emailing at Eric.Cutler@jacobs.com. If your property is within the designated sampling areas, but you do not have a water well, we would like you to confirm that information by contacting the phone number or email address above.

ACTIONS BASED ON RESULTS

For residents participating in the Phase 2 sampling, the Navy will notify each property owner of their personal water results and follow-up actions if needed. We will keep the results private to the greatest extent possible.

The EPA recommends that water containing vinyl chloride, 1,4-dioxane, PFOS, and/or PFOA above the respective action levels not be used for drinking or cooking. If your preliminary results show that your drinking water contains vinyl chloride, 1,4-dioxane, PFOS, and/or PFOA above the action levels, the Navy will provide bottled water or an alternate water supply until a long-term solution is implemented.

HEALTH INFORMATION

PFOS and PFOA – Exposure to PFOS and PFOA appears to be global. Studies have found both compounds in blood samples of the general population. Some PFAS leave the body slowly over time through urine. Studies on exposed populations indicate that PFOS and/or PFOA may result in increased cholesterol; changes in growth, learning, and behavior of the developing fetus and child; changes in the immune system; decreased fertility; altered thyroid function; and increased risk of certain types of cancer. It is not possible to determine if PFOS or PFOA are the cause of an individual's health effects. Blood tests are available to measure these chemicals, but they are not routinely done. A blood test will not provide clear answers about existing or future health effects and should be done under the care of a doctor.

Vinyl chloride – Studies on exposed populations indicate that vinyl chloride may result in effects on liver, reproductive organs, fetal growth/development, and the nervous system. The EPA has classified vinyl chloride as a known human liver carcinogen, to which infants and young children may be more susceptible.

1,4-Dioxane – Studies on exposed populations indicate that 1,4-dioxane may result in effects on the liver and kidneys, as well as possible effects on fetal growth and development. People breathing low levels of 1,4-dioxane for short periods of time have reported eye and nose irritation. The EPA has classified 1,4-dioxane as "likely to be carcinogenic to humans." Animal studies have shown increased incidences of nasal cavity, liver, and gall bladder tumors after exposure to 1,4-dioxane.

Based on what is known and still unknown about PFOS, PFOA, vinyl chloride, and 1,4-dioxane, it is recommended that people not drink or cook with water that contains these compounds above the action levels.

FOR MORE INFORMATION

The Navy has established the following websites to keep you updated as more information becomes available:

https://navfac.navy.mil/NWPFAS
www.secnav.navy.mil/eie/pages/pfc-pfas.aspx

Naval Air Station Whidbey Island Area 6

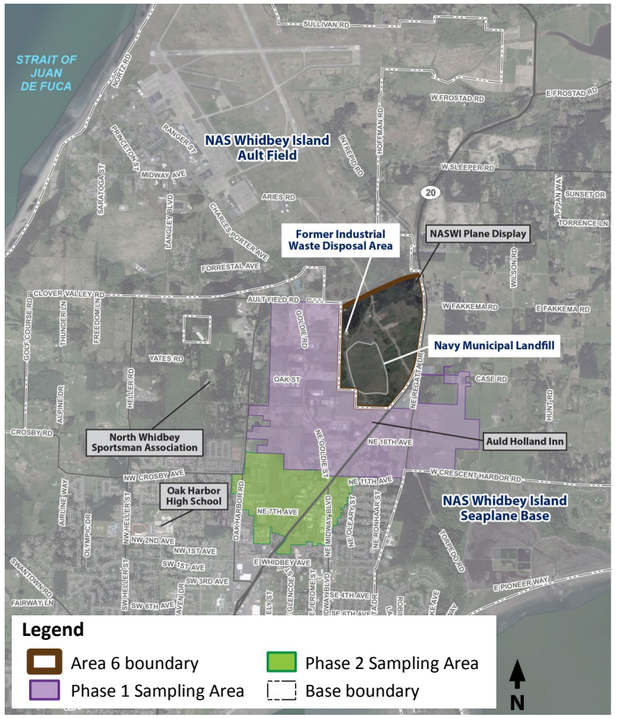
Groundwater and Drinking Water Investigation

October 2019

The Department of the Navy is conducting a groundwater and drinking water investigation around Naval Air Station Whidbey Island's Ault Field Area 6 Landfill as a precautionary measure to reduce exposure of nearby residents to vinyl chloride, 1,4-dioxane, and per- and polyfluoroalkyl substances (commonly known as PFAS). Additionally, this investigation will help determine the extent of these compounds in groundwater near Area 6.

The Area 6 Landfill was a Navy disposal site from the 1960s to 1990s for industrial (Former Industrial Waste Disposal Area) and household wastes (Navy Municipal Landfill) (see Figure 1). A remedial investigation performed under the Comprehensive Environmental Response, Compensation, and Liability Act (aka Superfund) determined that past disposal practices resulted in the leaching of contaminants to the groundwater. In 1996, the Navy capped the landfill and installed a groundwater treatment system for volatile organic compounds, such as trichloroethene and vinyl chloride. Due to the potential for the Area 6 contamination to migrate off-base into private drinking water wells, in 1995/1996, the Navy connected nine residences/businesses downgradient from the Area 6 Landfill to the City of Oak Harbor's water system as a protective measure. From 1996 to present, the Navy has continued to monitor contamination and operate the groundwater treatment system.

