Naval Facilities Engineering Systems Command Northwest
Silverdale, Washington

Volume 1 of 2

Final

Preliminary Assessment for Per- and Polyfluoroalkyl Substances

Naval Station Everett and
Associated Special Areas
Everett, Washington

February 2021

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Prepared for NAVFAC Northwest
by CH2M HILL, Inc.
Seattle, Washington
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Contents

Acronyms and Abbreviations

°F	degrees Fahrenheit
AFFF	aqueous film forming foam
ARD	Acoustic Research Detachment
AUL	Authorized Use List
bgs	below ground surface
CLEAN	Comprehensive Long-term Environmental Action—Navy
DASN	Deputy Assistant Secretary of the Navy
DNR	Department of Natural Resources
DoD	Department of Defense
DOE	Department of Ecology
DOH	Department of Health
EI&E	Energy, Installations & Environment
ER,N	Environmental Restoration, Navy
ESV	ecological screening value
FY	fiscal year
GIS	geographic information system
iNFADS	internet Navy Facilities Asset Data Store
MCRC	Marine Corps Reserve Center
N/A	not applicable
NAVFAC	Naval Facilities Engineering Systems Command
NAVSTA	Naval Station
NAVSUP	Navy Supply Systems command
Navy	Department of the Navy
NEX	Navy Exchange
NFA	no further action
NIRIS	Naval Installation Restoration Information Solution
NOSC	Naval Operations Support Center
NPDES	National Pollutant Discharge Elimination System
NRC	Naval Recreation Complex
NRS	Naval Radio Station
NSWCCD	Naval Surface Warfare Center, Carderock Division
OEL	Other Environmental Liabilities
PA	Preliminary Assessment
PFAS	per- and polyfluoroalkyl substances
PFBS	perfluorobutane sulfonate
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonate
ppt	parts per trillion
PSNS & IMF	Puget Sound Naval Shipyard & Intermediate Maintenance Facility
PWS	public water system
Qal	alluvium aquifer
Qtb	transitional beds confining unit

Qu	undifferentiated sediments aquifer
Qvr	vashon till confining unit
RCRA	Resource Conservation and Recovery Act
RfD	reference dose
RPM	Remedial Project Manager
SI	Site Inspection
SOSUS	Sound Surveillance System
Tb	bedrock confining unit
TSDF	treatment, storage, and disposal facility
UCMR3	third Unregulated Contaminant Monitoring Rule
UCMR4	fourth Unregulated Contaminant Monitoring Rule
USCG	United States Coast Guard
USEPA	United States Environmental Protection Agency
USMC	United States Marine Corps
VSI	visual site inspection

SECTION 1

Introduction

This Preliminary Assessment (PA) report documents the evaluation of potential sources of per- and polyfluoroalkyl substances (PFAS) at 23 areas at Naval Station (NAVSTA) Everett, in Everett, Washington, and was prepared under the Comprehensive Long-term Environmental Action—Navy (CLEAN) contract for the Department of the Navy (Navy) under Contract N62470-16-D-9000, Contract Task Order 4117.

This PA considered 23 areas associated with NAVSTA Everett and the following 26 special areas, with limited operations, that are either currently owned by the Navy or are properties where the Navy (both the Navy and United States Marine Corps (USMC)] are tenants **(Figure 1-1)**:

- Scott Paper Company in Everett, Washington
- Naval Radio Station (NRS) Jim Creek in Arlington, Washington
- Naval Recreation Complex (NRC) Pacific Beach (including parcels designated Pacific Beach, Pacific Beach Site 2, and Pacific Beach Site 3) in Pacific Beach, Washington
- Naval Surface Warfare Center, Carderock Division (NSWCCD) Acoustic Research Detachment (ARD) (including parcels designated Bayview ARD, Bayview ARD Site 2, Wigwam Kootenai, and Outpost Kootenai) in Bayview and Kootenai, Idaho
- Smokey Point Family Support Complex in Marysville, Washington
- Brier Family Housing in Brier, Washington
- Pier 91 Annex in Seattle, Washington
- NRS Lamoure and NRS Lamoure Remote Site in Lamoure, North Dakota
- Naval Operations Support Centers (NOSCs) in Portland, Oregon; Springfield, Oregon; Spokane, Washington; Boise, Idaho; Helena, Montana; Billings, Montana; Cheyenne, Wyoming; Fargo, North Dakota; Sioux Falls, South Dakota; Minneapolis, Minnesota; and Des Moines, Iowa
- Marine Corps Reserve Center (MCRC) St. Paul in St. Paul, Minnesota

Upon evaluation of the 26 special areas associated with NAVSTA Everett, two special areas are recommended for further evaluation in this PA report, NRS Jim Creek, and NRC Pacific Beach (**Figure 1-2**), and 24 special areas recommended for no further action (NFA). Based on the current operations and historical site use, it is unlikely that aqueous film-forming foam (AFFF)- or other PFAS-containing materials have been used, stored in significant quantities, or transferred at these areas. Additional detail on the special areas and rationale for NFA is provided in **Appendix A**. Special areas recommended for NFA are not further evaluated in this PA.

1.1 Preliminary Assessment Objectives

This installation-specific PA for PFAS is part of a Navy-wide installations assessment of potential historical sources of PFAS use (Navy, 2018a). The following objectives of this PFAS PA of NAVSTA Everett are to:

- Identify and catalog potential or actual PFAS sources (see list within).
- Eliminate from further consideration those areas where there is no evidence of a PFAS release or suspected release and document the rationale for their elimination.
- Identify areas requiring further PFAS investigation.
- Identify receptors and migration pathways (both on and off the installation).

- Determine whether an expedited response effort is warranted because of current complete exposure pathways (for example, on-Installation or off-Installation drinking water source within 1 mile downgradient of potential source area).
- Set priorities for a base-wide Site Inspection (SI)

To accomplish these objectives, the following activities were completed:

- Reviewed existing information to identify and characterize potential PFAS releases.
- Reviewed existing information to identify potential off-Base receptors within 1 mile of the installation boundary.
- Interviews conducted with relevant site personnel to validate and verify data collected during the data review, and to provide supplemental information.
- A site reconnaissance of the installation to identify any evidence of PFAS releases and potential receptors and migration pathways, to identify all areas of concern, and to fill data gaps identified in the data review and interviews.
- Identify any need for initiation of a rapid response drinking water investigation in accordance with Navy policy (DASN, 2016)

1.2 PFAS Background

PFAS have been identified by the United States Department of Defense (DoD) as "emerging contaminants"[1]. PFAS are of environmental concern because of their persistence in the environment and in organisms, their migration potential in aqueous systems (for example, groundwater), their historically widespread use in commercial products, and their possible health effects at low levels of exposure. PFAS are anthropogenic compounds with multiple, strong carbon-fluorine bonds.

1.2.1 General Uses of PFAS

The chemical properties of PFAS make them useful for many commercial products because they are heat resistant and can repel oil, grease, and water. PFAS have been manufactured for use in a wide variety of products including firefighting foam, nonstick cookware, fiber and fabric stain protection, food packaging, and personal care products. The pervasive use of PFAS in commercial and industrial products has led to the discovery of PFAS in soil, air, and groundwater worldwide.

1.2.2 Key PFAS Sources at Naval Installations

PFAS have been used in a variety of military applications, including as a component of aqueous film forming foam (AFFF), which was routinely used at firefighting training areas and firefighting equipment test areas[2]. In addition, current and historical AFFF storage and transfer areas are of potential concern for release to the environment. As such, identification of areas where AFFF was released to the environment, either as repeated small releases or as a significant one-time release, is key to determining potential PFAS sources to environmental media.

PFAS from AFFF used in firefighting, firefighting training, and fire suppression systems are considered to have the greatest potential for release of PFAS to the environment in terms of mass and concentration on Navy installations. Other potential sources of PFAS to the environment include operations wastes (chromium electroplating), historical onsite land disposal areas and landfills of PFAS-containing materials, and wastewater

1 The most current version of DoDI 4715.18 (4 September 2019) defines emerging chemicals as "Chemicals relevant to the DoD that are characterized by a perceived or real threat to human health or the environment and that have new or changing toxicity values or new or changing human health or environmental regulatory standards. Changes may be due to new science discoveries, detection capabilities, or exposure pathways.

2 AFFF is a type of Class B fire-fighting foam but is not the only type of Class B fire-fighting foam available. While AFFF contains PFAS, not all Class B foams do (ITRC, 2020). Consequently, use of foam to extinguish a Class B fire is not a reliable indicator PFAS were released to the environment.

treatment sludges and effluents. Areas of interest for this PFAS PA include those where AFFF may have been applied, released, or stored. These include current and former fire training areas, equipment test and cleanout areas, buildings with firefighting infrastructure (hangars, AFFF storage and handling areas, and pump houses), unplanned release areas (crash sites), and fire suppression systems located at fuel storage areas.

- For these operational and waste areas, it is important to develop a conceptual site model (CSM) that considers the following to determine if a reasonable basis exists for PFAS use, and if there is potential for the PFAS to be released into the environment:
- Type of operations,
- Timeline of operational activity,
- Material/product development and usage,
- Material storage and management practices,
- Quantities of material used, and
- Historical information/data from similar operations in the assessment.

Aqueous Film Forming Foam in Firefighting Training and Fire Suppression

AFFF containing PFAS was developed in the 1960s for use on Class B fires (that is, fires in flammable liquids or vapors) and was put into routine use by the early 1970s. In November 1969, a military specification was issued that described characteristics that AFFF needed to demonstrate to be used by the military, including a requirement for formulations containing PFAS. As such, most AFFF used at military installations after the 1970s likely included some combination of PFAS.

Typically, AFFF concentrate was proportionally mixed into water lines using in-line eductors or other proportioning devices to create the necessary foam solution ranging from 3 percent to 6 percent of the concentrate. Class A firefighting foams were used to extinguish wood and grass fires, and do not contain PFAS. Therefore, Class A firefighting foams are not a concern for this PA.

Electroplating

Electroplating, specifically hard chromium plating, is an industrial activity where PFAS-containing mist suppressants may have been used. Electroplating consists of creating an electrolytic cell that enables a thin layer of metal to be deposited onto an electrically conductive metal surface. PFAS were sometimes used during the chromium electroplating process as a surfactant in chromic acid baths. As a surfactant, PFAS lowered the surface tension (adhesion of materials) by creating a thin, foamy layer on the surface of the chrome bath for mist-suppression. This mist-suppressant reduced the formation of airborne chromium aerosols during the plating process, which are known to be carcinogenic and allergenic. Areas where non-chromium electroplating operations were carried out would not be expected to have used PFAS-containing mist suppressants. Although fluorinated mist suppressants were available as early as the 1950s, they were not commonly used due to problems with porosity and cracking during the plating process. Technical improvements to fluorinated mist suppressants were made in the 1980s and 1990s which made their use more common; therefore, operations that ceased before this time likely would not have included PFAS materials in plating bath solutions (USEPA, 1998).

Landfill Operations, Waste Disposal Areas, and Wastewater Treatment Plants

Historically, landfills received wastes generated from military installations, including waste streams from operational areas (such as machine shops and electroplating operations), housing areas, etc. These waste streams may contain industrial and/or consumer products that were either manufactured with PFAS or contain PFAS constituents. Additionally, for wastewater treatment plants (WWTPs) that received materials containing PFAS, waste material biosolids and sludge from WWTPs can contain PFAS.

Other Potential Sources

Because of the widespread use of PFAS, there may be activities other than those previously mentioned where PFAS were used. PFAS have been included in some antifouling and stain-resistant paint formulations. It is possible that in significant amounts, these could be sources of PFAS to the environment.

1.2.3 PFAS in the Environment

PFAS are a class of anthropogenic compounds characterized by carbon chains of varying lengths containing carbon-fluorine bonds. The strong electronegative force of the carbon-fluorine bond requires a large amount of energy to break, which makes PFAS extremely resistant to biodegradation, photo-oxidation, direct photolysis, and hydrolysis. In addition to their environmental persistence, PFAS are readily soluble in aqueous solution and therefore, have potential for migration to groundwater from soil and with groundwater flow to offsite locations. Because of their persistence and mobility, releases of PFAS to the environment present a unique set of challenges and concerns.

1.2.4 Health Effects

Additional research is needed to more clearly understand the potential health effects that may be caused by exposure to PFAS compounds. To date, there is limited information on only a few of the thousands of total PFAS. To date, there are no Tier 1 toxicity values for any PFAS. Tier 1 toxicity values are the preferred source for toxicity factors in Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Resource Conservation and Recovery Act (RCRA) human health risk assessments.

The United States Environmental Protection Agency's (USEPA's) Superfund Health Risk Technical Support Center has estimated a Tier 2 noncarcinogenic toxicity value for perfluorobutane sulfonate (PFBS) (USEPA, 2014). The oral reference dose (RfD) is based on kidney effects observed in female rats. Because of a lack of information in current literature, toxicity values for inhalation exposure and cancer endpoints could not be estimated for PFBS.

The USEPA Office of Water developed an RfD for perfluorooctanoic acid (PFOA) that is based on a developmental toxicity study using mice. The critical effects included reduced ossification in parts of the hands/feet and accelerated puberty in male pups following exposure during gestation and lactation (USEPA, 2016a). The USEPA Office of Water also determined that PFOA should be classified as "suggestive evidence of carcinogenic potential" and estimated an oral cancer slope factor based on tumor development in rat testes.

USEPA Office of Water estimated a RfD for perfluorooctane sulfonate (PFOS) based on a developmental toxicity study in rats; the critical effect was decreased pup body weight following exposure during gestation and lactation (USEPA, 2016b).

PFOA and PFOS are known to be transmitted to the fetus in cord blood and to the newborn in breast milk. Because the developing fetus and newborn seem particularly sensitive to PFOA- and PFOS-induced toxicity, the RfDs based on developmental effects also are protective of adverse effects in adults.

1.3 Regulatory Background and History

1.3.1 PFOA Stewardship Program

In 2006, USEPA initiated the 2010/2015 PFOA Stewardship Program in which eight major companies in the United States committed to reduce facility emissions and product contents of PFOA and related chemicals on a global basis by 95 percent no later than 2010, and to work toward eliminating emissions and product content of these chemicals by 2015. All companies have met the program goals. To meet the program goals, most companies stopped the manufacture and import of long-chained PFAS, and then transitioned to alternative chemicals. On January 21, 2015, USEPA proposed a Significant New Use Rule under the Toxics Substances Control Act to require manufacturers (including importers) of PFOA- and PFOA-related chemicals to notify USEPA at least 90 days before starting or resuming new uses of these chemicals in any process.

1.3.2 Unregulated Contaminant Monitoring Rule

USEPA issued the third Unregulated Contaminant Monitoring Rule (UCMR3)[3] in May 2012. UCMR3 required monitoring between 2013 and 2015 for 30 substances of all large public water systems (PWSs) serving more than 10,000 people, and 800 representative PWSs serving 10,000 or fewer people. Six PFAS compounds were included in the UCMR3 contaminant list. Of these six PFAS, USEPA issued provisional health advisory levels for only two: PFOA and PFOS. The UCMR3 results found each of these two chemicals was present above the reference concentration of 70 parts per trillion (ppt) in less than 1 percent of the nearly 5,000 public water systems that sampled under UCMR3 (USEPA, 2017).

In December 2016, USEPA issued the Fourth Unregulated Contaminant Monitoring Rule (UCMR4). UCMR4 requires all large PWSs serving more than 10,000 people and 800 representative PWSs serving 10,000 or fewer people to sample for 30 chemicals between 2018 and 2020. There are no PFAS included on the UCMR4 list of contaminants that require sampling and analysis.

USEPA is currently proposing development of a fifth UCMR (UCMR5), it is anticipated that a proposal for the rule will be developed in summer 2020 and the final rule is expected to be released in late 2021. It is currently unknown whether PFAS will be included as part of UCMR5; however, several PFAS have been proposed for inclusion (USEPA, 2019a).

1.3.3 USEPA Lifetime Health Advisories

In May 2016, the USEPA Office of Water issued a drinking water Lifetime Health Advisory for PFOA and PFOS. Health advisories are not enforceable, regulatory levels; rather, they are levels that would provide Americans, including sensitive populations, with a margin of protection from a lifetime of exposure to PFOA and PFOS from drinking water. The health advisory is 70 parts per trillion (ppt) for PFOA and 70 ppt for PFOS. When both PFOA and PFOS are found in drinking water, the combined concentrations of PFOA and PFOS should be compared with the 70 ppt health advisory level.

1.3.4 USEPA Action Plan

In February 2019, the USEPA issued an action plan outlining the steps the agency is taking to take to address PFAS and to protect public health (USEPA, 2019b). The action plan identifies USEPA-led short-term actions, longer-term research, and potential regulatory approaches designed to reduce the risks associated with PFAS in the environment. The action plan notes that USEPA plans to propose a national drinking water regulatory determination for PFOA and PFOS and include PFAS analysis in the next UCMR monitoring cycle. Other steps include further research into improving analytical methods, understanding remediation options, and obtaining more information about the potential toxicity of a broader set of PFAS, along with numerous additional actions. An update to the Action Plan was issued by USEPA in February 2020.

1.3.5 USEPA Guidance, December 20, 2019

In December 2019, the USEPA issued Interim Recommendations for Addressing Groundwater Contaminated with PFOA and PFOS under federal cleanup programs. The guidance recommends using a screening level of 40 ppt to determine if PFOA and/or PFOS is present at a site and may warrant further attention. The guidance also recommends using EPA's PFOA and PFOS Lifetime Drinking Water Health Advisory level of 70 ppt as the preliminary remediation goal for contaminated groundwater that is a current or potential source of drinking water, where no state or tribal MCL or other applicable or relevant and appropriate requirements are available or sufficiently protective.

[3] The 1996 Safe Drinking Water Act amendments require that once every 5 years, USEPA issue a new list of no more than 30 unregulated contaminants to be monitored by PWSs.

1.3.6 State-specific Action Levels

As of the writing this report, no specific PFAS action levels have been established by the State of Washington; however, several state agencies (Washington State Department of Ecology [DOE], Board of Health, and Washington State Department of Health [DOH]) have conducted research on the health effects related to PFAS exposure. The State Board of Health has drafted state action levels (SALs) for five PFAS in public drinking water supplies: PFOA, PFOS, perfluorohexane sulfonate (PFHxS), perfluorononanoic acid (PFNA), and PFBS (DOH, 2020).

1.4 Navy Policy

1.4.1 DASN (EI&E) Policy Memo, October 21, 2014

Because of Navy releases impacting PWSs tested under the UCMR3, the Navy issued a policy in October 2014, requiring on-Base drinking water sampling for PFOA and PFOS for bases where groundwater was used as drinking water and PFAS could have been released nearby in the past. Installations that were not required to sample finished drinking water under UCMR3 that produce drinking water from on-installation groundwater sources and have an identified or suspected PFAS release within approximately 1-mile upgradient to the drinking water source were required to sample their finished drinking water by December 2015.

