

Off-Base Private Drinking Water Time-Critical Removal Action, near Naval Air Station Whidbey Island, Oak Harbor, Washington

1.0 Purpose

The purpose of the memorandum is to document the selected remedy to address perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) in the following drinking water wells near Naval Air Station (NAS) Whidbey Island, in Oak Harbor, Washington:

- One well providing drinking water to Residence F
- One well providing drinking water to Business A
- One well providing drinking water to Residences G, H, and I
- One well providing drinking water to Residence J

This Action Memorandum (AM) was prepared by Naval Facilities Engineering Systems Command (NAVFAC) Northwest (NW) per Subsections 300.415 (b) and (n)(2) of Title 40 of the *Code of Federal Regulations*, as part of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The Department of the Navy (Navy) is the lead agency, under Executive Order 12580, for Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) actions at Naval Air Station Whidbey Island (NAS Whidbey Island). NAS Whidbey Island is currently listed on the National Priorities List.

Following 2016 Navy guidance (Navy, 2016), an emergency action was performed to supply bottled water to residents and the business for drinking and cooking where four private drinking water wells were found to have PFOS and/or PFOA levels above 70 nanograms per liter (ng/L), consistent with the Navy's existing emergency action memorandum signed in 2017 (CH2M, 2017).

The Navy is implementing a Time-Critical Removal Action (TCRA) at these same properties near NAS Whidbey Island to provide the residents a long-term solution for drinking water instead of bottled water. The TCRA will reduce the burden that bottled water usage may have on the residents/business, while maintaining protectiveness. This TCRA is to connect two impacted properties to the City of Oak Harbor water supply (referred to as Residence F and Business A); drill a new deep aquifer drinking water well that will serve three private residences (referred to as Residences G, H, and I); and drill a new deep aquifer drinking water well that will serve one private residence (referred to as Residence J).

2.0 Site Conditions and Background

NAS Whidbey Island is comprised of three separate installations: Ault Field (includes Area 6), Outlying Landing Field (OLF) Coupeville, and Seaplane Base. Naval activities began at NAS Whidbey Island on September 21, 1942. The Base currently supports several types of aircraft, 7,600 military personnel, and 1,300 civilian personnel. NAS Whidbey Island's current mission is to maintain and operate naval aircraft and aviation facilities and provide associated support.

In 2016, the Deputy Assistant Secretary of the Navy issued a memorandum to address past releases of PFAS, under the Navy Environmental Restoration Program (Navy, 2016). In response to the 2016 memorandum, the Navy assessed sites with a known or potential PFAS release and prioritized sites where groundwater is a drinking water supply within 1 mile downgradient from the potential release site. A project action limit was established as 70 ng/L for PFOS and PFOA, individually or combined. Off-Base drinking water sampling was initiated in 2016 near NAS Whidbey Island. In 2020, the Navy published an AM to address PFOS and/or PFOA above 70 ng/L in one

community drinking water well at one mobile home park, five private drinking water wells serving five residences (referred to as Residences A, B, C, D, and E), and two other private drinking water wells serving two residences (referred to as Residence 1 and 2) (CH2M, 2020). As of May 2024, 331 off-Base private drinking water wells have been sampled by the Navy and PFOS and/or PFOA have been detected above 70 ng/L in 21 of those wells. Of the 21 impacted wells, one drinking water well sampled in December 2023, as part of the routine drinking water sampling program, and three drinking water wells sampled in February 2024, are the subject of this AM. To protect the identity of each property owner, a labeling scheme is used in this memorandum for each resident/business, consistent with the sequential labeling scheme used in the 2020 AM (CH2M, 2020). One of the impacted drinking water wells supplies a business (referred to as Business A). One of the impacted residential wells supplies one private residence (referred to as Residence F). The third impacted residential well supplies three private residences (referred to as Residence G, H, and I). The fourth impacted residential well supplies one private residence (referred to as Residence J). Bottled water has been provided since December 15, 2023 to Residence F; February 16, 2024 to Business A and Residences G, H, and I; and February 23, 2024 to Residence J.