Figure 1



In 2010, the State of Washington began regulating 1,4-dioxane. Because 1,4-dioxane was not a known or regulated contaminant in the 1990s, the groundwater treatment system was not designed to treat it. The Navy identified 1,4-dioxane in on-base groundwater and expanded its monitoring program to include this chemical. Groundwater monitoring has identified that both 1,4-dioxane and vinyl chloride have migrated off-base.

To comply with a proactive Navy policy to identify and mitigate the potential for exposure to PFAS, the Navy sampled for and detected PFAS in on-base groundwater at Area 6 in December 2017.

Since drinking water sources may have been impacted by past disposal practices, our first step has been to sample drinking water sources that are close to Area 6. From February through April 2018, the Navy sampled 16 private or community drinking water and 10 groundwater wells near Area 6 for PFAS, vinyl chloride, and 1,4-dioxane. The Navy is working closely with the Environmental Protection Agency (EPA) Region 10, the Agency for Toxic Substances and Disease Registry Region 10, the Washington State Department of Ecology, the Washington State Department of Health, and Island County Public Health to assess the potential releases and the impact to drinking water near Area 6. The Navy will continue to work with these agencies to protect public health.

If your preliminary results show that your drinking water contains vinyl chloride, 1,4-dioxane, PFOS, and/or PFOA above the action levels, the Navy will provide bottled water or an alternate water supply until a long-term solution is implemented.

BACKGROUND

PFAS are manufactured chemicals that have been used since the 1950s in many household and industrial products because of their stain- and water-repellant properties (for example, upholstered furniture, carpet, nonstick cookware, floor wax, and the lining of microwave popcorn bags). PFAS are now widespread in the world and in people. Once these compounds are released to the environment, they remain there for a long time.

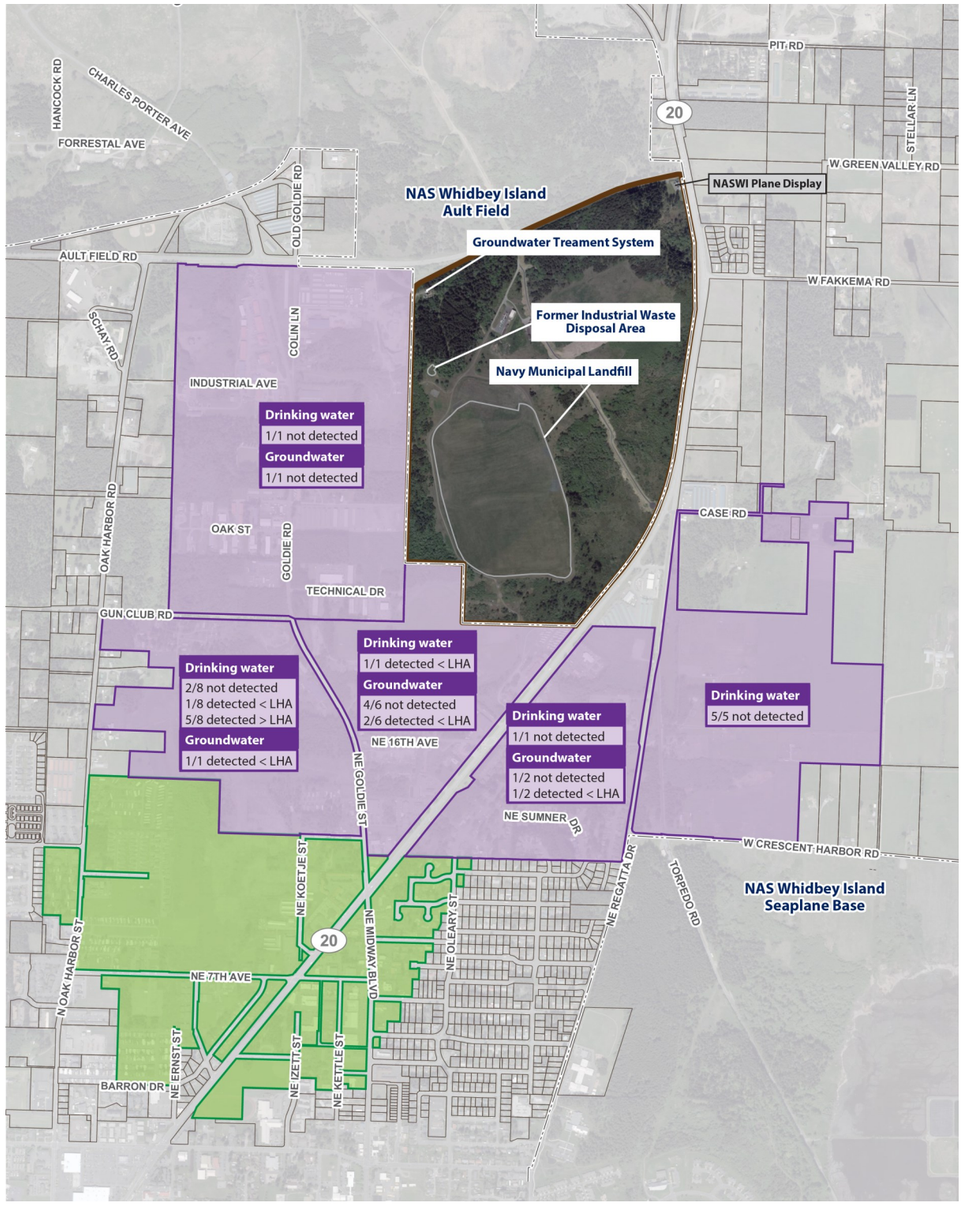
PFAS are a type of "emerging contaminant," which is a chemical or material characterized by a perceived, potential, or real threat to human health or the environment, or by a lack of published health standards. PFAS have no Safe Drinking Water Act regulatory standards or routine water quality testing requirements. The EPA continues to study PFAS to determine if regulation is needed.