Drinking water at NAVSTA Everett is supplied by the City of Everett, which obtains its raw water from Spada Lake Reservoir, which is located approximately 25 miles east of NAVSTA Everett (NEESA 1992). In 2014, the City of Everett conducted sampling of their drinking water in accordance with UCMR3. No PFAS were detected. Because the City of Everett's water was tested under UCMR3, no additional action by NAVSTA was required for compliance with the Navy's October 2014 policy.

1.4.2 Chief of Naval Operations Policy Memo, September 14, 2015

This policy memorandum largely echoed the requirements laid out in the October 2014 Deputy Assistant Secretary of the Navy (DASN) (Energy, Installations & Environment [EI&E]) policy memorandum. However, this memorandum specified that if levels of PFOS and/or PFOA in drinking water exceeded the current USEPA health advisory (that is, the 2009 provisional short-term health advisories), then alternative drinking water must be supplied until the PFOA and/or PFOS levels were reduced to below the USEPA health advisories.

1.4.3 DASN (E) Policy Memo, June 14, 2016

This policy expanded the sampling PFOA and PFOS on all Navy installations, where such sampling was not previously completed under USEPA's UCMR3 or the Navy's October 2014 policy. This memorandum also specified that for instances where drinking water from an installation is purchased from a PWS, but was not tested under UCMR3, that the installation must sample the finished drinking water to comply with this policy. Additionally, this policy included reporting requirements to the DASN (E) office for all PFOA and/or PFOS drinking water results.

No PFOA or PFOS was detected in NAVSTA Everett drinking water tested under the UCMR3 program; therefore, testing under the Navy's June 2016 policy was not required. Drinking water at NRS Jim Creek or NRC Pacific Beach was not tested under UCMR3 or the Navy's September 2015 policy; thus, drinking water at both installations were tested for PFOA and PFOS in September 2016 in compliance with the Navy's June 2016 policy (Navy, 2016). No PFOA or PFOS was detected in drinking water samples from NRS Jim Creek or NRC Pacific Beach (Navy, 2016).

1.4.4 DASN (E) Policy Memo, June 17, 2016

This policy defines the Navy's intention to remove, dispose, and replace legacy AFFF that contains PFOS and/or PFOA once environmentally suitable substitutes are identified and certified to meet military specification requirements. This policy directs the following actions be taken until suitable replacements are certified:

- Immediately cease the uncontrolled environmental release of AFFF for shoreside installations, except for emergency responses.

- Update and implement Navy and Marine Corps firefighting system requirements, as needed, to ensure fire and emergency service vehicles and equipment on Navy installations and facilities are tested and certified in a manner that does not allow the release of AFFF to the environment.
- By the end of fiscal year (FY) 2017, remove and dispose of uninstalled PFOS-containing AFFF in drums and cans from local stored supplies for shore installations and ships to prevent future environmental releases.

1.4.5 DASN (E) Policy Memo, June 20, 2016

This policy required Navy to identify and prioritize sites for investigation if drinking water resources, on- or off-installation are thought to be vulnerable to PFAS contamination from past Navy and Marine Corps PFAS releases. Sites with drinking water sources within 1 mile downgradient from known or potential releases of PFAS were assigned the highest priority. This policy directed the sampling of off-Base drinking water at these high priority (Priority 1) sites within FY 2017.

The primary mechanism to identify potential PFAS release sites and areas of concern was reviewing Environmental Restoration, Navy (ER,N) records. To ensure that all potential PFAS release mechanisms were identified, installations were directed to review installations to identify areas that are not already part of the ER,N program. The Navy has completed the sampling for all off-base potentially impacted drinking water sources that were identified as a result of this policy and currently known exposure have been addressed.

No sites with known or potential releases of PFAS were identified within 1 mile upgradient of drinking water sources. Thus, no actions were performed at NAVSTA Everett as a result of the Navy's June 2016 policy.

1.4.6 Chief of Naval Operations Policy Memo, April 6, 2020

This policy clarifies that operational ranges on Navy and Marine Corps bases will not be included in basewide PFAS PAs but be investigated for PFAS releases separately.

1.5 Department of Defense (DoD) Policy

1.5.1 Secretary of Defense Memo, July 23, 2019

This memo established a PFAS task force to ensure a coordinated, aggressive, and holistic approach to DOD-wide efforts to proactively address PFAS. The goals of the task force are mitigating and eliminating the use of the current AFFF, understanding the impacts of PFAS on human health, and fulfilling cleanup responsibility related to PFAS. The task force is coordinating and collaborating with other federal agencies to achieve these goals.

1.5.2 ASD Guidance Memo, October 15, 2019

This guidance memo provided clarification of toxicity values for PFOA and PFOS that can be used to estimate screening levels used in the CERCLA program to determine if further investigation is warranted or if a site can proceed to site closeout.

1.5.3 ASD Guidance Memo, October 23, 2019

This memo revised quarterly progress reporting requirements for installations with known or suspected PFAS releases.

1.5.4 ASD Guidance Memo, November 22, 2019

This memo established requirements for installation commanders to conduct community engagement with respect to PFAS issues, report on their progress in so doing, and to provide feedback on community questions and concerns.

1.5.5 ASD Guidance Memo, November 22, 2019

This memo established a consistent methodology for analysis of PFAS in media other than drinking water and requires DoD Components to use analytical methods meeting the DoD/DOE Quality Systems Manual for Environmental Laboratories, Appendix B, Table B-15.

1.5.6 ASD Guidance Memo, March 2, 2020

This memo identifies requirements for PFAS drinking water sampling on DoD installations where DoD is the drinking water purveyor. The requirements include initial and routine monitoring, actions necessary if results exceed the lifetime health advisory, laboratory analysis and record keeping requirements, and notification of results.

1.6 Report Organization

The PFAS PA report for Navy installations is organized in the following sections:

- Introduction
- Facility Description
- Assessment Methodology
- Findings and Recommendations
- Conclusions
- References

The following appendixes are included:

A Summary of Special Areas Evaluated
B Summary of Records Reviewed
C Interview Record

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LEGEND

- NAVSTA Everett
- Special Areas

IMAGERY SOURCE:
ESRI ArcGIS Online Web Service, World Topography, 2017

NOTE:
NRC Pacific Beach includes 3 separate Special Areas (Pacific Beach, Pacific Beach Site 2, and Pacific Beach Site 3.
NSWCCD ARD includes 4 separate Special Areas (Bayview ARD, Bayview ARD Site 2, Wigwam Kootenai, and Outpost Kootenai).

Figure 1-1
Location Map: All Locations
Preliminary Assessment for PFAS
NAVSTA Everett and Associated Special Areas, United States

0 150 300 Miles
1 inch = 300 miles

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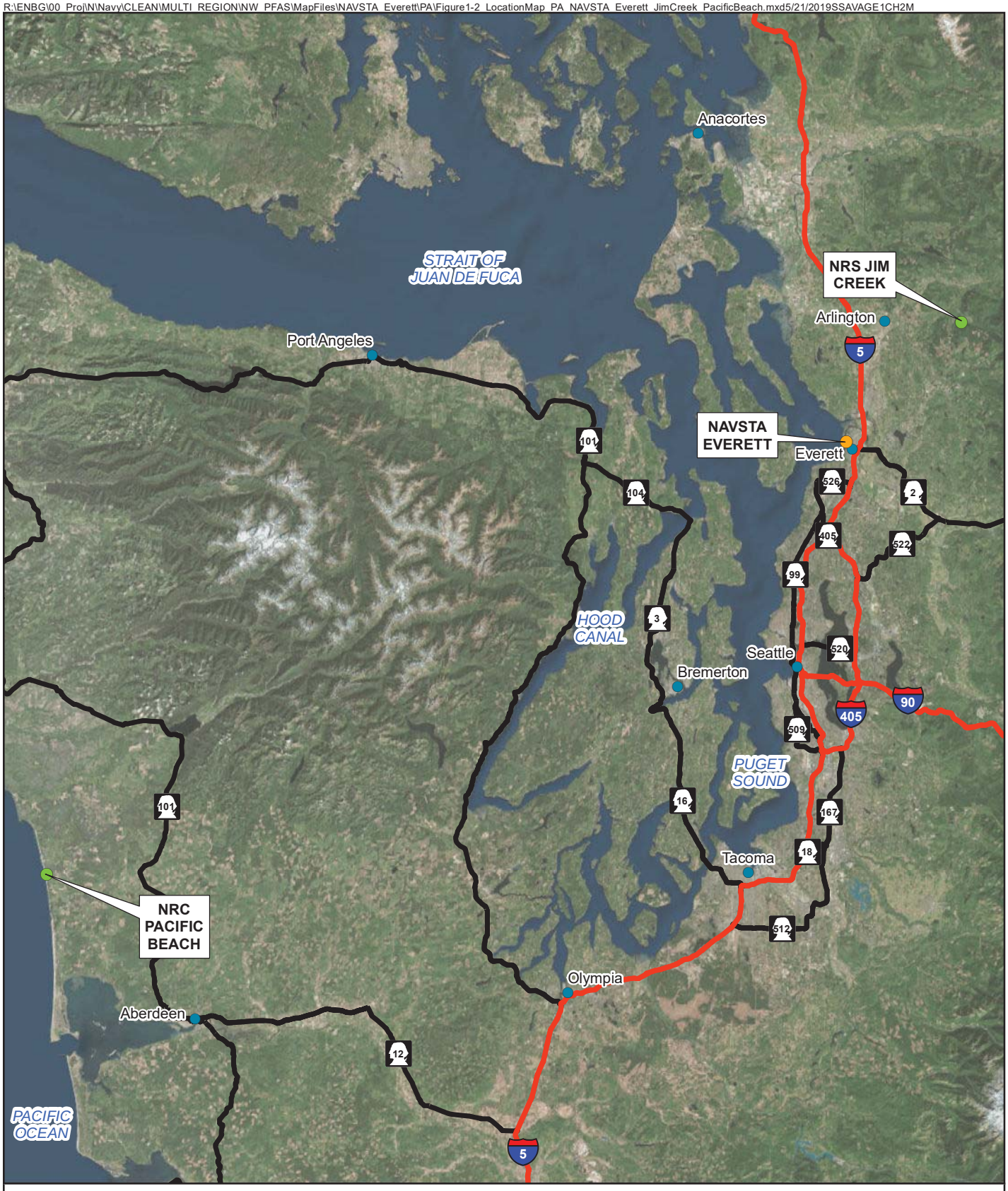


LEGEND

- NAVSTA Everett
- Special Areas
- City
- Freeway
- State Route

NOTES:
NRC = Naval Recreation Complex
NAVSTA = Naval Station
NRS = Naval Radio Station

IMAGERY SOURCE:
ESRI ArcGIS Online Web Service,
World Topography, 2017

Figure 1-2
Location Map: NAVSTA Everett, NRS Jim Creek, NRC Pacific Beach
Preliminary Assessment for PFAS
NAVSTA Everett and Associated Special Areas,
United States

0 8 16 Miles
1 inch = 16 miles

N

SECTION 2

Facility Description

NAVSTA Everett is a 117-acre shore support station located in Everett, Washington on Port Gardner Bay (**Figure 2-1**). NAVSTA Everett was constructed in the early 1990s under the Navy's Strategic Homeport Initiative and is currently the home port for six Navy destroyers and two United States Coast Guard vessels (Navy, 2018b). The Base includes buildings and facilities that support ship operations and maintenance, and provide housing and support to homeported sailors.

The following subsections present information relevant to this PA, including facility background, environmental setting, and other PFAS investigations.

2.1 Facility Background

2.1.1 Naval Station Everett

Before Navy acquisition, the first development of the property was around 1900, by the timber product industry. The property historically housed a sawmill, shingle mill, and other wood products manufacturing facilities (NEESA, 1992). In 1942 and 1943, the Navy purchased land at the current-day location of NAVSTA Everett for the development of the Naval Industrial Reserve Shipyard (Everett Port Commission, 2016) (**Figure 2-1**). The shipyard supported the repair and outfitting of Navy ships and included docking facilities, drydock areas, ship building platforms, storage facilities, and fabrication and assembly facilities (including machine shop and paint shops) (Everett Port Commission, 2016). Shipyard operations ended in 1949, and the Navy continued to use the property in part to support the Military Sea Transportation Service Reserve Fleet (Everett Port Commission, 2016). Between 1947 and 1949, the Navy built a Naval Reserve Center on a portion of the Naval Industrial Reserve Shipyard property south of the current NAVSTA Everett installation boundary (**Figure 2-1**) (Landau Associates, 1993). In 1984, the location of the former Naval Industrial Reserve Shipyard was selected as a location for the Navy's Strategic Homeport Initiative (Navy, 2018b). Through a series of property disposals and sell-offs and land acquisitions, NAVSTA Everett was developed for its current use. The disposed portion property, currently owned by Scott Paper Company, is shown in **Table 2-1** and on **Figure 2-1**.

During construction of NAVSTA Everett, the Navy demolished all existing structures, completed cleanup activities including the excavation of petroleum hydrocarbon impacted soil, and placed a 3-to-5-foot clean fill cap over the entire property (NEESA, 1992). Building construction began in the early 1990s (NEESA, 1992) and the base was dedicated in April 1994 (Navy, 2018b). A PA of potential sources of hazardous substances and pollutants on the NAVSTA Everett property was conducted during Base improvement and construction (NEESA, 1992). Based on analytical data available at the time of the PA, it was concluded that the NAVSTA Everett property was not excessively contaminated and that there was no apparent need for emergency removal actions (NEESA, 1992).

All disposed properties associated with NAVSTA Everett and the associated 26 special areas (**Section 1**) were evaluated for the potential for a release of PFAS-containing materials (**Table 2-1**). There is no evidence that PFAS-containing materials, primarily AFFF, were used, transferred, or released at these locations; therefore, these disposed properties are not evaluated further in the PA.

Table 2-1. NAVSTA Everett and Special Areas Disposed Property Summary Table

Preliminary Assessment for Per- and Polyfluoroalkyl Substances at Naval Station Everett and Associated Special Areas

Installation	Date	Disposal ID	Grantee	Disposal Type	Size	Source
NAVSTA Everett	2/18/1999	N68967-D1	City of Everett	Quitclaim	2.33 acres	NAVFAC NW Asset Management GIS Database
NRS Jim Creek	4/1/1975	N68967-JCD1	Scott Paper Company	Quitclaim	336.85 acres	NAVFAC NW Asset Management GIS Database
NRC Pacific Beach	9/27/1972	N68967-PDD1	John/Mildred Powell	Quitclaim	0.07 acres	NAVFAC NW Asset Management GIS Database
Brier Family Housing	10/5/2017	N68967-FB	Arcadia Homes LLC	Sale	4.95 acres	NAVFAC NW AM PPV Project Manager, 2018, pers. comm.
Pier 91 Annex	6/30/1976	(REDISC# 53-6073-97-03)	Port of Seattle	Quitclaim	198.23 acres	Navy, 2014b
Pier 91 Annex	5/20/2003	N68967-HA Parcels A-F, H	Port of Seattle	Quitclaim	7.93 acres	Navy, 2014b
Pier 91 Annex	9/25/2012	N68967-HA Parcel G	Pacific Northwest Communities, LLC	Quitclaim	3.89 acres	Navy, 2014b
Scott Paper Company Disposals	4/18/1960	Not available	Scott Paper Company	Quitclaim	Approximately 18.6 acres	NAVFAC, 1990; Trepanier Engineering, 1993
Scott Paper Company Disposals	1/13/1994	(land exchange agreement number N4425593RPOOZ17)	Kimberly Clark	Quitclaim	3.78 acres	USA, 1994.
NSWCCD ARD	6/18/1959	N68967-ACD2	Felix Arena	Quitclaim	5.64 acres	NAVFAC NW Asset Management GIS Database
NSWCCD ARD	7/10/1959	N68967-ACD3	Roy Johnson	Quitclaim	17.31 acres	NAVFAC NW Asset Management GIS Database
NSWCCD ARD	5/16/1958	N68967-ACD1	Johnson/DeFeyter	Quitclaim	3.11 acres	NAVFAC NW Asset Management GIS Database
NOSC Des Moines	1/19/1984	N68967-DMD1	Army	DoD Transfer	0.66 acres	NAVFAC NW Asset Management GIS Database
NOSC Des Moines	5/8/2000	N68967-DMD4	Army	DoD Transfer	0.496 acres	NAVFAC NW Asset Management GIS Database
NOSC Des Moines	8/25/1998	N68967-DMD2	Army	DoD Transfer	0.85 acres	NAVFAC NW Asset Management GIS Database

Table 2-1. NAVSTA Everett and Special Areas Disposed Property Summary Table

Preliminary Assessment for Per- and Polyfluoroalkyl Substances at Naval Station Everett and Associated Special Areas

Installation	Date	Disposal ID	Grantee	Disposal Type	Size	Source
NOSC Des Moines	8/25/1998	N68967-DMD3	Army	DoD Transfer	0.33 acres	NAVFAC NW Asset Management GIS Database
MCRC St. Paul	11/15/2002	N00128-SPD2	MC-MPO	Quitclaim	2.82 acres	NAVFAC NW Asset Management GIS Database
MCRC St. Paul	11/15/2002	N00128-SPD1	MC-MPO	Quitclaim	2.82 acres	NAVFAC NW Asset Management GIS Database

Sources:

NAVFAC. 1990. Naval Reserve Training Center Everett, Washington Real Estate Summary Map. NAVFAC Drawing No. 1,216,476.

NAVFAC NW AM PPV Project Manager. 2018. Pier 91 Annex Spatial Data and POC / Brier History. Personal communication (email to CH2M. December 19.

Navy. 2014b. NAVSTA Everett Pier 90/91 Annex Disposed Property Map. December.

Trepanier Engineering. 1993. Boundary Line Adjustment for Scott Paper. November.

USA. 1994. Quitclaim Deed. 9401140348. January.

GIS = geographic information system

NAVFAC = Naval Facilities Engineering Systems Command

2.1.2 Naval Radio Station Jim Creek

NRS Jim Creek is a radio station and recreation area approximately 13 miles east of Arlington, Washington (**Figure 1-2**). The facility occupies 3,854 acres of Navy-owned land, including a 1.5-acre property at a transformer substation in Arlington and the main facility to the east. The two portions of land are connected by approximately 8.5 miles of transmission line easements. The transmission line easements include over 60 individual easements granted to the Navy by private individuals as well as state and local government entities. An access road easement near the southeastern portion of the facility was granted to the Navy by Scott Paper Company. NRS Jim Creek also occupies 958 acres under a permit from the United States Forest Service.