The Navy issued additional guidance to investigate potential PFAS sources at Naval Installations and identify areas requiring further assessment (Navy, 2016). Based on the Preliminary Assessment conducted at Ault Field between 2017 and 2018 (CH2M, 2018), 35 PFAS release areas were identified. Between 2019 and 2020, those 35 areas were investigated during the on-Base Site Inspection (SI) (CH2M, 2021). The presence of PFAS in groundwater at 24 PFAS areas was confirmed. Remedial investigations (RIs) for PFAS are currently underway at Ault Field Airfield (Site 59), Area 31 (the former Runway Fire Training School), the Current Fire Training Area, and Area 6 Landfill.

3.0 Threats to Public Health or Welfare or the Environment, and Statutory and Regulatory Authorities/Endangerment Determination

Potential releases of chemicals of concern can present an imminent and substantial endangerment to public health, welfare, and the environment. Historical releases on Navy facilities have the potential to impact groundwater and drinking water adjacent to the Navy facilities. PFAS is a chemical of concern at NAS Whidbey Island and the source and extent is not yet known. The Navy continues to investigate releases and migration of those releases at Ault Field (including Area 6 Landfill) through the SI (completed [CH2M, 2021]) and through RIs (forthcoming).

During off-Base drinking water sampling in December 2023 and February 2024, the Navy identified the four off-Base drinking water wells listed above and the residents/business owner were notified and provided bottled water within 24 hours of receipt of preliminary analytical results as an emergency response under CERCLA. Bottled water will continue to be provided to the impacted properties (five off-Base residences and one off-Base business) until a long-term solution is implemented.

4.0 Proposed Actions, Selected Removal Action and Estimated Costs

The following are alternative actions considered and descriptions of their level of protectiveness and how the action is or is not an effective solution for the impacted residences:

- Continuing to supply bottled water for five off-Base residences and one off-Base business for drinking and cooking will address PFOS and/or PFOA impacts; however, it is considered comparatively minimally protective or effective because water may continue to be used for potable or non-potable purposes and therefore, receptors are still exposed, and the water impacted with PFOS and/or PFOA may be rereleased to the environment in septic leach fields with no controls.
- Connection to public water supply and full abandonment and decommissioning of the existing drinking water wells is considered the most protective and effective alternative for properties that have access to the City of Oak Harbor drinking water distribution system because this action eliminates access to the impacted private drinking water well and therefore cuts off receptor exposure. This alternative is a solution that provides for unlimited use of drinking water at the off-Base residences, with no post-removal site control or periodic O&M, which makes it a lower cost option to implement over time. In addition, PFOS and/or PFOA would not be

released back into the environment through disposal of wastewater (via the septic system) or through disposal of spent filtration material. System installation would be carried out in accordance with City of Oak Harbor requirements. Residence F and Business A parcel boundaries are within feet of and directly adjacent to the water line operated by the City of Oak Harbor. However, Residences G, H, I, and J are not within the existing service area of the City of Oak Harbor.

- Drilling a new private well. This alternative is considered the most effective option for Residences G, H, I, and Residence J since these residences are not within the existing service area of the City of Oak Harbor water distribution system. Despite PFAS concentration and distribution within aquifers not being fully defined, an overlook of trends for PFAS in the area indicate deeper wells do not appear to be impacted by PFOS and/or PFOA (based on Navy and private well sampling). Drilling one new private well for three residences (Residences G, H, and I) is a cost and time effective option for these properties. Drilling one new private well for one residence (Residence J) is a cost and time effective option for this property.
- Point-of-Entry water treatment alternatives are considered protective and effective solutions because PFOS and/or PFOA are removed from the groundwater supply from the private drinking water well through treatment. However, these alternatives have long-term ongoing associated maintenance, monitoring and disposal costs and requirements that must be addressed in a timely manner to maintain protectiveness and effectiveness. This alternative is not considered the most efficient solution for any of the subject properties due to the ongoing maintenance, disposal, and coordination requirements.

The Navy has identified the most protective and efficient long-term solution, construction details, and estimated costs for each property:

- Residence F: Connection to the City of Oak Harbor drinking water distribution system. Roughly 470 linear feet of distribution piping and associated water supply pumping improvements will be installed to support the connection. The total baseline construction cost for this project is preliminarily estimated at \$200,000. Variability and uncertainty in these estimated costs could still be on the order of plus or minus 30 to 50 percent, consistent with typical estimate variability noted for conceptual and feasibility study project predesign planning under AACE International (formerly the Association for the Advancement of Cost Engineering) Class 4 estimating guidelines. Thus, total construction costs could potentially be as high as \$300,000. This property also has an irrigation well that will remain active and a backflow preventer will be added to it as required by the City of Oak Harbor. All work will be conducted in coordination with City of Oak Harbor, Department of Ecology, Island County, and US Environmental Protection Agency, and in accordance with City of Oak Harbor, Department of Ecology, Island County, and US EPA substantive requirements and regulations.
- Business A: Connection to the City of Oak Harbor drinking water distribution system. Roughly 100 linear feet of distribution piping and associated water supply pumping improvements will be installed to support the connection. The total construction cost for this project is preliminarily estimated at \$100,000 with the same variability and uncertainty in the estimated costs as described above. All work will be conducted in coordination with City of Oak Harbor, Department of Ecology, Island County, and US EPA, and in accordance with City of Oak Harbor, Department of Ecology, Island County, and US Environmental Protection Agency substantive requirements and regulations.
- Residence G, H, and I: Installation of, and connection to, a new, deep, aquifer drinking water well. The new drinking water well will be installed up to 200 feet below ground surface. Roughly 760 linear feet of distribution piping and associated water supply pumping improvements will be installed to connect all three residences to the new well. The total baseline construction cost for this project is preliminarily estimated at \$350,000. With variability and uncertainty, total construction costs would potentially be as high as \$475,000.
- Residence J: Installation of, and connection to, a new, deep, aquifer drinking water well. The new drinking water well will be installed up to 200 feet below ground surface. Roughly 200 linear feet of distribution piping

and associated water supply pumping improvements will be installed to connect the residence to the new well. The total baseline construction cost for this project is preliminarily estimated at \$250,000. With variability and uncertainty, total construction costs would potentially be as high as \$325,000.

The Navy estimates the implementation of all removal action components (including the design and construction) may take up to 1 year after the AM is signed.

5.0 Expected Change in the Situation Should Action be Delayed or Not Taken

If recommended removal actions are delayed or not performed, bottled water will continue to be provided until the connection to the City of Oak Harbor water system, or installation of, and connection to, a new drinking water well is complete. Failure to provide clean drinking water to residents with impacted drinking water would result in exposure to PFOS and/or PFOA above 70 ng/L.

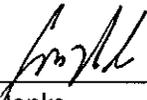
6.0 Future Regulatory Standards for PFAS

This removal action is being performed for off-base Base drinking water based on the concentrations of PFOS and/or PFOA in the affected residents' drinking water well. On April 10, 2024, the EPA announced a final rule on drinking water standards for certain PFAS under the Safe Drinking Water Act (SDWA). This rule is scheduled to come into effect on June 25, 2024 and applies to community water systems and non-transient non-community water systems. DoD remains committed to fulfilling PFAS-related cleanup responsibilities and is taking necessary actions to implement investigations in accordance with CERCLA. At this time, the Navy is authorized to implement a removal action in accordance with the June 2016 Navy Policy (Navy, 2016).

7.0 Recommendations

This memorandum documents approval of the TCRA to address off-Base drinking water exposure to PFOS and/or PFOA for the five off-Base residences and one off-Base business near NAS Whidbey Island. Conditions at the site meet the NCP Section 300.415(b) criteria for a removal and approval is recommended for the proposed removal action. NAVFAC NW is undertaking this TCRA.

Approval:



E.M. Hanks
Captain, United States Navy
Commanding Officer



Date

8.0 Works Cited

Department of the Navy (Navy). 2016. *Perfluorinated Compounds/Perfluoroalkyl Substances (PFC/PFAS) - Identification of Potential Areas of Concern (AOCs)*. June 20.

CH2M HILL, Inc. (CH2M). 2017. *Emergency Response Action Memorandum, Naval Air Station Whidbey Island, Ault Field, Oak Harbor and Outlying Landing Field, Coupeville, Island County, Whidbey Island, Washington*. February 13.

CH2M. 2018. *Preliminary Assessment for Per- and Polyfluoroalkyl Substances (PFAS), Ault Field, Naval Air Station Whidbey Island, Oak Harbor, Washington*. November.

CH2M. 2020. *Action Memorandum for Ault Field and Area 6 Drinking Water, Naval Air Station Whidbey Island, Oak Harbor, Washington*. June.

CH2M. 2021. *Phase 2 Site Inspection Report for Per- and Polyfluoroalkyl Substances, Ault Field, Naval Air Station Whidbey Island, Oak Harbor, Washington*. September.