In May 2016, the EPA announced 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 should offer a margin of protection for all Americans throughout their life from adverse health effects resulting from exposure to PFOS and PFOA in drinking water. The EPA LHA is 70 parts per trillion (ppt) for PFOS and/or 70 ppt for PFOA, individually or combined. The EPA LHA for PFOS/PFOA is the action level the Navy uses for the drinking water investigation for Area 6. The drinking water investigation for Area 6 is focused on PFOS and PFOA because these are the only PFAS for which the EPA has established an LHA level in drinking water; however, other PFAS compounds are also analyzed for informational purposes.

Vinyl chloride is used in the production of polyvinyl chloride (a material used to manufacture a variety of plastic and vinyl products including pipes, wire and cable coatings, and packaging materials); has been used in the past as a refrigerant; has been used in smaller amounts in furniture and automobile upholstery, wall coverings, housewares, and automotive parts; and can be created in the environment when certain chlorinated solvents, such as trichloroethene, break down. The EPA has established an enforceable regulatory standard under the Safe Drinking Water Act – a maximum contaminant level (MCL) of 2 parts per billion (ppb) for vinyl chloride in drinking water, which the Navy uses as the action level for this investigation. An MCL is a legal threshold limit that is selected to balance protection of public health with the ability to analyze small quantities of a substance and technological and economical practicality of treatment.

1,4-Dioxane is used in many products, including paint strippers, dyes, greases, varnishes, and waxes; is found as an impurity in antifreeze and aircraft deicing fluids and in some consumer products (deodorants, shampoos, and cosmetics); is used as a purifying agent in the manufacture of pharmaceuticals; and is a by-product in the manufacture of plastics. 1,4-Dioxane has been used as a stabilizer for certain chlorinated solvents. The EPA has not set an enforceable MCL for 1,4-dioxane. The Navy has adopted an action level of 35 ppb, which is based on an EPA risk-based value for tap water.

Figure 2 – Phase 1 PFOS and PFOA Results in Private and Community Drinking Water and Groundwater Wells



AREA 6 ON-BASE PFAS SAMPLING

In December 2017, the Navy conducted a limited sampling event at Area 6 to evaluate the presence of PFOS and/or PFOA in the aquifer system. This included collecting/analyzing samples from 13 groundwater monitoring wells and the groundwater treatment system (influent/effluent). The results indicated PFOS was detected at 2 of the 13 groundwater monitoring wells sampled at concentrations below the EPA LHA. PFOA was detected at 10 of the 13 groundwater monitoring wells sampled. Of the detected PFOA results, the concentration at one well (located at the former industrial waste disposal area) was above the EPA LHA. PFOA was also detected in both the groundwater treatment system influent and effluent at concentrations below the EPA LHA. PFOS was not detected in the groundwater treatment system samples.

PHASE 1 OFF-BASE DRINKING WATER AND GROUNDWATER INVESTIGATION

The Phase 1 off-base drinking water and groundwater sampling area was selected based on groundwater flow direction and the on-base waste disposal areas. The Phase 1 area extends approximately one-half mile in the direction of groundwater flow to the south and one-half mile west of the western Area 6 boundary (see Figure 2). The Phase 1 Sampling Area included approximately 280 properties. The Phase 1 off-base sampling was conducted between February and April 2018. During this time, 16 drinking water wells and 10 groundwater wells were sampled. The results indicate that PFOS and/or PFOA are above the EPA LHA in five off-base drinking water wells located southwest of Area 6 (see Figure 2). All results for vinyl chloride and 1,4-dioxane were below the action levels in drinking water and groundwater wells.

Phase 1 Sampling Area Private and Community Drinking Water Results	
Wells with Permission to Sample	16
Wells Sampled	16
Preliminary and/or Validated Results	16
PFOS and/or PFOA above EPA LHA	5
Vinyl Chloride above Action Level	0
1,4-Dioxane above Action Level	0

Phase 1 Sampling Area Groundwater Results	
Wells with Permission to Sample	18
Wells Sampled	10
Preliminary and/or Validated Results	10
PFOS and/or PFOA above EPA LHA	0
Vinyl Chloride above Action Level	0
1,4-Dioxane above Action Level	0