NRS Jim Creek operates and maintains a communication system (Navy, 2018b). The Navy acquired land at NRS Jim Creek in 1949 and constructed the communication system and associated support facilities between 1949 and 1953 (NEESA, 1990). In addition to operation of the communication system, the Navy currently uses Jim Creek as an outdoor recreational facility for activities such as camping, fishing, boating, hiking, and biking.

Current-day buildings include a communication system , outdoor recreational facilities such as cabins and campsites, and supporting facilities. A PA of NRS Jim Creek was published in 1990 and identified eight sites as potentially contaminated with hazardous substances or pollutants (NEESA, 1990).

2.1.3 Naval Recreation Complex Pacific Beach

NRC Pacific Beach is located approximately 36 miles northwest of Aberdeen, Washington (**Figure 1-2**). The installation was initially developed by the Navy at the start of World War II as a communications center and range for training purposes (NEESA, 1991). By 1956, the Navy moved training operations closer to the Puget Sound and Seattle. Defense equipment and associated infrastructure such as gun mounts, ammunition magazines, and related buildings were demolished and replaced with more conventional structures (NEESA, 1991). The facility grew over the next 25 years to 53 acres to accommodate military housing and associated buildings. By the late 1970s, military housing was no longer required, and the Base was converted into a recreational facility with single family homes and dormitory-type buildings. In 1984, a 1-acre recreational vehicle and motor home park was built along the northern boundary of the Base and exists to this day. There are currently no active military operations at Pacific Beach.

2.1.4 Active Permits

Several state and federal environmental permits are associated with NAVSTA Everett and NRS Jim Creek. No active permits were identified for NRC Pacific Beach (USEPA, 2019c). Several state and federal environmental permits are associated with NAVSTA Everett and NRS Jim Creek. These include the following categories:

NAVSTA Everett

- National Pollutant Discharge Elimination System (NPDES) stormwater industrial permits WAR05F001
- RCRA permit WA21700000127
- Air permit WAPSC0005306117787

NRS Jim Creek

- NPDES stormwater industrial permits WA0026573
- RCRA permit WA8170022489

2.2 Environmental Setting

2.2.1 Climate

The climate in the vicinity of NAVSTA Everett and NRS Jim Creek is characterized by cool, dry summers, and wet, cool winters (NEESA**,** 1984). Average high temperatures during the summer months range from 65 to 80 degrees

Fahrenheit (°F)**,** while winter highs are typically in the 40°F range (Weatherbase, 2019a). Average annual precipitation is approximately 36 inches, approximately three-fourths of which falls between October and April. The Everett area receives approximately 7 inches of snowfall annually (Weatherbase, 2019b).

The climate at NRC Pacific Beach is characterized by, cool, dry summers and mild winters. Average temperatures during the summer months range from 50 to 60°F, with winter temperatures ranging from 35 to 40°F. The average annual precipitation is approximately 70 inches, with the greatest amount of precipitation falling in December through January. The Pacific Beach area receives approximately 1 inch of snow per year (Weatherbase, 2019).

2.2.2 Geologic Setting

Naval Station Everett

Everett is located in the Puget Lowland, a large structural trough located between the Cascade Range and the Olympic Mountains. The site vicinity is bounded by active fault zones in the Everett Basin. The geology of the region surrounding NAVSTA Everett is the result of glaciation. The most recent glacial action occurred between 15,000 and 13,500 years ago during the Vashon State of the Fraser Glaciation (URS, 1992a).

NAVSTA Everett is located within the historic tidal zone of the East Puget Sound Waterway (**Figure 2-2**). The geologic setting of NAVSTA Everett has been altered by import and placement of dredged and fill materials from the East Waterway, demolition and woody debris from former sawmill operations, and hydraulic fill from the Snohomish River channel (NEESA, 1992; AECOM, 2011). Fill material thickness ranges from 20 to 27 feet below ground surface (bgs) (AECOM, 2011). Native soils beneath the fill consist of marine and deltaic sediments extending to depths in excess of 180 feet.

Beneath the fill and native soils are Pleistocene glacial outwash deposits and till deposits. Outwash sediments consist of well-bedded fine to medium sands and gravel with occasional silt lenses. Till sediments consist of compact, unsorted sand, gravel, and cobbles in a matrix of silt and clay. East of NAVSTA Everett, Holocene fluvial sands and gravels cut into the glacial sediments. Tertiary bedrock underlies the glacial and fluvial sediments. The average depth to bedrock in western Snohomish County is about 500 feet, but it can be over 1,200 feet near the Puget Sound coastline (Thomas et al., 1997).

Naval Radio Station Jim Creek

NRS Jim Creek is located within a U-shaped valley that trends northwest-southeast (**Figure 2-3**). The valley is bordered by Ebey Hill to the northwest, Wheeler Mountain to the northeast, and Blue Mountain to the southwest (TEC, 2001). The geomorphology of the valley is the result of Pleistocene glacial activity. Bedrock is composed of metamorphic and igneous rocks including slate, phyllite, and graywacke (TEC, 2001). Cross sections of nearby areas to the north and south of NRS Jim Creek indicate that maximum depth to bedrock is 300 feet (Thomas et al., 1997). Valley fill sediments consist of talus, glacial moraine, landslide debris, and alluvial sand and gravel deposits with interbedded silt and clay. Landslides are common because of the low soil stability that is due in part to the presence of glacial sediments. However, there is no evidence of large-scale seismic activity (Malcolm Pirnie, 2006).

Naval Recreation Complex Pacific Beach

NRC Pacific Beach is located at the northernmost extent of the Willapa Hills physiographic province of southwestern Washington (**Figure 2-4**). The basement rocks of the Willapa Hills are composed mainly of Eocene to Miocene pillow basalts and oceanic sedimentary rocks that accreted onto North America. Overlying the basement rocks are unconsolidated Pliocene and Pleistocene costal sediments and glacial debris (PWCSD, 1996). The Pacific Beach Annex is situated on a bluff comprised of silty glaciolacustrine sediments overlying glacial outwash plains (NAVFAC NW, 2017). The stratigraphy of the subsurface consists of an organic-rich surface layer approximately 1 to 2 feet thick underlain by alternating layers of silt/clay and sand/gravel, which continue to a few 100 feet bgs. Because of development at the site, much of the topsoil has been removed and replaced with sandy gravel fill (URS, 1992b; Foster Wheeler, 1997).

2.2.3 Hydrogeologic Setting

Naval Station Everett

Available hydrogeologic information for the immediate vicinity of NAVSTA Everett is minimal; however, United States Geological Survey published a general study of the regional hydrogeology of western Snohomish County (Thomas et al., 1997). The Pleistocene and Holocene sediments in western Snohomish County are classified into six hydrostratigraphic units consisting of four aquifers and two confining units:

- Alluvium aquifer (Qal) – Unconfined, 40 to 120 feet thick where present. Qal consists of fine to coarse sands with lenses of silt and gravel. Qal is often vertically contiguous and hydraulically connected with other lower aquifer units. In such cases, multiple aquifer units function as one aquifer rather than independent aquifers. Qal does not appear to be prominent locally at NAVSTA Everett.
- Vashon recessional outwash aquifer (Qvr) – Unconfined, 40 to 250 feet thick where present. Qvr consists of well sorted sand and gravel with minor silt beds. Qvr does not appear to be prominent locally at NAVSTA Everett.
- The Vashon till confining unit (Qvt) – 70 to 250 feet thick. Qvt consists of unsorted sand, gravel, and boulders in a silt and clay matrix with some lenses of sand and gravel.
- Vashon advance outwash aquifer (Qva) – 120 to 350 feet thick. Qva consists of fine sand and gravel with some silt lenses. Qva is the most used and aerially extensive aquifer unit.
- Transitional beds confining unit (Qtb) – 100 to 400 feet thick. Laminated sand and silty clay. Although Qtb is classified as a confining unit, it can yield usable amounts of water.
- Undifferentiated sediments aquifer (Qu) – 500 to 1,000 feet thick. Qu is not well defined, but generally consists of coarse-grained materials.
- Bedrock confining unit (Tb) – Although Tb is classified as a confining bed, it can yield small amounts of water from fractures and joints.

Depth to groundwater at NAVSTA Everett is tidally influenced and ranges from 8 to 14 feet bgs (NEESA, 1992). Groundwater generally flows toward Port Gardner Bay and the East Puget Sound Waterway (**Figure 2-2**). Shallow groundwater flow is substantially influenced by the consistency of the fill materials (URS, 1993). Groundwater flows south towards the harbor (URS, 1993).

Naval Radio Station Jim Creek

Available site-specific hydrogeologic information for NRS Jim Creek does not mention specific regionally recognized hydrostratigraphic units; however, cross sections of nearby areas to the north and south of NRS Jim Creek indicate that several hydrogeologic units present at NRS Jim Creek, including the Qal aquifer, Qvr aquifer, Qvt confining unit, the Qva aquifer, and the Tb confining unit (Thomas et al., 1997), are likely present in the vicinity of Jim Creek.

Water bearing formations in the vicinity of NRS Jim Creek are considered highly permeable and consist of coarse to medium sands (NEESA, 1990). Shallow groundwater is found at approximate depths ranging from 4.5 feet bgs to 20 feet bgs (TEC, 2001). The shallow groundwater is in hydraulic communication with Jim Creek and other surface water bodies (TEC, 2001). Lithology from boring logs of wells in the vicinity of NRS Jim Creek indicate the presence of three hydrostratigraphic units described as follows:

- Upper aquifer – Silty sand with some gravel between 0 and 30 feet thick. These soils likely represent the Qal and Qvr aquifer units.
- Middle confining unit – Silt and clay up to 100 feet thick. These soils likely represent the Qvt confining unit.
- Lower aquifer – Fine sand with some silt and gravel. These soils likely represent the Qva aquifer.

The shallow groundwater gradient is assumed to mimic topography and flow towards one of the three primary perennial streams that exist at NRS Jim Creek: Jim Creek, Little Jim Creek, or Cub Creek (**Figure 2-3**). The groundwater flow direction in the developed northwest portion of NRS Jim Creek is to the southwest towards Jim Creek (**Figure 2-3**). During the wet season (November-May), perched groundwater can be found above a hardpan layer that is present between 20 and 40 inches bgs (Malcolm Pirnie, 2006). A deeper aquifer is present below depths of approximately 114 feet bgs (Malcolm Pirnie, 2006). There is no information available on groundwater flow directions in the deeper aquifer.

Naval Recreation Complex Pacific Beach

The glacial soils at Pacific Beach are poorly drained resulting in a water table that is relatively high (URS, 1992a). During the wet season (October to May), the water table can range from 6 inches deep to above the surface (URS, 1992b). There is some evidence that this high water table may actually represent seasonal perched water rather than the regional water table as some investigations at the site did not encounter groundwater until below 14 feet in depth (PWCSD, 1996). A shallow aquifer is present between 10 and 25 feet below the surface, and several monitoring wells are screened within this interval. Static water levels at these wells indicate that water table is between 10 and 15 feet bgs and that the groundwater flow direction is to the west toward the Pacific Ocean (**Figure 2-4**) (Foster Wheeler, 1997). Historically, there were two on-Base water supply wells (now decommissioned) that were screened at 163 to 168 deep (NEESA, 1991; Lukjanowicz, 1984), which indicates at least one deeper aquifer. However, no additional information on deeper aquifers was available.

2.2.4 Hydrologic Setting

Naval Station Everett

Marine or brackish water bodies on and near the site consist of Port Gardner Bay and East Puget Sound Waterway. The Snohomish River located approximately 2.5 miles east of NAVSTA Everett discharges into Puget Sound (**Figure 2-2**). The overall surface water flow direction at NAVSTA Everett is to the west toward Port Gardner Bay and the East Puget Sound Waterway (**Figure 2-2**).

Much of NAVSTA Everett is covered in low-permeability surfaces (extensive paved areas and low-permeability soil) with stormwater infrastructure to capture and control surface water. Stormwater catchments collect and divert water to Puget Sound (NEESA, 1992).

Naval Radio Station Jim Creek

The primary water bodies at or near NRS Jim Creek are Jim Creek, Little Jim Creek, and Cub Creek (**Figure 2-3**). Jim Creek flows northwesterly through the installation. Little Jim Creek flows into Jim Creek near the eastern boundary of the installation. The on-Base reach of Cub Creek begins at the southwestern boundary of NRS Jim Creek in a wetland area south of Twin Lakes. From Twin Lakes, Cub Creek flows north to Cub Creek Reservoir and then into Jim Creek (Malcolm Pirnie, 2006). Both Jim Creek and Cub Creek are fed by numerous small spring and snow-fed streams (NEESA, 1990). Other minor water resources on the installation are LaBarge Lake and the Chain Lakes, all of which are within the Cub Creek watershed (Malcolm Pirnie, 2006).

Naval Recreation Complex Pacific Beach

There are no perennial streams, lakes or other surface water bodies at NRC Pacific Beach (**Figure 2-4**). The nearest major freshwater body is Joe Creek, which empties to the Pacific Ocean approximately half a mile to the south. Surface runoff is drained west toward the Pacific Ocean along two ravines referred to as the Northern and Southern Drainage Ravines. The poor drainage of the soil has contributed to the slope destabilization as subsurface flow is concentrated in the porous soil layers and finer material is gradually washed away. As a result, slope failure has been and continues to be a problem at Pacific Beach (NAVFAC, 2017).

2.3 Migration Pathways and Potential Receptors

This section discusses hypothetical exposure scenarios (that is, environment media, receptors, and exposure routes) if a PFAS release occurred.

2.3.1 Migration Pathways

Through the historical use of materials containing PFAS, those substances may have been released to the environment. Because of their chemical structure, PFAS are chemically and biologically stable and resist typical degradation processes. As a result, PFAS persist in the environment. Additionally, PFAS are water-soluble and migrate readily from soil to groundwater where they can be transported long distances (USEPA, 2014).

Potential PFAS migration pathways include the following:

- Direct release of PFAS to surface and subsurface soil
- Leaching of PFAS from soil to groundwater
- Transport via advection in groundwater
- Direct release of PFAS to drainage ditches
- Discharge of PFAS from groundwater to surface water
- Overland flow of stormwater containing PFAS to downgradient areas including soil, drainage ditches, and surface water

2.3.2 Human Receptors

Current receptors (including maintenance and industrial workers, trespassers, outdoor recreators, and visitors) as well as potential future receptors (residents, maintenance and industrial workers, trespassers, visitors, and construction workers) could potentially be exposed to PFAS in groundwater, soil, air, sediment, and surface water.

Access to NAVSTA Everett is restricted to active military personnel, government employees, and government contractors. NAVSTA is bordered to the south and west by East Waterway, to the north by the Snohomish River, and the southeast by W. Marine View Drive. A perimeter fence surrounds NAVSTA Everett with access through the main gate located off Marine View Drive (**Figure 2-2**). Puget Sound to the west acts as a natural boundary separating the installation from surrounding civilian populations. As mentioned in **Section 2.1**, NAVSTA Everett is comprised primarily of industrial areas. The northern and western areas are wharves and piers, the southern area consists of a marina, while the eastern portion is the industrial area. Several storage structures, office buildings, and other mixed-use structures are spread out throughout the installation.

The area surrounding NAVSTA Everett is primarily zoned as residential with housing; there is a small commercial center located north of the installation. Eight high-use receptor sites, including day care centers, medical centers/hospitals, nursing homes, schools, and colleges are located within a 1-mile radius of NAVSTA Everett (**Figure 2-2**).

Access to NRS Jim Creek is restricted to active military personnel, government employees, and government contractors. Jim Creek is surrounded by forest land in northwest Washington in Snohomish county, approximately 12 miles east of Arlington (**Figure 2-3**). The surrounding forest acts as a natural boundary separating the installation from surrounding civilian populations. A perimeter fence surrounds Jim Creek with access through the main gate located in the northwestern portion of the installation. The area surrounding Jim Creek is rural and is zoned either residential or commercial and agro-forestry. Because of the rural proximity of the installation, no high-use human receptor sites were identified within 1 mile of the Base boundary.

NRC Pacific Beach is a recreational facility. There are a mix of civilian and Navy personnel present, but only one building, Building 104, is used for military operations. Pacific Beach is bordered to the south and east by the town of Pacific Beach and to the north by mixed residential and rural county land (**Figure 2-4**). The installation is

bordered to the west by the Pacific Ocean. There is no active gate or fence securing the installation from the general public. The area surrounding Pacific Beach is primarily zoned residential with housing; there is a small commercial area located south of the installation. One high-use receptor site, an elementary school is located within a 1 mile radius of Pacific Beach to the southeast (**Figure 2-4**).

Groundwater

In areas where groundwater is within the potential depth of construction activities, construction workers could be exposed to PFAS in groundwater through dermal contact during excavation activities. There are no regulatory screening levels or other criteria for dermal contact with PFAS in groundwater.

Naval Station Everett

- **Public Drinking Water Sources –** On-Base drinking water at NAVSTA Everett is supplied by the City of Everett. The City of Everett's water supply source is Spada Lake Reservoir that is located approximately 25 miles east of NAVSTA Everett. There are no public supply wells identified within 1 mile of the Base boundary. PFAS were not detected in the City of Everett's drinking water. Therefore, there are no known PFAS exposure pathways to human receptors through public drinking water sources.
- **Private Drinking Water Sources –** Based on data obtained from the Washington State DOE (2019) and DOH, several wells may exist within 1 mile to the northwest and south of NAVSTA Everett (**Figure 2-2**); however, the exact number of wells and their locations, current operational status (active or abandoned), depth, and usage are not well documented. Some of these wells are suspected to be monitoring wells because of depth, location, and Navy contractor affiliation. One public water supply well was confirmed to have been abandoned. During visual reconnaissance of the approximate monitoring well locations and the general Everett area, no drinking water or groundwater monitoring wells were observed. Because the identified wells are upgradient, exposure to PFAS in groundwater used as drinking water is unlikely.

Naval Radio Station Jim Creek

- **Public Drinking Water Sources –** Drinking water at NRS Jim Creek is supplied by an on-Base supply well located in Building 85 (**Figure 2-3**). The total depth of the well is approximately 126 feet bgs and is screened from 116 to 126 feet bgs in the lower aquifer unit described above. The well is not downgradient of any potential PFAS source areas. The well was sampled for PFAS in October 2016 and PFOS and PFOA were not detected. Based on available information from the Washington State DOE and DOH (2018), there are no public drinking water sources within a 1-mile radius of NRS Jim Creek.
- **Private Drinking Water Sources –** Based on data obtained from the Washington State DOE (2018) and DOH, there are at least nine private drinking water wells (total depths ranging from 25 to 320 feet bgs) within 1 mile of NRS Jim Creek (**Figure 2-3**), located to the northwest of NRS Jim Creek. Groundwater in the northwestern portion of NRS Jim Creek flows to the southwest, away from these wells. Shallow groundwater is assumed to mimic topography and to flow toward one of three surface water bodies at NRS Jim Creek. As previously stated in **Section 2.2.3.2** based on regional stratigraphy, there is evidence of a middle confining unit of silt and clay are present at a depth of up to 100 feet thick, separating the shallow and deeper aquifers. Therefore, vertical migration of PFAS constituents to the deeper regional aquifer is unlikely. Transport via surface water of PFAS to downstream off-Base human receptors, if present in Jim Creek, is possible. Because the identified private drinking water wells are upgradient, exposure to PFAS in groundwater used as drinking water is unlikely.

Naval Recreation Complex Pacific Beach

- **Public Drinking Water Sources –** Drinking water at NRC Pacific Beach is supplied by the Grays Harbor County Pacific Beach Water System (Gibbs & Olson, 2016). NRC Pacific Beach drinking water was sampled for PFAS in September 2016, and PFOS and PFOA were not-detected. The source of the Grays Harbor Pacific Beach Water system consists of three production wells, which are located within 1 mile of the Base boundary to the east. These wells are screened at depths ranging from 166 to 222.5 feet bgs (Gibbs & Olson, 2016) and are shown

on **Figure 2-4**. All three wells are located up-gradient of NRC Pacific Beach. No other public drinking water sources were identified within 1 mile of the Base boundary. Because the identified public drinking water wells are upgradient, exposure to PFAS in groundwater used as drinking water is unlikely.

- **Private Drinking Water Sources –** Based on data obtained from the Washington State DOE (2018) and DOH, there are no private drinking water wells located within 1 mile of NRC Pacific Beach (**Figure 2-4**). Therefore, there are no known PFAS exposure pathways to human receptors through private drinking water sources.

Soil and Air

Workers, visitors, trespassers, outdoor recreators, and residents within 1 mile of PFAS source areas could potentially be exposed to PFAS in soil through incidental ingestion of and dermal contact with surface and subsurface soil or respiration of soil dust in the air. There are USEPA human health risk-based screening levels for some PFAS for the ingestion and dermal exposure pathways (USEPA, 2018). Humans could be indirectly exposed to PFAS in soil through the consumption of terrestrial organisms.

Sediment

Workers, visitors, trespassers, outdoor recreators, and residents within 1 mile of PFAS source areas could be exposed to PFAS in sediment through incidental ingestion of and dermal contact with sediment. Humans could be indirectly exposed to PFAS in sediment through the consumption of terrestrial and aquatic organisms.

Surface Water

Surface water is not used as a drinking water source at NAVSTA Everett or the surrounding area. However, workers, visitors, trespassers, outdoor recreators, and residents within 1 mile of PFAS source areas could be exposed to PFAS in surface water through incidental ingestion of and dermal contact with surface water. There are no screening levels or other criteria for dermal contact with PFAS in water. Humans could be indirectly exposed to PFAS in surface water through consumption of terrestrial and aquatic organisms.

Local Caught or Harvested Food Sources

In addition to direct exposure to potentially impacted groundwater, soil, air, surface water, and sediment, human receptors may be indirectly exposed to PFAS through the consumption of locally harvested terrestrial and aquatic food sources such as fish, shellfish, waterfowl, wild game, berries, nuts, plants, and fungi. Some PFAS may or are known to bioaccumulate in terrestrial and aquatic organisms (NGWA, 2018). Hunting and fishing are important aspects of life for many native and non-native residents in the Puget Sound region.

2.3.3 Ecological Receptors

A wide variety of terrestrial and wetland/aquatic ecological receptors may reside at NAVSTA Everett. In terrestrial habitats, these receptors include terrestrial plants, soil invertebrates, reptiles, birds, and mammals. In wetland and aquatic habitats, receptors include aquatic and wetland plants, aquatic and benthic invertebrates, reptiles, amphibians, fish, birds, and mammals. Marsh areas may also exhibit estuarine characteristics due to tidal influence; these areas include salt-tolerant plant species.

Lower trophic level terrestrial ecological receptors (such as terrestrial plants and soil invertebrates) could be exposed to PFAS compounds released to surface soil through root uptake, direct contact, and/or direct ingestion. Because there is some evidence that PFAS compounds may bioaccumulate in terrestrial food items (such as plants), there is the potential that upper trophic level receptors (such as birds and mammals) could be exposed to these compounds via the food web, as well as through incidental ingestion of soil and direct ingestion of drinking water (if PFAS compounds are released to water sources).

Lower trophic level wetland/aquatic ecological receptors (such as wetland/aquatic plants, aquatic and benthic invertebrates, fish, reptiles, and amphibians) could be exposed to PFAS compounds released to surface water and/or sediment (either directly, or indirectly via surface runoff from terrestrial areas or through groundwater discharge) through root uptake, direct contact, and/or direct ingestion. Because there is evidence that PFAS

compounds may bioaccumulate in aquatic food items (such as fish), there is the potential that upper trophic level receptors (such as birds and mammals) could be exposed to these compounds via the food web, as well as through incidental ingestion of sediment and direct ingestion of drinking water.

There is minimal ecotoxicology data available for ecological receptor exposures in soil, sediment, and surface water, and no formal ecological screening values (ESVs) have been released by USEPA for PFAS. However, some literature-based ESVs are available for some PFAS (such as PFOA, PFOS, and PFBS) for soil, sediment, and/or surface water exposures. PFAS ecotoxicology is an active field of research, and additional data are likely to become available in the near future.

Endangered and Threatened Species

The federally and state-listed endangered and threatened (or proposed threatened) species are known to or are believed to occur in the Puget Sound region of Washington and may occur within 1 mile of the following:

- NAVSTA Everett (United States Fish and Wildlife Service, 2019)
  - **Birds:** Federally listed species – marbled murrelet (*Brachyramphus marmoratus*, threatened), yellow-billed cuckoo (*Coccyzus americanus*, threatened), and streaked horned lark (*Eremophlia alpestris,* threatened). Additional state-listed species – sandhill crane (*Grus canadensis*), upland sandpiper (*Bartramia longicauda*), and tufted puffin (*Fratercula cirrhata)*.
  - **Mammals:** Federally listed species – Gray Wolf (*Canus* lupus, endangered), North American wolverine (*Gulo luscus*, proposed threatened), killer whale (*Orcinus orca*, endangered), and humpback whale (*Megaptera novaeangliae*, endangered). Additional state-listed species – western gray squirrel (*Sciurus griseus,* threatened).
  - **Fish:** Federally listed species – bull trout (*Salvelinus confluentus*, threatened). Additional state-listed species – none.
  - **Amphibians:** Federally listed species – Oregon spotted frog (*Rana pretiosa*, threatened). Additional state-listed species – none.
- NRS Jim Creek (United States Fish and Wildlife Service, 2019):
  - **Birds:** Federally listed species – marbled murrelet (*Brachyramphus marmoratus*, threatened) , yellow-billed cuckoo (*Coccyzus americanus*, threatened), and Northern Spotted Owl (*Strix occidentalis caurina,* threatened). Additional state-listed species – none.
  - **Mammals:** Federally listed species – Gray Wolf (*Canus* lupus, endangered), North American wolverine (*Gulo luscus*, proposed threatened), Grizzley Bear (*Ursusarctos horribliba*, threatened), and North American Wolverine (*Gulo arctos luscuc, proposed threatened)*. Additional state-listed species – none.
  - **Fish:** Federally listed species – bull trout (*Salvelinus confluentus*, threatened), and Dolly Varden (*Salvelinus malma, PSTAT)*. Additional state-listed species – none.
  - **Amphibians:** Federally listed species – None. Additional state-listed species – Northern leopard frog (*Lithobates pipiens)*.
- NRC Pacific Beach (United States Fish and Wildlife Service, 2019):
  - **Birds:** Federally listed species – marbled murrelet (*Brachyramphus marmoratus*, threatened), Short-tailed Albatross *(Phoebastria albatross, endangered)*, yellow-billed cuckoo (*Coccyzus americanus*, threatened), streaked horned lark (*Eremophlia alpestris,* threatened), and Western Snowy Plover (*Charadrius nivosus nivosus, t*hreatended). Additional state-listed species – sandhill crane (*Grus canadensis*) and upland sandpiper (*Bartramia longicauda*).
  - **Mammals:** Federally listed species – Fisher (*Pekanai pennanti*, proposed threatened), killer whale (*Orcinus orca*, endangered), and humpback whale (*Megaptera novaeangliae*, endangered). Additional state-listed species – none.

- **Fish:** Federally listed species – bull trout (*Salvelinus confluentus*, threatened) and Dolly Varden (*Salvelinus malma,* PSTAT*)*. Additional state-listed species – none.
- **Amphibians:** Federally listed species –None. Additional state-listed species – Northern leopard frog (*Lithobates pipiens)*.

LEGEND

- Local Connecting Road
- Important Local Road
- Building/Structure
- Demolished Building
- Historical Installation Boundary
- Installation Boundary
- Naval Reserve Center
- Former Naval Industrial Reserve Shipyard

NOTE:
NAVSTA = Naval Station Easements granted to the Navy/United States not shown.

IMAGERY SOURCE:
ESRI ArcGIS Online Web Service, World Imagery, 2017

Figure 2-1
Location Map: NAVSTA Everett
Preliminary Assessment for PFAS
NAVSTA Everett, NRS Jim Creek, NRC Pacific Beach, Washington

0 0.1 0.2 Miles

1 inch = 0.2 mile

N

R:\ENBG\00_Proj\N\Navy\CLEAN\MULTI_REGION\NW_PFAS\MapFiles\NAVSTA_Everett\PA\Figure2-2_EnviroSetting_PA_NAVSTA_Everett.mxd 6/3/2019 SSAVAGE1 CH2M

LEGEND

- Active Groundwater Well
- Anticipated Groundwater Flow Direction
- Anticipated Surface Water Flow Direction
- Freeway
- State Route
- Local Connecting Road
- Sensitive Receptors
- Surface Waterbodies
- 40' Topographic Contours
- Wetlands
- 1 Mile Installation Boundary Buffer
- Installation Boundary

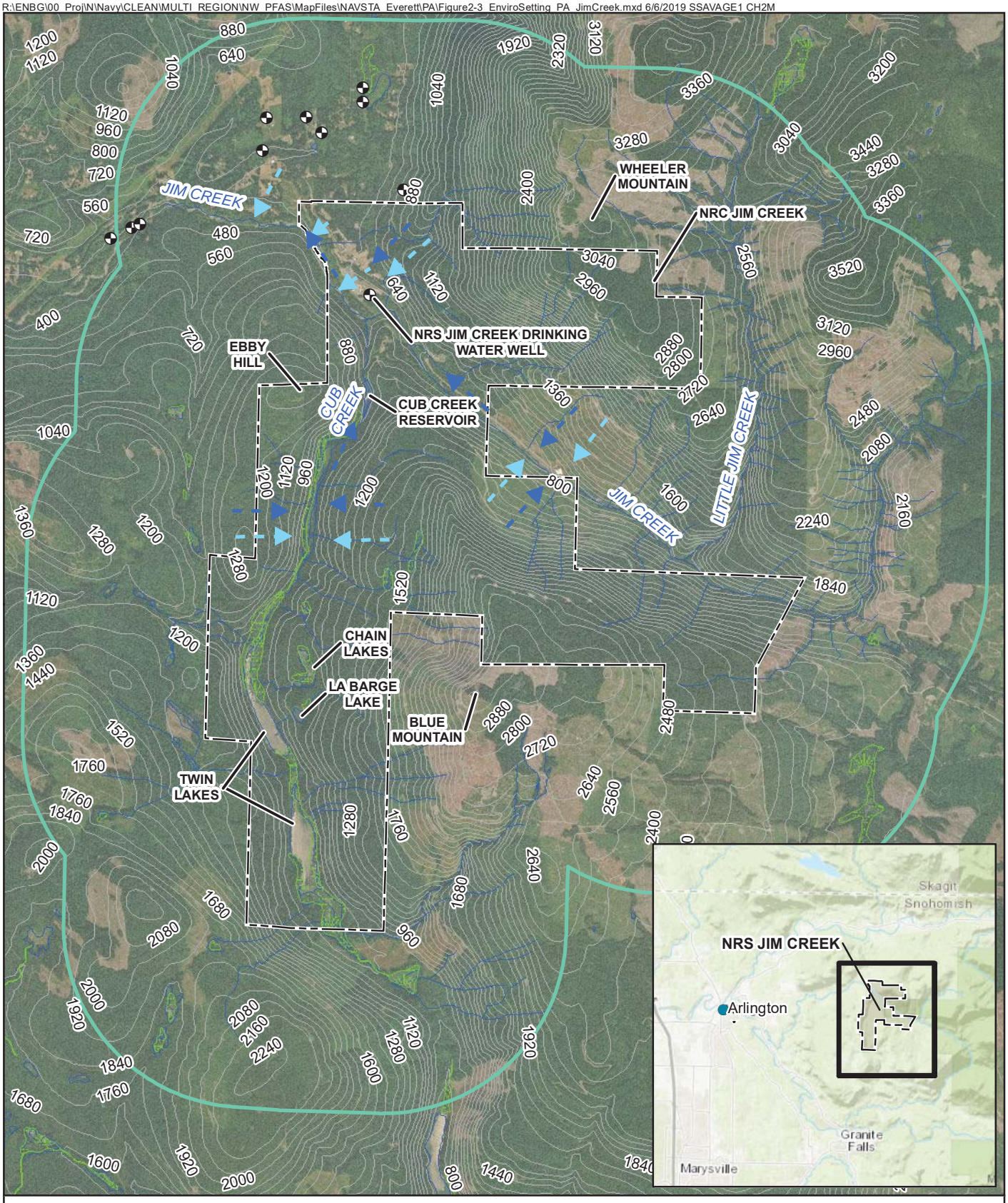
Figure 2-2
Environmental Setting: NAVSTA Everett
Preliminary Assessment for PFAS
NAVSTA Everett, NRS Jim Creek, NRC Pacific Beach, Washington

0 1,200 2,400 Feet

1 inch = 2,400 feet

N

R:\ENBG\00_Proj\N\Navy\CLEAN\MULTI_REGION\NW_PFAS\MapFiles\NAVSTA_Everett\PA\Figure2-3_EnviroSetting_PA_JimCreek.mxd 6/6/2019 SSAVAGE1 CH2M



LEGEND

- Active Drinking Water Well
- Anticipated Groundwater Flow Direction
- Anticipated Surface Water Flow Direction
- Surface Waterbodies
- 40' Topographic Contours
- Wetlands
- 1 Mile Installation Boundary Buffer
- Installation Boundary

IMAGERY SOURCE:
ESRI ArcGIS Online Web Service,
World Imagery, 2017

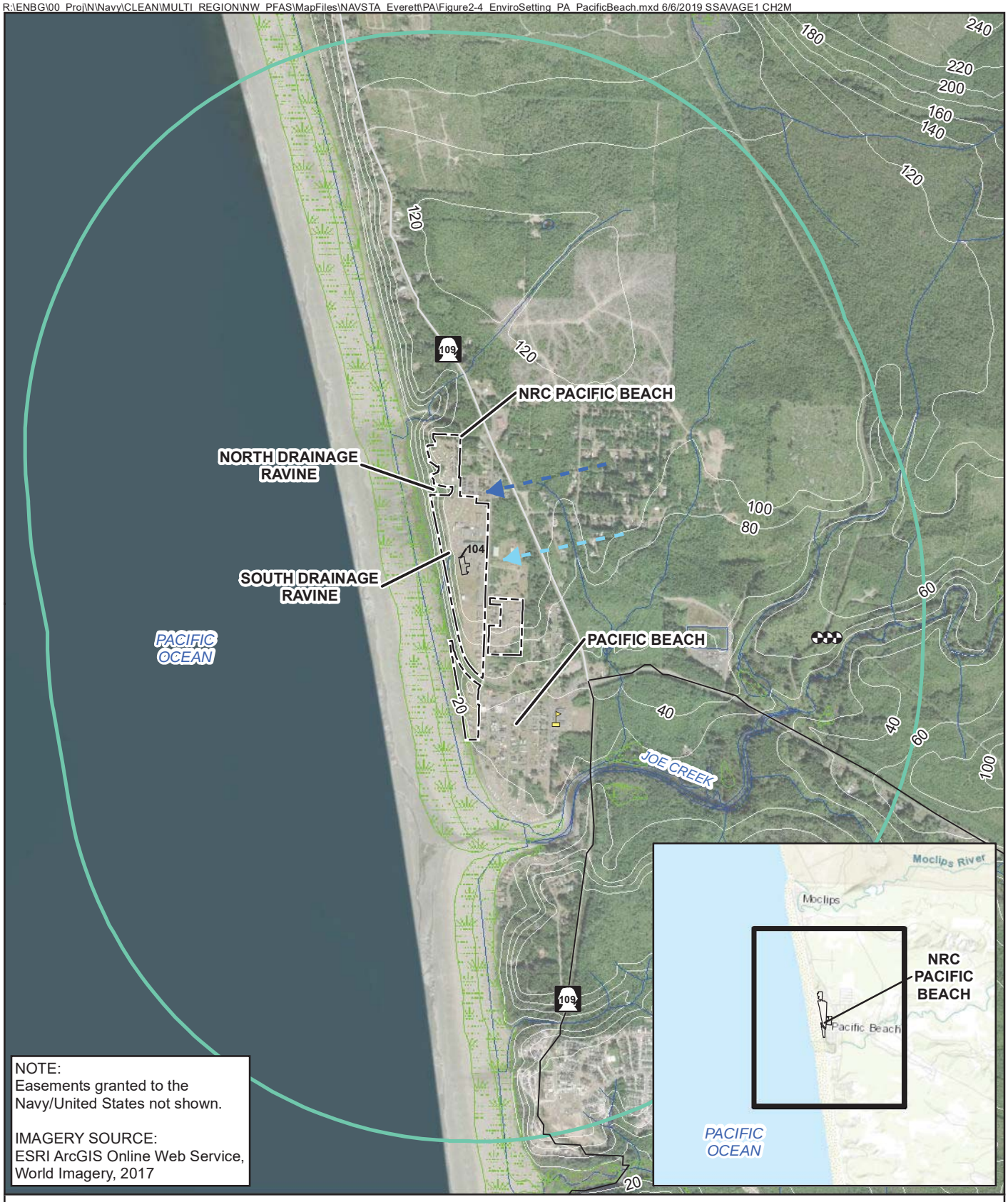
Figure 2-3
Environmental Setting: NRS Jim Creek
Preliminary Assessment for PFAS
NAVSTA Everett, NRS Jim Creek,
NRC Pacific Beach, Washington

0 0.375 0.75 Miles

1 inch = 0.75 mile

N

R:\ENBG\00_Proj\N\Navy\CLEAN\MULTI_REGION\NW_PFAS\MapFiles\NAVSTA_Everett\PA\Figure2-4_EnviroSetting_PA_PacificBeach.mxd 6/6/2019 SSAVAGE1 CH2M



NOTE:
Easements granted to the Navy/United States not shown.

IMAGERY SOURCE:
ESRI ArcGIS Online Web Service, World Imagery, 2017

LEGEND

- Active Groundwater Well
- Anticipated Groundwater Flow Direction
- Anticipated Surface Water Flow Direction
- Local Connecting Road
- Important Local Road
- Surface Waterbodies
- Sensitive Receptors
- 40' Topographic Contours
- Wetlands
- 1 Mile Installation Boundary Buffer
- Installation Boundary

Figure 2-4
Environmental Setting: NRC Pacific Beach
Preliminary Assessment for PFAS
NAVSTA Everett, NRS Jim Creek,
NRC Pacific Beach, Washington

0 900 1,800 Feet

1 inch = 1,800 feet

N

SECTION 3

Assessment Methodology

Assessment of areas identified in this PA were conducted in accordance with the USEPA's *Guidance for Performing Preliminary Assessments under CERCLA* (USEPA, 1991), with additional guidance from the Navy's *Interim Per-and Polyfluoroalkyl Substances (PFAS) Site Guidance for NAVFAC Remedial Project Managers (RPMs)/September 2017 Update* (Navy, 2017a) and the Draft *Consistency Instructions for Navy Preliminary Assessments for Per- and Polyfluoroalkyl Substances* (Navy, 2018a).

As described in **Section 1**, the following activities were performed in support of this PA:

- A review of existing information to identify and characterize potential PFAS releases
- A review of existing information to identify potential off-Base receptors within 1 mile of the facility boundary
- Interviews with relevant current and former site personnel to validate and verify data collected during the data review and provide supplemental information
- A site reconnaissance of the facility to identify any evidence of PFAS releases and potential receptors and migration pathways, identify areas of concern, and fill data gaps identified in the data review and interviews
- Evaluation to determine the need for initiation of a rapid response drinking water investigation in accordance with Navy policy issued June 20, 2016

The following subsection describes each activity.

3.1 Review of Existing Information

Information was gathered and evaluated during the archive search to identify and characterize locations of potential PFAS use or disposal. The information was obtained from existing documents, as-builts, historical photographs, and interviews conducted with relevant individuals. A list of the resources reviewed is provided in **Appendix B (B-1 and B-2)**. Electronic versions of documents also are included in **Appendix B (B-1 and B-2)**. The following document types were reviewed during the preliminary assessment.

3.1.1 Naval Installation Restoration Information Solution Records

Naval Installation Restoration Information Solution (NIRIS) reports and correspondence from the Administrative Record were searched for key terms to identify potential PFAS release areas and obtain information on physical investigations and identification of potential pathways and receptors at those areas. Reports and correspondence were obtained digitally or viewed as hard copies at NAVFAC Northwest, Silverdale, Washington.

3.1.2 Internet Navy Facilities Asset Data Store and Other Environmental Liabilities Databases

The internet Navy Facilities Asset Data Store (iNFADS), which is the official record of the Navy's real property assets, was queried for facilities associated with NAVSTA Everett. In addition, separate queries were performed in the Other Environmental Liabilities (OEL) module to identify OEL units associated with NAVSTA Everett and associated special areas. The resulting lists of facilities and OEL units were reviewed for facility or unit types associated with PFAS release. If a facility or unit was identified as a potential PFAS source, additional documentation associated with these facilities or units was obtained as necessary and reviewed.

3.1.3 Naval Facilities Engineering Systems Command, Northwest Library

A search of the library at NAVFAC Northwest, Bangor, Washington was performed to identify documents associated with NAVSTA Everett and its associated special areas. A total of nine documents consisting of reports, inventories, maps, schematics drawings, and photographs were identified to contain information relevant to this PA.

3.1.4 Internet Records

Internet search engines were used to find current and historical information on NAVSTA Everett, the special areas, and nearby receptors. Documents, websites, and internet databases reviewed during this PA are listed in **Appendix B-1**.

3.1.5 Facility Operations and Property Records

Facility operations records, spill reports, inventories, authorized use lists, and property records were reviewed for NAVSTA Everett. Historical facility records and real estate records were reviewed where available for NAVSTA Everett and associated special areas. A review of the NAVSTA Everett Authorized Use List (AUL for 2017 did not identify any known PFAS-containing chemicals purchased in large volume containers other than AFFF related to Fire Operations.

3.1.6 National Archives Search

A search of documents curated by the National Archives and Records Administration was performed using various search terms associated with NAVSTA Everett and its associated special areas. The resulting list of available documents was reviewed to identify those with the potential to contain information relevant to this PA. No relevant documents were identified.

3.1.7 Naval History and Heritage Command

A record search of the Naval History and Heritage Command was conducted to obtain Command Operations Reports for NAVSTA Everett and its associated special areas. No relevant information was identified.

3.1.8 Environmental Data Resource Reports

National Environmental Policy Act and offsite receptor reports (EDR, 2018 were reviewed for NAVSTA Everett, the surrounding area, and associated special areas.

3.1.9 Aerial Photographs

Recent and historical aerial photographs of each facility were reviewed. These photographs captured the following years:

- NAVSTA Everett: 1990, 2002, 2003, 2005 through 2007, and 2009 through 2018, (EDR, 2018; Google Earth, 2019)
- Jim Creek: 1989, 1998, 2003, 2005, 2006, 2009, 2011, 2013, 2014 and 2016 (EDR, 2019; Google Earth, 2019)
- Pacific Beach: 1990, 2006, 2009, 2011, 2016, 2017 and 2018 (EDR, 2019; Google Earth, 2019)

3.1.10 Geographic Information System and Map Data

GIS data and historical maps were reviewed to develop an understanding of current and historical facility boundaries, locations and boundaries of site features and areas of environmental concern, and environmental setting information. GIS records reviewed were curated by NAVFAC Northwest Asset Management and NAVFAC Georeadiness Center. Additional information was gathered from scanned maps available in reports and permits.

3.2 Interviews

Interviews were conducted on December 10 and 11, 2018, January 17 and 23, 2019, February 22, 25 and 27, 2019 and March 1, 2019 with current and former personnel associated with past and present operations at NAVSTA Everett and NAVFAC Northwest personnel. The purpose of these interviews was to validate and verify data collected during document and record reviews and identify other information related to PFAS storage, use, or release not previously found in historical documents.

The interviews were conducted either in person, via phone, and email. Each interview session was guided by a standard questionnaire. Completed questionnaires are provided in **Appendix C**. The information from the interviews also was used to confirm and select additional locations to observe during visual site inspection (VSI) activities. This information is referenced throughout this report.

The following personnel were interviewed[4] (additional interviewee details are in **Appendix B-3**):

- Environmental Operations Manager (1996-2016) – March 1, 2019
- Public Works Department; Utility Supervisor (present) – December 10, 2018
- Navy Region Northwest Fire and Emergency Services, Battalion Chief (2014-present) – December 11, 2018
- Hazardous Waste Disposal, Environmental Operations Supervisor (2018-present) – December 11, 2018
- Hazardous Waste Disposal – Technician (2013-present) –December 11, 2018
- Puget Sound Navy Shipyard Dispatch Everett – Training (2015-present) – December 10, 2018
- NAVFAC Public Works, Facility Management Director, Lead Facility Management Specialist, Environmental Director, Environmental Operations Supervisor, Deputy Public Works Officer, Public Works Officer, Assistant Public Works Officer, Facility Operations Specialist (present) – December 11, 2018
- NAVFAC Solid Waste Manager, Integrated Solid Waste Manager (2009-present) – December 10, 2018
- Navy Supply Systems command (NAVSUP), Supply Technician (20012 - present) – December 10, 2018
- NAVSUP, Logistics Clerk (2018-present) – December 10, 2018
- URSO, Utility Service Operator – (2009 -present)– December 11, 2018
- NAVFAC, NSWCCD, Environmental Health and Safety Manager (1995-present) January 23, 2019
- NAVFAC, NSWCCD, Facility Manager, (2018-present) January 23, 2019
- NAVFAC, NSWCCD, Site Director, January 23, 2019
- Marine Force Reserve Headquarters, Deputy Environmental Director, (2012-present) – January 31, 2019
- Idaho Army National Guard, Environmental Sustainment and Training Specialist (2016-present), January 17, 2019
- NOSC Boise, Motor Transportation Chief, March 5, 2019
- NOSC Cheyenne, Safety Department Head (2018-present), January 24, 2019
- NOSC Des Moines, Supply Technician and Facilities Manager (2008-present), January 17, 2019
- NOSC Des Moines, Staff Sargent-Motor Transport – February 27, 2019

[4] In addition to the interviewees listed here, CH2M requested interviews with other representatives with ties to NAVSTA Everett. Potential interviewees were identified by CH2M staff or suggested by other interviewees. A reasonable attempt was made to contact each potential interviewee. In some cases, CH2M did not receive responses to email and voicemail requests for interviews; in other cases, the potential interviewees responded to interview requests, but declined to be interviewed.

- NOSC Fargo, Safety Officer (2016-present) – January 15, 2019
- NOSC Helena, Environmental Program Manager – January 31, 2019
- NOSC Minneapolis, Fire Fighter January 7, 2019
- NOSC Minneapolis, Facility Engineer NAVSTA NAVFAC NW – February 25, 2019
- NOSC Minneapolis, NAVSTA Great Lakes, Former Restoration Manager NAVFAC NW – January 25, 2019
- NOSC Portland, Supply Officer, USMC Facilities Officer, March 7, 2019
- NOSC Portland, Commanding Officer (August 2017 – present) – January 24, 2019
- NOSC Sioux Falls, Chief – February 21, 2019
- NOSC Spokane, Commanding Officer – February 6, 2019
- NOSC Springfield, Water Quality Program manager and Installation division Chief environmental Branch, Commanding Officer – January 22, 2019
- NRS Jim Creek, Retired Maintenance Mechanic (1978-12018) – February 22, 2019
- NRS Jim Creek, Retired Fire Chief - not dated
- NRC Pacific Beach, Public Works Facility and Utility (2016-present) – March 12, 2019

Contact information interviewees and personnel referenced in the interviews is provided in Appendix B-3.

3.3 Site Reconnaissance

VSIs were completed on December 10 and 11, 2018, January 16, 2019, and February 7, 2019. During the VSI, accessible areas were visited to identify evidence of PFAS use and disposal to fill data gaps identified in the preliminary review. Physical site characteristics (surface flow, drainage conditions) were documented for those areas identified during the preliminary review and interviews. Photographs were collected where permitted. Information gathered during the VSIs is summarized in **Section 4**.

SECTION 4

Findings and Recommendations

This section presents the potential PFAS source areas identified during this PA and includes detailed site descriptions, potential exposure points, and migration routes relevant to each area. Recommendations for further investigative action are provided.

4.1 Off-Base Drinking Water Exposure Assessment

A drinking water evaluation was conducted to determine whether off-Base drinking water could have been impacted by any potential PFAS source areas at NAVSTA Everett, NRS Jim Creek, or NRC Pacific Beach.

4.1.1 Naval Station Everett

Based on data obtained from the Washington State DOE (2018) and DOH, no public supply wells were identified within 1 mile of the base boundary. Drinking water for the installation is supplied by the City of Everett. There are several wells located within 1 mile to the northwest and south, but none of them are located downgradient of potential PFAS source areas. Therefore, no complete exposure pathway has been identified for off-Base drinking water, and no emergency response action is warranted at this time.

4.1.2 Naval Radio Station Jim Creek

Based on data obtained from the Washington State DOE (2018) and DOH, no public supply wells were identified within 1 mile of the Base boundary. Drinking water for the installation is supplied by one on-Base supply well located in Building 85. The well is not downgradient of any potential PFAS source area.

There are nine private drinking water wells within 1 mile of NRS Jim Creek (**Figure 2-3**), none of which are downgradient of any potential PFAS source areas. No complete exposure pathway has been identified for off-Base drinking water, and no emergency response action is warranted at this time.

4.1.3 Naval Recreation Complex Pacific Beach

Based on data obtained from the Washington State DOE (2018) and DOH, there are three potable water production wells, supplied by Grays Harbor County, that are located within 1 mile of NRC Pacific Beach. The wells are located upgradient of NRC Pacific Beach.

There are no private drinking water wells within 1 mile of NRC Pacific Beach. No complete exposure pathway has been identified for off-Base drinking water, and no emergency response action is warranted at this time.

4.2 Summary of Areas Evaluated

Twenty-three areas at NAVSTA Everett, twenty-two areas at NRS Jim Creek, and six areas at NRC Pacific Beach were screened as potential PFAS source areas (**Tables 4-1 through 4-3** and on **Figures 4-1, 4-2, 4-3, and 4-4**). The table documents whether the areas were or were not identified as a potential PFAS source area, along with the rationale. Areas identified as potential PFAS source areas are further evaluated in **Section 4.3**. Areas not identified as potential PFAS source areas are recommended for NFA and were not further evaluated.

4.2.1 Areas Evaluated

The following areas in **Tables 4-1 through 4-3** were evaluated for potential PFAS source areas at NAVSTA Everett, NRS Jim Creek, and NRC Pacific Beach.

Table 4-1. Areas Evaluated as Potential PFAS Source Areas at NAVSTA Everett

Preliminary Assessment for Per- and Polyfluoroalkyl Substances at Naval Station Everett and Associated Special Areas

Area	Potential PFAS Source Area (Y/N)	Rationale
NAVSTA Everett		
Firefighting Training Areas		
North Wharf Parking Lot FTA	N	Firefighters have performed firefighting training exercises at the North Wharf Parking Lot FTA since 2013; it is unknown whether fire training was conducted from 1994 to 2013 at this location (**Figure 4-1**) (Navy Region Northwest Fire & Emergency Services, Battalion Chief [NAVSTA Everett Fire Chief], 2018, pers. comm.)[a]. The specific area within the North Wharf Parking Lot was not identified during the interview. This was the first and only FTA established at the base. Fire training activities include live fire training with a mobile Conex box propane fire simulator. The current location of the mobile unit is shown on **Figure 4-1**; however, this unit can be moved to different locations in the North Wharf Parking Lot (NAVSTA Everett Fire Chief, 2018, pers. comm.). Only water is currently and has historically been used in these exercises (NAVSTA Everett Fire Chief, 2018, pers. comm.). Search and Rescue training also occurs at this location. The current Battalion Chief for Navy Region Northwest Fire & Emergency Services (in various positions since 2008) has no recollection of AFFF being used during these trainings (NAVSTA Everett Fire Chief, 2018, pers. comm.). NFA is recommended for this area.
Fire Stations		
Building 2114	Y	Building 2114 (**Figure 4-1**) is the current and only fire station at NAVSTA Everett. The station was built in 1993 during construction of NAVSTA Everett and is 14,082 square feet (Navy, 2018c). Five fire engines are associated with this fire station (NAVSTA Everett Fire Chief, 2018, pers. comm.). Three of the five engines had AFFF in their designated foam tanks during the December 2018 site visit. See **Section 4.3** for additional information and **Section 5** for the recommended path forward.
Hangars		
No hangars are present at NAVSTA Everett.	N/A	N/A
Buildings with AFFF Fire-suppression Systems		
No buildings with AFFF suppression systems were identified at NAVSTA Everett.	N/A	N/A
Emergency Response Areas		
Ship Fires at NAVSTA Everett Pier	N	According to the Battalion Chief, Navy Region Northwest Fire & Emergency Services fires on ships docked at the NAVSTA Everett Pier, a U-shaped set of piers (**Figure 4-1**), occur approximately once or twice a year (the precise location of the fires is not shown as the incidents occurred on ships) (NAVSTA Everett Fire Chief, 2018, pers. comm.). These are typically electrical fires (NAVSTA Everett Fire Chief, 2018, pers. comm.). No major fires have occurred, and any electrical fires were suppressed with water or dry chemicals; no AFFF has been used (NAVSTA Everett Fire Chief, 2018, pers. comm.). Therefore, NFA is recommended.

Table 4-1. Areas Evaluated as Potential PFAS Source Areas at NAVSTA Everett

Preliminary Assessment for Per- and Polyfluoroalkyl Substances at Naval Station Everett and Associated Special Areas

Area	Potential PFAS Source Area (Y/N)	Rationale
Sailor's Choice Marina Fire	N	Sailor's Choice Marina at NAVSTA Everett (**Figure 4-1**) is a private mooring facility for DoD employees. A large fire occurred at this marina on October 7, 2012; water, not AFFF, was used in the response (NAVSTA Everett Fire Chief, 2018, pers. comm.). Therefore, NFA is recommended for this area.
AFFF Spray Test Areas		
No AFFF spray test areas were identified at NAVSTA Everett.	N/A	N/A
Runways		
Helicopter Pad	N	There are no runways at NAVSTA Everett. There is, however, a helicopter pad (**Figure 4-1**). The helicopter pad is not currently in use. One Base staff member stated that the last time he recalled the helicopter pad being used was 2005 or 2006 (NAVSTA Everett Hazardous Waste Disposer and NAVSTA Everett Environmental Operations Supervisor, 2018, pers. comm.). The helicopter pad also has been used by NAVSTA Everett firefighting personnel to practice net techniques and other exercises not involving AFFF (NAVSTA Everett Fire Chief, 2018, pers. comm.). No crashes or emergency response actions were recalled by individuals interviewed during this assessment. Based on the lack of crashes, emergency response actions, or training activities that may involve AFFF, NFA is recommended for this area.
Wastewater Treatment Plants and Associated Disposal Areas		
Oily Water Treatment System	N	Oily waste from Navy vessels docked at the NAVSTA Everett Pier are pumped through Building 2502 to the Oily Water Separator (**Figure 4-1**). Following treatment at the Oily Water Separator, treated water is conveyed to the sanitary lift station at Building 2222 (**Figure 4-1**). It is noted that Navy vessel waste streams may contain AFFF; for example, AFFF is known to enter bilge water following use of AFFF-fire suppression systems installed in the ship's bilge during fire emergencies and routine testing (USEPA, 1999; Navy, 2014c; Kirts et al. 2000). There has been at least one instance where AFFF has been sent to oily water treatment systems at NAVSTA Everett. Each component of the oily water treatment system is evaluated below.
Building 2502	N	Building 2502 (**Figure 4-1**) is a 748 square-foot building that facilitates conveyance of oily water from vessels docked at the NAVSTA Everett Pier to the Oily Water Separator (NAVSTA Everett Utility Service Repair Operator, 2018, pers. comm.). The building contains a tank with a transfer pump. This conveyance system is completely closed with no opportunities for diversion. Because the conveyance system is closed, Building 2502 is not a source of AFFF or other PFAS-containing materials to NAVSTA Everett; therefore, NFA is recommended for this area.

Table 4-1. Areas Evaluated as Potential PFAS Source Areas at NAVSTA Everett

Preliminary Assessment for Per- and Polyfluoroalkyl Substances at Naval Station Everett and Associated Special Areas

Area	Potential PFAS Source Area (Y/N)	Rationale
Building 2400	N	Building 2400 (**Figure 4-1**), is a 748 square-foot control building constructed in 1994, and associated oil/water separation tanks (Navy, 2018c). The oily/water separator receives and treats oily waste from vessels docked at NAVSTA Everett Pier, including bilge water; collection, holding, and transfer system contents (sewage and gray water); and ballast water (NAVSTA Everett Utility Service Repair Operator, 2018, pers. comm.; NAVFAC Public Works Facility Management Director, 2018, pers. comm.). The facility occasionally receives drums of oily water from vessels or from shore-based facilities at NAVSTA Everett (NAVSTA Everett Utility Service Repair Operator, 2018, pers. comm.). Inputs to Building 2400 go to two settling tanks where skimmers remove surface oil to used oil tanks. The used oil is transported off site. Remaining oil in the settling tanks is removed using flocculants. Flocculant and other materials that settle at the bottom of the tank are removed, condensed in a sludge press, packaged in 55-gallon drums, and transported to Structure 2150 (Hazardous Waste Facility) for disposal. Liquid removed during sludge press operations is sent back to the settling tanks. After oily water has been treated, it is sent to the sanitary sewer lift station at Building 2222 and on to the municipal sewer system for the City of Everett. The oil/water separator is well-contained, and there is no known method of bypassing the system (NAVSTA Everett Utility Service Repair Operator, 2018, pers. comm.). In 2016, the oil/water separator accepted AFFF-containing bilge waste from a ship following an on-board emergency (NAVSTA Everett Utility Service Repair Operator, 2018, pers. comm.). The separation system is completely closed; as such, the oil/water separator is not a potential source of AFFF or other PFAS-containing materials to NAVSTA Everett; therefore, NFA is recommended for this area.
Building 2222	N	Building 2222 (**Figure 4-1**) is a 3,286 square-foot building built in 1986 that houses the sewage lift station for NAVSTA Everett (Navy, 2018c). The lift station processes all the sanitary sewage discharge for NAVSTA Everett including docked vessels and shore-based facilities (NAVSTA Everett Public Works Department Utility Supervisor, 2018. pers. comm.). Sewage is collected in a sump within Building 2222 and pumped to an open top, 110,000-gallon aeration and mixing tank (NAVSTA Everett Public Works Department Utility Supervisor, 2018, pers. comm.). The sewage is treated with ferrous chloride and aeration prior to discharge to the City of Everett sewer system (NAVSTA Everett Public Works Department Utility Supervisor, 2018, pers. comm.). In 2016 Building 2222 received treated AFFF-containing bilge waste from the oil/water separator (see previous table entry). This caused excessive foaming at the Building 2222 sewage lift station (NAVSTA Everett Utility Service Repair Operator, 2018, pers. comm.). However, this incident did not cause material to overflow the mixing tank (NAVSTA Everett Utility Service Repair Operator, 2018, per. comm.; NAVSTA Everett Public Works Department Utility Supervisor, 2018, pers. comm.). No release of AFFF or other PFAS-containing materials is known to have occurred at Building 2222; therefore, NFA is recommended for this area.
Landfills and Waste Disposal Areas		
No landfills or waste disposal areas were identified at NAVSTA Everett. The base recycling center is described under “Other” below.	N/A	N/A

Table 4-1. Areas Evaluated as Potential PFAS Source Areas at NAVSTA Everett

Preliminary Assessment for Per- and Polyfluoroalkyl Substances at Naval Station Everett and Associated Special Areas

Area	Potential PFAS Source Area (Y/N)	Rationale
Specialty Paint, Cleaner, or Pesticide Use or Release		
Building 2130	N	Building 2130 (**Figure 4-1**) is a 27,762 square-foot shop built in 1993 (Navy, 2018c). Building 2130 is a repair facility that supports maintenance and repair of ship-based support equipment (NAVSTA Everett SERF Employee, 2019a, pers. comm.). Operations include corrosion treatment and refurbishment (NAVSTA Everett SERF Employee, 2019a, pers. comm.). Building 2130 has one large and three small blast booths to remove paint and corrosion and a paint booth for reapplying protective coatings (Logistics Management Specialist, 2019, pers. comm.). The paint booth is a stand-alone piece of equipment that measures 5 by 4 by 4 feet (NAVY, 2018e). The quantity of paint stored at this facility (including primer, topcoat, and pigment) is limited to a 7-day supply and is evaluated on a weekly basis based on workload (Logistics Management Specialist, 2019, pers. comm.). It is estimated that the average storage volume during peak productions is approximately 4 to 5 gallons of paint. (Logistics Management Specialist, 2019, pers. comm.). Most paint used by SERF maintenance is stored in Building 2202 (discussed later in this table). There is no recollection of AFFF being used at this facility (NAVSTA Everett SERF Employee, 2019b, pers. comm.). It is unknown whether PFAS-containing paints are currently in use or have historically been used at this facility. However, there are no documented releases, the quantity stored is small, and proper hazardous waste handling practices are employed. Therefore, NFA is recommended for this area.
Building 2136	N	Building 2136 (**Figure 4-1**) is a 5,000 square-foot storage building that supports Building 2130 (Navy, 2018c). There is no storage of paint, pesticides, or any other hazardous materials in this building (by requirement) (Logistics Management Specialist, 2019, pers. comm.). NFA is recommended for this area.
Chromium Plating Shops		
No chromium plating shops were identified at NAVSTA Everett.	N/A	N/A
Known or Potential PFAS Storage Locations		
Building 2110	N	Building 2110 (**Figure 4-1**) is a 4,500 square-foot storage building built in 2005 (Navy, 2018c). The building supports NAVSTA Everett port operations and the NAVSTA Everett Fire Station (Navy, 2018c; NAVFAC Public Works Facility Management Director, 2018, pers. comm.). In the past (dates not specified), the Fire Station stored AFFF concentrate in a portion of the building (NAVSTA Everett Fire Chief, 2018, pers. comm.). Approximately 50 to 100 gallons were stored at a time in 5-gallon containers (NAVSTA Everett Fire Chief, 2018, pers. comm.). Retired Engine 29, which has AFFF stored in its foam tank, is parked in one of the Building 2110 bays or in the parking lot just southwest of Building 2110 when it is on site (at the time of a December 2018 site visit it was offsite at Naval Air Station Whidbey Island for maintenance) (NAVSTA Everett Fire Chief, 2018, pers. comm.). A March 2018 inventory of installed AFFF in fire apparatus tanks lists storage of ready reserve AFFF concentrate at Building 2110 (Navy, 2018d). No AFFF spills have been reported at Building 2110 (NAVSTA Everett Fire Chief, 2018, pers. comm.). Because AFFF has not been released at this building, there has not been a need to refill the foam tanks in the engines; however, if filling were to occur, it would be at the fire station and not at Building 2110 (NAVSTA Everett Fire Chief, 2018, pers. comm.). Because there are no known releases or transfer of AFFF or other PFAS-containing materials at Building 2110, NFA is recommended for this area.

Table 4-1. Areas Evaluated as Potential PFAS Source Areas at NAVSTA Everett

Preliminary Assessment for Per- and Polyfluoroalkyl Substances at Naval Station Everett and Associated Special Areas

Area	Potential PFAS Source Area (Y/N)	Rationale
Structure 2150 (Hazardous Waste Facility)	N	Structure 2150 (Hazardous Waste Facility) (**Figure 4-1**) is a 9,611 square-foot building built in 1996 (Navy, 2018c). It is the hazardous waste disposal center for collection and temporary storage of all hazardous waste from NAVSTA Everett and some special areas (including NRS Jim Creek and Smokey Point Family Housing) (NAVSTA Everett Hazardous Waste Disposer and NAVSTA Everett Environmental Operations Supervisor, 2018, pers. comm.). The facility has temporarily stored AFFF concentrate received from the NAVSTA Everett Fire Station and from Navy vessels (due to expiration of the AFFF or decommissioning of ships) (NAVSTA Everett Hazardous Waste Disposer and NAVSTA Everett Environmental Operations Supervisor, 2018, pers. comm.). AFFF is received in plastic canisters (5-gallon) or drums (typically 55-gallon). If measurable liquid/foam product is present, then the canisters/drums are sent off-base to an EPA approved Treatment, Storage, and Disposal Facility (TSDF) and characterized as a state only Dangerous Waste regulated under WAC Chapter 173-303 (NAVSTA Environmental Operations Supervisor, 2019, pers. comm). The 5-gallon canisters are further consolidated into a canvas supersack, palletized, secured, and labelled for shipment to the TSDF. The 55-gallon drums follow the same process, except they are not further consolidated into supersacks. If any of the canisters or drums are completely empty and dry, they are sent to Structure 2331 (Recycling Center) for recycling. The canisters and drums are not rinsed prior to leaving the Hazardous Waste Facility (in accordance with standard protocol) (NAVSTA Everett Hazardous Waste Disposer and NAVSTA Everett Environmental Operations Supervisor, 2018, pers. comm.). The previous Environmental Operations Supervisor, who served in this role between 1996 and 2016, confirmed the above process was implemented in approximately the mid to late 2000s or earlier, but could not provide a specific timeframe (NAVSTA Everett Environmental Operations Supervisor (retired), 2019. Pers. comm). During site visits in September 2018 and December 2018, Structure 2150 was observed to be organized, clean, and well maintained. Materials were segregated and stored within secondary containment. Drains in the facility are connected to an underground storage tank; there have been no leaks or spills at the facility and the tank is empty (NAVSTA Everett Hazardous Waste Disposer and NAVSTA Everett Environmental Operations Supervisor, 2018, pers. comm.). No known releases of AFFF or other PFAS-containing materials have occurred at Structure 2150 (NAVSTA Everett Hazardous Waste Disposer and NAVSTA Everett Environmental Operations Supervisor, 2018, pers. comm.), and the facility area was observed to be properly maintained; therefore, NFA is recommended for this area.

Table 4-1. Areas Evaluated as Potential PFAS Source Areas at NAVSTA Everett

Preliminary Assessment for Per- and Polyfluoroalkyl Substances at Naval Station Everett and Associated Special Areas

Area	Potential PFAS Source Area (Y/N)	Rationale
Former Hazardous Waste Accumulation Area	N	The Former Hazardous Waste Accumulation Area (location unknown) was used as an accumulation area for hazardous waste prior to construction of Structure 2150 (Hazardous Waste Facility) (Engineering Field Activity, Northwest, 1994). Known years of this practice are 1993 and 1994 (Engineering Field Activity, Northwest, 1994). At the time of use, portions of NAVSTA Everett were still under construction, and the quantity of hazardous waste generated was "quite small" and primarily offloaded from two mine sweepers (Engineering Field Activity, Northwest, 1994). Larger vessels were not yet docking at NAVSTA Everett (Engineering Field Activity, Northwest, 1994). During a 1994 visual site inspection, some deficiencies in the accumulation area were noted: inadequate aisle space; no communication equipment; incompatible waste stored together (oily rags and oxidizers); and a storm drain located in the parking lot where operations took place. These deficiencies were corrected after inspection and included the placement of additional storage units added to facilitate waste segregation. Environmental plans from 1994 note that the accumulation area would soon be replaced by a temporary hazardous waste storage facility while the base waited for the permanent facility (Structure 2150) to be constructed. It is unknown whether AFFF or other PFAS-containing chemicals were stored at the Former Hazardous Waste Accumulation Area; however, based on the small quantity of hazardous waste stored and no reports of releases or spills, NFA is recommended.
Building 2330	N	Building 2330 (**Figure 4-1**) is a prefabricated canvas structure with a concrete foundation that currently houses corrosion control maintenance operations primarily in support vessels docked at NAVSTA Everett. Although Building 2330 has existed for more than 20 years, it is considered temporary because of its tent-like structure (NAVSTA Everett Corrosion Control Technician, 2018, pers. comm.). Building 2330 was originally constructed as a temporary hazardous waste storage facility in about 1994 (Engineering Field Activity, Northwest, 1994; NAVSTA Everett Environmental Program Director, 2019, pers. comm.). The facility replaced the Former Hazardous Waste Accumulation Area and was used for hazardous waste storage until the permanent hazardous waste facility (Structure 2150) was constructed in 1996 (Engineering Field Activity, Northwest, 1994; NAVSTA Everett Environmental Program Director, 2019, pers. comm.; Navy, 2018c). Implementation of secondary containment and other regulatory requirements was considered in the design of the facility (Engineering Field Activity, Northwest, 1994). Materials stored included sandblast grit, paints, cleaners, and AFFF (NAVSTA Everett Environmental Operations Supervisor, 2019, pers. comm.). No spills of any material occurred at Building 2330 during its use as a temporary hazardous waste storage facility (NAVSTA Everett Environmental Operations Supervisor, 2019, pers. comm.). Current operations include grit blasting (paint/rust removal) and powder coating (painting) (NAVSTA Everett Corrosion Control Technician, 2018, pers. comm.). All waste currently produced at this facility (expended sand/grit, excess paint powder and filters) is sent to Structure 2150 (Hazardous Waste Facility) (NAVSTA Everett Corrosion Control Technician, 2018, pers. comm.). There is no known use or release of AFFF associated with former or current use of Building 2330. Aside from the storage of AFFF, it is unknown whether PFAS-containing paints or other products are currently used or have been historically used at this facility. However, there are no documented releases, storage is limited, and proper hazardous waste handling practices are employed. Therefore, NFA is recommended for this area.

Table 4-1. Areas Evaluated as Potential PFAS Source Areas at NAVSTA Everett

Preliminary Assessment for Per- and Polyfluoroalkyl Substances at Naval Station Everett and Associated Special Areas

Area	Potential PFAS Source Area (Y/N)	Rationale
Other		
Structure 2124 (Vehicle Wash Platform)	N	Structure 2124 (Vehicle Wash Platform) (**Figure 4-1**) is an 8,250 square-foot vehicle washing area built in 2001 (Navy, 2018c). This wash platform is used to wash boats, including security patrol boats, Port Operations boats, and other small boats (NAVSTA Everett Hazardous Waste Disposer and NAVSTA Everett Environmental Operations Supervisor, 2018, pers. comm.). No vehicles using AFFF or other PFAS-containing materials are washed at this platform; therefore, NFA is recommended for this area.
Structure 2154(NEX Car Wash)	N	Structure 2154 (NEX Car Wash) (**Figure 4-1**) is a 1,275 square foot car wash associated with the NEX gas station (Navy, 2018c). It is self-contained (NAVSTA Everett Hazardous Waste Disposer and NAVSTA Everett Environmental Operations Supervisor, 2018, pers. comm.). No vehicles using AFFF or other PFAS-containing materials are washed at this car wash. It is unknown whether PFAS-containing products are currently used or have historically been used at this car wash (PFAS-containing coatings are sometimes used at car washes). However, there are no documented releases, and the system is self-contained. Therefore, NFA is recommended for this area.
Building 2130	N	Building 2130 has an associated wash station in the parking lot north of the building (**Figure 4-1**). Based on observations made during a December 2018 site visit, the wash station has two French drains and a sump for collection of wash water. No AFFF or large quantities of PFAS-containing materials are used at Building 2130. Furthermore, no vehicles using AFFF or other PFAS-containing materials are washed at this platform. There are no documented releases. Therefore, NFA is recommended for this area.
Building 2202	N	Building 2202 (**Figure 4-1**) is a 79,206 square-foot warehouse facility operated by the NAVSUP. The facility provides support for all naval services and centers at NAVSTA Everett (including vessels and shore-based centers) and some special areas. The warehouse stores paints, solvents, oils, and other chemicals (NAVSUP Supply Technician, 2018, pers. comm.). Only materials included in the AUL for NAVSTA Everett and the special areas are requisitioned and distributed through Building 2202 (NAVSUP Supply Technician, 2018, pers. comm.). In addition, a review of the NAVSTA Everett AUL for 2017 did not identify any known PFAS-containing chemicals purchased in large volume containers other than AFFF, which is not known to have been stored at Building 2202[b]. During a December 2018 site visit, the warehouse was organized, clean, and well-maintained. Materials were segregated according to type (for example, corrosives in one bay, aerosols in another). Drains in each bay lead to an underground storage tank at the back of the warehouse. This tank is inspected annually. There has never been a spill, so there has not been a need to empty the tank (NAVSUP Supply Technician, 2018, pers. comm). Because there is no known storage or release of AFFF or large-quantity storage or release of PFAS-containing materials at Building 2200 and the facility appears well-maintained and contained, NFA is recommended for this area.

Table 4-1. Areas Evaluated as Potential PFAS Source Areas at NAVSTA Everett

Preliminary Assessment for Per- and Polyfluoroalkyl Substances at Naval Station Everett and Associated Special Areas

Area	Potential PFAS Source Area (Y/N)	Rationale
Building 2200	N	Building 2200 (**Figure 4-1**) is a 95,840-square-foot shop complex operated by the PSNS & IMF. The mission of the PSNS & IMF is to maintain, modernize, and retire the Navy's fleet (NAVSEA, 2019). The shop provides maintenance and support for vessels and has been in operation for about 4 years (PSNS & IMF Logistics Specialist, 2018, pers. comm.). The types of maintenance activities include metal cutting/welding, fabrication and repair of vessel structural components, and equipment testing (PSNS & IMF Logistics Specialist, 2018, pers. comm.). All waste produced at this facility (oils, grease, and cutting oil) are sent to the Structure 2331 (Recycling Center) or Structure 2150 (Hazardous Waste Facility) (PSNS & IMF Logistics Specialist, 2018, pers. comm.). There is no known use or release of AFFF or other PFAS-containing materials at Building 2200; therefore, NFA is recommended for this area.
Structure 2331 (Recycling Center)	N	Structure 2331 (Recycling Center) (**Figure 4-1**) is an 8,250-square-foot facility that manages all non-hazardous solid waste and recyclables for NAVSTA Everett, NRS Jim Creek, and Smokey Point Family Housing Complex. Waste received at this facility is sorted, compacted, and transported off site (NAVSTA Everett Integrated Solid Waste Program Manager, 2018, pers. comm.). The Recycling Center processes plastic containers (canisters and drums) that previously held AFFF concentrate (NAVSTA Everett Hazardous Waste Disposer and NAVSTA Everett Environmental Operations Supervisor, 2018, pers. comm.; NAVSTA Everett Integrated Solid Waste Program Manager, 2018, pers. comm.). Full canisters and drums are received at Structure 2150 (Hazardous Waste Facility), emptied, and sent to the Recycling Center to be recycled (NAVSTA Everett Hazardous Waste Disposer and NAVSTA Everett Environmental Operations Supervisor, 2018, pers. comm.). The containers are not rinsed prior to leaving the Hazardous Waste Facility Structure 2150 (according to standard protocol) (NAVSTA Everett Hazardous Waste Disposer and NAVSTA Everett Environmental Operations Supervisor, 2018, pers. comm.). If containers are received at the Recycling Center with too much residual liquid, they are returned to the Hazardous Waste Facility Structure 2150 (NAVSTA Everett Integrated Solid Waste Program Manager, 2018, pers. comm.). AFFF containers sent to the Recycling Center are processed with other plastic material; that is, compacted in one of three plastic compacter units (based on plastic type) and transported off site (NAVSTA Everett Integrated Solid Waste Program Manager, 2018, pers. comm.). Liquids that are expelled during compaction of recyclable plastic drain to a liquid-accumulation compartment located at the bottom of each compactor (NAVSTA Everett Integrated Solid Waste Program Manager, 2018, pers. comm.). Liquid accumulation is typically small and is left to evaporate (NAVSTA Everett Integrated Solid Waste Program Manager, 2018, pers. comm.). Occasionally the liquid-accumulation compartments overflow to the concrete floor; when this occurs, the liquid is cleaned up with a mop (NAVSTA Everett Integrated Solid Waste Program Manager, 2018, pers. comm.). A floor drain located in Structure 2331 drains to the NAVSTA Everett sanitary sewer line, which conveys sanitary sewage to the lift station at Building 2222. Because AFFF containers are empty when they arrive at the Recycling Center, no rinsing is performed there, and residual liquid expelled during compaction is released to an impermeable surface (concrete) and captured through mopping or the floor drain, Structure 2331 is not a potential source of AFFF or other PFAS-containing materials to NAVSTA Everett. NFA is recommended for this area.
Small Craft Launch Project Area	N	The Small Craft Launch Project area (**Figure 4-1**) is an Installation Restoration site at NAVSTA Everett. NAVSTA Everett staff do not recall any release of AFFF or other PFAS-containing chemicals related to this site (NAVFAC Public Works Facility Management Director et al., 2019, pers. comm.). NFA is recommended for this area.

Table 4-2. Areas Evaluated as Potential PFAS Source Areas at, NRS Jim Creek
Preliminary Assessment for Per- and Polyfluoroalkyl Substances at Naval Station Everett and Associated Special Areas

Area	Potential PFAS Source Area (Y/N)	Rationale
NRS Jim Creek		
Firefighting Training Areas		
Former Fire Training Area	N	A former fire chief who served from 1976 to 1986 recalled a burn area east of Building 75 (**Figure 4-2**), but the precise location is not well-defined (NRS Jim Creek Former Fire Chief #2, 2019, pers. comm.). Use of the burn area started in 1980, after the former fire chief started working at the installation and was in use when he left the installation in 1986; no AFFF was used at this location (NRS Jim Creek Former Fire Chief #2, 2019, pers. comm.). A different former fire chief who served in various roles at NRS Jim Creek from 1982 and in the fire chief role from 1995 to 2000 did not recall any use of AFFF at the installation (NRS Jim Creek Former Fire Chief and Safety Officer, 2019, pers. comm.). There is no known use or release of AFFF or other PFAS-containing chemicals at this area; therefore, NFA is recommended.
Fire Stations		
Building 6	Y	Building 6 at Jim Creek (**Figure 4-2**) is a 5,780 square-foot building built in 1952 that formerly operated as a fire station (Navy, 2018c). The building is currently used as a fitness center, short-term rental apartments, and a MWR maintenance shop. A former fire chief who served from 1976 to 1986 recalled that approximately 10, 5-gallon containers of AFFF concentrate were stored in Building 6 on racks when he took over as fire chief (NRS Jim Creek Former Fire Chief #2, 2019, pers. comm.). See **Section 4.3** for additional information and **Section 5** for the recommended path forward.
Hangars		
No hangars are present at NRS Jim Creek.	N/A	N/A
Buildings with AFFF Fire-suppression Systems		
No buildings with AFFF suppression systems were identified at NRS Jim Creek.	N/A	N/A
Emergency Response Areas		
1950s or 1960s Building Fire	N	A current NRS Jim Creek employee (1991 to present) stated he understood that a former building at the current-day Creekside Park (precise location unknown) burned down in the 1950s or 1960s (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.). The nature of the response to this fire is unknown[c]. No documents or news articles describing this event were identified during this initial screening. AFFF was first available for use in the 1960s (ITRC, 2017). Based on the early timeframe of the fire, AFFF was most likely not used; therefore, NFA is recommended for this area.

Table 4-2. Areas Evaluated as Potential PFAS Source Areas at, NRS Jim Creek

Preliminary Assessment for Per- and Polyfluoroalkyl Substances at Naval Station Everett and Associated Special Areas

Area	Potential PFAS Source Area (Y/N)	Rationale
Grass Fires	N	A former NRS Jim Creek fire chief and safety officer from 1995 to 2002 recalled that grass fires (locations not specified) occasionally occurred at NRS Jim Creek (NRS Jim Creek Former Fire Chief and Safety Officer, 2019, pers. comm.). Only water was used to respond to these fires; the NRS Jim Creek fire truck was not equipped to use AFFF (NRS Jim Creek Former Fire Chief and Safety Officer, 2019, pers. comm.). Therefore, NFA is recommended for these areas.
AFFF Spray Test Areas		
No AFFF spray test areas were identified at NRS Jim Creek.	N/A	N/A
Runways		
No runway areas were identified at NRS Jim Creek.	N/A	N/A
Wastewater Treatment Plants and Associated Disposal Areas		
No wastewater treatment plants or associated disposal areas were identified at NRS Jim Creek.	N/A	N/A
Landfills and Waste Disposal Areas		
Site 1 (Building 11 Landfill)	Y	Site 1 (Building 11 Landfill) at NRS Jim Creek (**Figure 4-2**) is an approximately 1,000 square-foot abandoned landfill identified during a 1990 PA (NEESA, 1990). The area was used as an unlined landfill from the mid-1950s until 1984 when it was covered with an approximately 2-foot-thick uncompacted soil cover (NEESA, 1990). See **Section 4.3** for additional information and **Section 5** for the recommended path forward.
Site 6 (Blue Campground Landfill)	Y	Site 6 (Blue Campground Landfill)at NRS Jim Creek (**Figure 4-2**) is an approximately 160 square-foot abandoned landfill identified during a 1990 PA (NEESA, 1990). The landfill is believed to have been in use prior to 1976; the composition and quantity of waste disposed here are unknown (NEESA, 1990). An approximately 2-foot-thick uncompacted soil cover was placed over Site 6 in 1984 (NEESA, 1990). See **Section 4.3** for additional information and **Section 5** for the recommended path forward.
Site 7 (Pit Road Landfill)	Y	Site 7 (Pit Road Landfill) at NRS Jim Creek (**Figure 4-2**) is an approximately 4,200 square-foot abandoned landfill identified during a 1990 PA (NEESA, 1990). The landfill is believed to have been in use prior to 1976, and in 1984 it was covered with an approximately 2-foot-thick uncompacted soil cover (NEESA, 1990). See **Section 4.3** for additional information and **Section 5** for the recommended path forward.
Site 8(Sodium Hypochlorite Burial Pit)	N	Site 8 (Sodium Hypochlorite Burial Pit) at NRS Jim Creek (**Figure** 4-2) is a disposal area identified during a 1990 PA (NEESA, 1990). In 1984, 80 gallons of sodium hypochlorite were buried in a small pit at this location (NEESA, 1990). There is no known disposal of AFFF or other PFAS-containing materials at this location; therefore, NFA is recommended for this area.

Table 4-2. Areas Evaluated as Potential PFAS Source Areas at, NRS Jim Creek
Preliminary Assessment for Per- and Polyfluoroalkyl Substances at Naval Station Everett and Associated Special Areas

Area	Potential PFAS Source Area (Y/N)	Rationale
Bio Pit Disposal Area	Y	The "Bio Pit" Disposal Area at NRS Jim Creek (**Figure 4-2**) is an active disposal area for grass clippings and other plant debris (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.; NAVFAC Public Works Facility Management Director et al., 2018, pers. comm.). Sludge removed from stormwater catch basins at NRS Jim Creek is also disposed in this area (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.). During a January 2019 site visit, the Bio Pit Disposal Area was observed to exist in a natural depression north of the Former Pit Road Landfill. See Section 4.3 for additional information and Section 5 for the recommended path forward.
Site 4 (Metal Burial Pit)	Y	Site 4 (Metal Burial Pit) at NRS Jim Creek (**Figure 4-3**) is an approximately 3,600 square-foot abandoned disposal area identified during a 1990 PA (NEESA, 1990). Site 4 was an unlined natural depression that was reportedly in use prior to 1976 until 1984, when it was covered with an approximately 2-foot-thick uncompacted soil cover (NEESA, 1990). The type and quantity of material disposed at this location are unknown (NEESA, 1990). See **Section 4.3** for additional information and **Section 5** for the recommended path forward.
Site 5 (Mixed Waste Landfill)	Y	Site 5 (Mixed Waste Landfill) at NRS Jim Creek (**Figure 4-3**) is an approximately 20,000 square-foot abandoned landfill identified during a 1990 PA (NEESA, 1990). Site 5 is located on land owned by the United States Department of Agriculture and used by the Navy under a permit from the United States Forest Service. This landfill was historically used for general disposal of NRS Jim Creek's waste material from sometime prior to 1976 until 1984 when it was covered with an approximately 2-foot-thick uncompacted soil cover (NEESA, 1990). See **Section 4.3** for additional information and **Section 5** for the recommended path forward.
Specialty Paint, Cleaner, or Pesticide Use or Release		
Vegetation Control Area	N	The Vegetation Control Area at NRS Jim Creek (**Figure 4-3**) is a circular area of land under the communication system where vegetation growth is controlled using herbicides. The area is located partially on land owned by the Navy and partially on land owned by the US Department of Agriculture and used by the Navy under a permit from the US Forest Service. In this area, vegetation growth is restricted to under 4 feet (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.). Herbicide is applied from helicopters; these helicopters fly over only and do not and have not historically landed at NRS Jim Creek (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.; NAVFAC Public Works Facility Management Director et al., 2018, pers. comm.). An employee at NRS Jim Creek recalls that the frequency of application is approximately 3 times over a 10-year period (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.). An herbicide that has been used is Dow AgroSciences Garlon® 3A Specialty Herbicide (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.). Based on product labeling, Dow AgroSciences Garlon 3A Specialty Herbicide contains 44.4 percent "triclopyr" (3,5,6-trichloro-2-pyridinyloxyacetic acid, triethylamine salt) and 55.6 percent "other ingredients." It is unknown whether pesticides currently and historically applied at the Vegetation Control Area contained PFAS; however, application of this pesticide has been consistent with product labeling and its intended use. Based on currently-available information, NFA is recommended at this time.

Table 4-2. Areas Evaluated as Potential PFAS Source Areas at, NRS Jim Creek

Preliminary Assessment for Per- and Polyfluoroalkyl Substances at Naval Station Everett and Associated Special Areas

Area	Potential PFAS Source Area (Y/N)	Rationale
Chromium Plating Shops		
No chromium plating shops were identified at NAVSTA Everett.	N/A	N/A
Known or Potential PFAS Storage Locations		
Building 11	N	Building 11 at NRS Jim Creek (**Figure 6**), also known as Paint Shop, is an 800 square-foot storage building built in 1952 (Navy, 2018c). An NRS Jim Creek staff member recalls that it was used to store paint and thinners until approximately 2005 (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.). The quantity of materials stored was estimated to approximately 1,500 pounds (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.). During a January 2019 site visit, the building was observed to be self-contained with a berm across the door and no floor drain. There is no known storage or release of AFFF at this location (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.). It is unknown whether PFAS-containing paints are currently in use or have historically been used at this facility. However, there are no documented releases, and the building was observed to be self-contained. Therefore, NFA is recommended for this area.
Building 13	N	Building 13 at NRS Jim Creek (**Figure 4-2**) is a 4,800 square-foot operational storage and supply building built in 1953 (Navy, 2018c). Building 13 was used as a maintenance shop in the past and stored small quantities of related materials such as bar oil and chain saw oil (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.). The building is currently leased to the USCG (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.; Navy, 2018c) and has been since 2012 (Engineering Division Officer, USCG Port Security Unit 313, 2019, pers. comm.). The USCG unit affiliated with Building 13 is a deployable special forces unit that deploys outside the United States; the unit does not provide or have the capability/equipment to provide firefighting services at NRS Jim Creek or elsewhere (Engineering Division Officer, USCG Port Security Unit 313, 2019, pers. comm.). The USCG used Building 13 as a warehouse to store gear; no maintenance operations occur at Building 13 (Engineering Division Officer, USCG Port Security Unit 313, 2019, pers. comm.). There is no known storage or release of AFFF or PFAS-containing materials at this location; therefore, NFA is recommended for this area.
Building 74	N	Building 74 at NRS Jim Creek (**Figure 4-2**) is a 4,000 square-foot public works warehouse built in 1990 (Navy, 2018c). The building is used to store heavy equipment (such as large tractors and lawn mowers) as well as related maintenance equipment and oils (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.). There is no known storage or release of AFFF or large quantities of PFAS-containing materials at this location; therefore, NFA is recommended for this area.
Building 75	N	Building 75 at NRS Jim Creek (**Figure 4-2**) is an 840 square-foot hazardous waste building built in 1991 (Navy, 2018c). Building 75 is actively used to store hazardous materials including flammable materials, oils, and herbicides (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.). At the time of a January 2019 site visit, approximately 200 gallons of Dow AgroSciences Garlon 3A Specialty Herbicide were stored at Building 75. It is unknown whether PFAS-containing herbicides are currently in use or have historically been used at this facility. However, there are no documented releases at Building 75, and proper housekeeping and disposal practices have been observed within the building. Therefore, NFA is recommended for this area.

Table 4-2. Areas Evaluated as Potential PFAS Source Areas at, NRS Jim Creek

Preliminary Assessment for Per- and Polyfluoroalkyl Substances at Naval Station Everett and Associated Special Areas

Area	Potential PFAS Source Area (Y/N)	Rationale
Other		
Former Building 26 Controlled Burn	N	A former NRS Jim Creek employee recalled that Former Building 26 (**Figure 4-2**) was demolished in the early 1980s in a controlled burn undertaken in cooperation with the Arlington Fire Department (NRS Jim Creek Former Fire Chief and Safety Officer, 2019, pers. comm.). A review of historical imagery supports demolition of this building sometime between 1989 and 1998 (EDR, 2019). There is no recollection of AFFF being used during this controlled burn, only water (NRS Jim Creek Former Fire Chief and Safety Officer, 2019, pers. comm.). Therefore, NFA is recommended for this area.
Site 2 (Dielectric Fluid Spill)	N	Site 2 (Dielectric Fluid Spill Area) at NRS Jim Creek (**Figure 4-2**) is a spill area identified during a 1990 PA (NEESA, 1990). A small area was reportedly contaminated in 1985 with dielectric fluid containing PCBs (from a leaking transformer) (NEESA, 1990). Analysis of soil samples collected at the site previously did not show detections of PCBs, and NFA was recommended at the site (NEESA, 1990). Based on currently-available information, there is no reason to suspect a release of PFAS at Site 2; therefore, NFA is recommended.
Site 3 (Storage Shed Construction Area)	N	Site 3 (Storage Shed Construction Area) at NRS Jim Creek (**Figure 4-2**) is a potential spill area identified during a 1990 PA (NEESA, 1990). Based on visual soil staining and analysis of soil samples, a diesel spill appears to have occurred at this location (NEESA, 1990). Impacted soil was excavated in March of 1996 (NAVFAC, 2011). Based on currently-available information, there is no reason to suspect a release of PFAS at Site 3; therefore, NFA is recommended.
Site 9 (Small Arms Range)	N	Site 9 (Small Arms Range) at NRS Jim Creek (**Figure 4-2**) was formerly used for weapons qualification by the NRS Jim Creek security force (TEC, 2002). It was actively used from approximately 1950 until 1994 (TEC, 2002). There is no known storage or release of AFFF or large-quantities of PFAS-containing materials at this location; therefore, NFA is recommended for this area.
Cub Creek Reservoir Range	N	Cub Creek Reservoir Range at NRS Jim Creek (**Figure 4-2**) is a former small arms range (Malcome Pirnie, 2006). The range was primarily used by base guards until 1956 when it was closed (Malcome Pirnie, 2006). There is no known storage or release of AFFF or large-quantities of PFAS-containing materials at this location; therefore, NFA is recommended for this area.
Building 12	N	Building 12 at NRS Jim Creek (**Figure 4-2**) is a 4,800 square-foot building built in 1952 (Navy, 2018c). It is used as a public works building (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.). Based on a January 2019 site visit, the building is approximately 30-percent administrative space, with the remainder composed of small maintenance shop areas that have approximately three hazardous storage/flammables lockers. There is no storage of AFFF or large-quantities of PFAS-containing materials at this location (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.). NFA is recommended for this area.

Table 4-3. Areas Evaluated as Potential PFAS Source Areas at NRC Pacific Beach

Preliminary Assessment for Per- and Polyfluoroalkyl Substances at Naval Station Everett and Associated Special Areas

Area	Potential PFAS Source Area (Y/N)	Rationale
NRC Pacific Beach		
Firefighting Training Areas		
No Fire Training Areas were identified at NRC Pacific Beach	N/A	N/A
Fire Stations		
Building 106	Y	Building 106 at NRC Pacific Beach (**Figure 4-4**) is a 3,929 square foot building built in 1958 (Navy, 2018c). The building was originally constructed as part of the SOSUS facilities at the Boiler Plant, Garage (automotive repair shop), and Fire Station (Sackett, 2012). The dates of use as a fire station are unknown. It is presumed that Building 6 became operational as a fire station soon after it was constructed in 1958. See **Section 4.3** for additional information and **Section 5** for the recommended path forward.
Hangars		
No hangars are present at NRC Pacific Beach.	N/A	N/A
Buildings with AFFF Fire-suppression Systems		
No buildings with AFFF suppression systems were identified at NRC Pacific Beach.	N/A	N/A
Emergency Response Areas		
No emergency response areas were identified at NRC Pacific Beach.	N/A	N/A
AFFF Spray Test Areas		
No AFFF spray test areas were identified at NRC Pacific Beach.	N/A	N/A
Runways		
No runway areas were identified at NRC Pacific Beach.	N/A	N/A
Wastewater Treatment Plants and Associated Disposal Areas		
No wastewater treatment plants or associated disposal areas were identified at NRC Pacific Beach.	N/A	N/A

Table 4-3. Areas Evaluated as Potential PFAS Source Areas at NRC Pacific Beach
Preliminary Assessment for Per- and Polyfluoroalkyl Substances at Naval Station Everett and Associated Special Areas

Area	Potential PFAS Source Area (Y/N)	Rationale
NRC Pacific Beach		
Landfills and Waste Disposal Areas		
No landfills or waste disposal areas were identified at NRC Pacific Beach	N/A	N/A
Specialty Paint, Cleaner, or Pesticide Use or Release		
Suspected Paint Disposal Area	N	The Suspected Paint Disposal Area at NRC Pacific Beach (**Figure 4-4**) was identified in a 1991 PA of the installation (NEESA, 1991). The PA identified that waste generated from Building 102, which operated as a shop building and Building 126, (formerly served the purpose of paint storage, currently Hazardous/Flammable Storage House) were flushed into the municipal sewer (NEESA, 1991). In 1983, surface staining behind Building 102 was reported; however, no staining was evident during the 1991 PA site visits (NEESA, 1991). It is unknown whether paint was disposed at this location or whether the paint contained PFAS. Based on currently-available information, NFA is recommended for this area.
Chromium Plating Shops		
No chromium plating shops were identified at NAVSTA Everett.	N/A	N/A
Known or Potential PFAS Storage Locations		
Building 126	N	Building 126 at NRC Pacific Beach (**Figure 4-4**) is a 200 square-foot hazardous and flammable storage building built in 1960 (Navy, 2018c). It has been identified in the past as "Paint Locker" (Sacket, 2012) and "Paint Storage" (NEESA, 1991). Based on information provided by the NAVSTA Everett Hazardous Waste Supervisor (NAVSTA Everett Environmental Operations Supervisor, 2019, pers. comm.), no AFFF or other known PFAS-containing chemicals are currently stored at NRC Pacific Beach. A review of the 2017 Authorized Use List for NRC Pacific Beach[d] did not identify any AFFF or known PFAS-containing chemicals authorized for purchase by NRC Pacific Beach. This building appears to have been used for paint storage as early as 1991 (NEESA, 1991). The building does not have secondary containment (NRC Pacific Beach Public Works Employee, 2019, pers. comm.). It cannot be confirmed whether paint currently and historically stored in Building 26 has or has not contained PFAS. Based on currently-available information, NFA is recommended for this area.
Other		
Northern Drainage Ravine	N	The Northern Drainage Ravine at NRC Pacific Beach (**Figure 4-4**) was identified in a 1991 PA of the installation as an area that contained a "considerable amount of construction debris" (NEESA, 1991). It is located outside of the NRC Pacific Beach installation boundaries. This area was identified in a 1956 drawing as the planned disposal area for demolished buildings during reconstruction of the base in the 1950s (NEESA, 1991). AFFF was not in use in the 1950s, and use of other PFAS-containing materials was not prevalent (ITRC, 2017). NFA is recommended for this ravine because (a) there is no evidence of PFAS-containing materials being released to the environment, and (b) it is not on property owned by the Navy.

Table 4-3. Areas Evaluated as Potential PFAS Source Areas at NRC Pacific Beach

Preliminary Assessment for Per- and Polyfluoroalkyl Substances at Naval Station Everett and Associated Special Areas

Area	Potential PFAS Source Area (Y/N)	Rationale
NRC Pacific Beach		
Southern Drainage Ravine	N	The Southern Drainage Ravine at NRC Pacific Beach (**Figure 4-4**) was identified in a 1991 PA of the installation as a suspected construction debris disposal area (NEESA, 1991). It is partially located outside of the NRC Pacific Beach installation boundary. As with the Northern Drainage Area, this debris is anticipated to be related to base reconstruction in the 1950s (NEESA, 1991). AFFF was not in use in the 1950s, and use of other PFAS-containing materials was not prevalent (ITRC, 2017). NFA is recommended for this area.
Hazmat Storage Magazine (Bunker Area)	N	The Hazmat Storage Magazine (Bunker Area) at NRC Pacific Beach (**Figure 4-4**) was identified in a 1991 PA of the installation (NEESA, 1991). This area was a small arms magazine built in 1956 (no facility number) (Sackett, 2012). In 1991 this small arms magazine was being used as the hazardous waste storage facility for the installation. The concrete floor was covered with a plastic tarp, but the facility did not meet federal requisites for a hazardous waste facility (NEESA, 1991). At the time, the building was used for storage of pesticides, solvents, and paints (NEESA, 1991). It is unknown whether PFAS-containing pesticides were stored in this storage magazine. The building is no longer used for storage (NRC Pacific Beach Public Works Employee, 2019, pers. comm.). Based on currently-available information regarding installation history, NFA is recommended for this area.

Notes:

[a] Questionnaires documenting interviews will be included in the PA report.

[b] The 2017 AUL (provided by NAVSTA Everett staff [NAVSTA Everett NAVSUP Employee, 2019, pers. comm.]) lists AFFF as an authorized use product for the Fire Station only.

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FTA = Firefighting Training Area

MWR = Morale, Welfare, and Recreation

NEX = Navy Exchange

PSNS & IMF = Puget Sound Naval Shipyard & Intermediate Maintenance Facility

SERF = Support Equipment Repair Facility

SOSUS = Sound Surveillance System

4.3 Potential PFAS Release Areas

This section presents further evaluation of the 1 area at NAVSTA Everett, 6 areas at NRS Jim Creek, and 1 area at NRC Pacific Beach that were identified as potential PFAS source areas and recommended for further evaluation (**Table 4-1**).

4.3.1 Naval Station Everett

Building 2114

Description and Operational History

Building 2114 (**Figure 4-5**) is the current and only fire station that has operated at NAVSTA Everett. The station was built in 1993 and is 14,082 square feet (Navy, 2018c). Five fire trucks are stationed at Building 2114 (NAVSTA Everett Fire Chief, 2018, pers. comm.). Foam tanks on three of these fire trucks were observed to be full of AFFF installed during the December 2018 site visit. The approximate geographic coordinates for Building 2114 are provided in **Appendix B-4**.

Potential for PFAS Storage, Use, or Release

The fire department does not currently store AFFF outside of the fire engine tanks; however, AFFF concentrate has historically been stored in Building 2114 (NAVSTA Everett Fire Chief, 2018, pers. comm.). AFFF concentrate was stored at Building 2114 in an upper-floor, ladder-access storage room; the NAVSTA Everett Fire Chief confirmed that 50-100 gallons of AFFF, in 5-gallon containers, were stored at one time at Building 2114 (NAVSTA Everett Fire Chief, 2018, pers. comm.). There is uncertainty regarding when AFFF was stored in this location. It was noted during the December 2018 site visit that no drains are present in the storage room. The Assistant Chief of Operations and others interviewed did not recall any use, training, or response, since approximately 2008 (NAVSTA Everett Fire Chief, 2018, pers. comm.). There were no reported spills or releases of AFFF associated with Building 2114; however, as noted above AFFF has historically been stored in Building 2114 and at similar facilities, firefighters fill the foam tanks by directly transferring AFFF from 5-gallon containers into fire trucks. During the site visit, containers of AFFF was not observed at any location surveyed at NAVSTA Everett.

Migration Pathway and Exposure Assessment

Groundwater

AFFF transfer may have occurred on the fire station truck ramps and aprons located northwest of Building 2114. AFFF spilled or released during transfer, could potentially infiltrate into the subsurface within the unpaved areas to the northwest of Building 2114 and then potentially into the surficial aquifer. Any cracks or joints in the paved surface or base storm sewer system could provide an alternate pathway to groundwater.

Groundwater flow near Building 2114 is assumed to mimic the topography and flow toward the south to southwest toward Port Gardner Bay (**Figure 4-5**). The depth to groundwater at Building 2114 is unknown because of a lack of groundwater monitoring wells in the immediate vicinity. There are no active drinking or supply wells on NAVSTA Everett, and it is unlikely that there are drinking water wells downgradient of Building 2114.

Workers and visitors are present at Building 2114 and workers, visitors, and residents are present within 1 mile. If depth to groundwater at Building 2114 is shallower than 15 feet bgs, it is possible that construction workers could be exposed to PFAS-contaminated groundwater during excavation or other construction-related activities. If additional evaluation identifies impacted groundwater at Building 2114, an assessment will be conducted to determine if the exposure pathway is complete for identified receptors.

Soil and Air

AFFF spilled or released during transfer, likely conducted on the fire truck ramp, could potentially impact soil within the unpaved areas northwest of the Building 2114.

Workers and visitors are present at Building 2114 while workers, visitors, and residents are within 1 mile. Additionally, fugitive dust emissions may occur during dry periods. Construction or other ground-disturbing activities could result in potential future worker exposure to dust. If additional evaluation identifies impacted soil at Building 2114, an assessment will be conducted to determine if the exposure pathway is complete for identified receptors.

Sediment and Surface Water

The area surrounding Building 2114 is generally flat; however, localized slopes are designed to direct surface water towards stormwater infrastructure (**Figure 4-5**). Any liquids, including AFFF, released on the fire truck ramp would flow overland to the northwest towards Spruance Boulevard. Surface flow along Spruance Boulevard near the fire truck ramp is directed to two stormwater catch basins located along the southeast side of Spruance Boulevard (**Figure 4-5**). Stormwater catch basins in this portion of the installation are assumed to discharge to Port Gardner Bay, providing a potential pathway to sediment and surface water. Additionally, shallow groundwater in this portion of the installation is likely hydraulically connected to Port Gardner Bay providing an alternate pathway to sediment and surface water. There are no other ditches, ponds, or other smaller surface water bodies in the vicinity that could be impacted.

Workers and visitors are present at the Building 2114 while workers, visitors, and residents are within 1 mile. If additional evaluation identifies impacted surface water at Building 2114, an assessment will be conducted to determine if the exposure pathway is complete for identified receptors.

Recommendation

Based on similar practices of AFFF transfer at other Navy bases during the same time period, and the lack of available information for the handling and training practices prior to 2008, spills or leaks may have occurred during the transfer of AFFF into fire trucks. Therefore, further investigation is recommended at Building 2114 as part of an SI.

4.3.2 Naval Radio Station Jim Creek

Building 6

Description and Operational History

Building 6 at Jim Creek (**Figure 4-6**) is a 5,780 square-foot building built in 1952 (Navy, 2018c) that served as the former fire station. The building is currently used as a fitness center, short-term rental apartments, and a MWR maintenance shop. Building 6 was originally an active fire station staffed by a permanent fire crew (NRS Jim Creek Former Fire Chief and Safety Officer, 2019, pers. comm.)[b]. In about 1984 or 1985, the station was converted to a volunteer crew, and in 1999 firefighting operations ceased when the NAVSTA Everett Fire Department assumed responsibility for firefighting at NRS Jim Creek (NRS Jim Creek Former Fire Chief and Safety Officer, 2019, pers. comm.). The approximate geographic coordinates for Building 6 are provided in **Appendix B-4**.

Potential for PFAS Storage, Use, or Release

A former NRS Jim Creek fire chief and safety officer (who served in various roles on base as early as 1982) recalled one permanent fire truck at the fire station; it was a brush truck and used only water (no AFFF) (NRS Jim Creek Former Fire Chief and Safety Officer, 2019, pers. comm.). A former volunteer fire fighter from 1991 to approximately 1999 recalled that the fire truck was a model from the 1970s (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.). The Department of Natural Resources (DNR) also parked a fire truck at Building 6 for one winter (NRS Jim Creek Former Fire Chief and Safety Officer, 2019, pers. comm.; NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.). It is unknown whether the DNR truck was equipped with AFFF; however, it never responded to any fires at NRS Jim Creek (NRS Jim Creek Former Fire Chief and Safety Officer, 2019, pers. comm.). A former fire chief who served from 1976 to 1986 recalled that approximately 10, 5-gallon containers of AFFF concentrate were stored in Building 6 on racks when he took over as fire chief (NRS Jim Creek Former Fire Chief #2, 2019, pers. comm.). He recalled that a couple of these containers were leaky and were set

outside and washed down. He did not recall any use of AFFF or transfer to equipment. Former firefighters who served from 1982 until firefighting operations ceased in 1999 did not recall any storage or use of AFFF at NRS Jim Creek during their tenure (NRS Jim Creek Former Fire Chief and Safety Officer, 2019, pers. comm.; NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.).

Migration Pathway and Exposure Assessment

Groundwater

Leaking AFFF containers have been documented in the vicinity of Building 6 (NRS Jim Creek Former Fire Chief and Safety Officer, 2019, pers. comm.). AFFF could have potentially infiltrated into the subsurface within the unpaved areas west of Building 6 and then potentially into the surficial aquifer. The AFFF may have been transported to a nearby stormwater catch basin, and any cracks in the storm drains could provide an alternate pathway to groundwater.

The groundwater flow near Building 6 is assumed to mimic the topography and flow towards the southwest toward Jim Creek. (**Figure 4-6**). Depth to groundwater at Building 6 is unknown. The on-Base drinking water well is located cross gradient from Building 6 to the east and there are no off-Base drinking water wells identified downgradient (**Figure 4-2**).

Workers and visitors are present at Building 6 while workers, visitors, recreators and residents are present within 1 mile. If the depth to groundwater at Building 6 is shallower than 15 feet bgs, it is possible that construction workers could be exposed to PFAS-contaminated groundwater during excavation or other construction-related activities. If additional evaluation identifies impacted groundwater at Building 6, an assessment will be conducted to determine if the exposure pathway is complete for identified receptors.

Soil and Air

AFFF during rinsing of containers could potentially impact soil within the unpaved areas surrounding Building 6. Workers and visitors are present at Building 6, and workers, visitors, recreators and residents are within 1 mile. If additional evaluation identifies impacted soil at Building 6, an assessment will be conducted to determine if the exposure pathway is complete for identified receptors. Additionally, fugitive dust emissions may occur during dry periods. Construction or other ground-disturbing activities could result in potential future worker exposure to dust.

Sediment and Surface Water

The area surrounding Building 6 is generally flat with a gradual slope to the west/southwest toward Jim Creek with surface water flows fanning to the southwest, northwest, and south/southeast as shown in **Figure 4-6**. Water and other liquids, including AFFF, could potentially continue to flow into a stormwater catch basin located southwest of the building, other lower lying catchments and/or Jim Creek. Additionally, there is a drainage ditch located to the south of the building which flows toward the southeast. Additionally, shallow groundwater in this portion of the installation is likely hydraulically connected to Jim Creek, providing an alternate pathway to sediment and surface water.

Workers, visitors are present at Building 6, while workers, visitors, recreators and residents are present within 1 mile. If additional evaluation identifies impacted sediment or surface water at Building 6, an assessment will be conducted to determine if the exposure pathway is complete for identified receptors.

Recommendation

Based historical knowledge of AFFF containers being rinsed outside Building 6, further investigation is recommended at Building 6 as part of an SI.

Site 1 (Building 11 Landfill)

Description and Operational History

Site 1 (Building 11 Landfill) at NRS Jim Creek (**Figure 4-7**) is an approximately 1,000 square-foot abandoned landfill identified during a 1990 PA (NEESA, 1990). The area was used as an unlined landfill from the mid-1950s until 1984 when it was covered with an approximately 2-foot-thick uncompacted soil cover (NEESA, 1990). The approximate geographic coordinates for Site 1 are are provided in **Appendix B-4**.

Potential for PFAS Storage, Use, or Release

Facility personnel interviewed at the time of the 1990 PA recalled that the landfill was only used for disposal of steel "bulldozer" parts, asphalt, concrete, and soil (NEESA, 1990), but this has not been confirmed. An NRS Jim Creek employee interviewed for this PFAS PA recalled that before 1991, no waste left the base (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.). No records were available for review that would confirm disposal of AFFF or other PFAS-containing chemicals at the landfill. However, the landfill was in use when AFFF was known to be used by the Navy and present at NRS Jim Creek. Because no waste left NRS Jim Creek until after 1991, it is possible that the AFFF containers may have been from Building 6 were disposed of at this landfill.

Migration Pathway and Exposure Assessment

Groundwater

If AFFF or other PFAS-containing materials were disposed of at Site 1 (Building 11 Landfill), AFFF or PFAS would have been released directly into the subsurface and could have potentially leached into the Shallow aquifer at this location.

The groundwater flow near Site 1 (Building 11 Landfill) is assumed to mimic the topography and flow towards the southwest toward Jim Creek (**Figure 4-7**). Any liquids released at the landfill, including AFFF, would have infiltrated into the subsurface and potentially into the shallow aquifer. Depth to groundwater at Building 11 Landfill is unknown. Although there is a drinking water supply well at Jim Creek (located south of Building 75), there are no on or off-base drinking water wells immediately downgradient of Building 11 Landfill (**Figure 4-2**).

Workers and visitors are present at Site 1 while workers, visitors, recreators and residents are within 1 mile. If additional evaluation identifies impacted groundwater at Building 11 Landfill, an assessment will be conducted to determine if the exposure pathway is complete for identified receptors.

If the depth to groundwater at Building 11 Landfill is shallower than 15 feet bgs, it is possible that construction workers could be exposed to PFAS-contaminated groundwater during excavation or other construction-related activities.

Soil and Air

AFFF spilled or released during disposal could potentially impact soil within the unlined landfill. Workers and visitors are present at Site 1 while workers, visitors, recreators and residents are within 1 mile. If additional evaluation identifies impacted soil at Site 1 (Building 11), an assessment will be conducted to determine if the exposure pathway is complete for identified receptors. Additionally, fugitive dust emissions may occur during dry periods. Construction or other ground-disturbing activities could result in potential future worker exposure to dust.

Sediment and Surface Water

Materials disposed of at the Site 1 (Building 11 Landfill) were disposed of in the subsurface; therefore, PFAS impact to surface water through runoff or overland flow is unlikely. However, shallow groundwater in this portion of the installation is assumed to be hydraulically connected to Jim Creek, which provides a potential pathway to sediment and surface water. The area surrounding Site 1 (Building 11 Landfill) is generally flat with a gradual slope to the southwest toward Jim Creek as shown in **Figure 4-7**. If a release of PFAS constituents, namely AFFF

occurred, then water and other liquids could potentially continue to flow into unpaved ditches located southwest and west of the building, other lower lying catchments and/or Jim Creek.

Workers and visitors are present at Site 1 while workers, visitors, recreators and residents are within 1 mile. If additional evaluation identifies impacted sediment or surface water at Building 11 Landfill, an assessment will be conducted to determine if the exposure pathway is complete for identified receptors.

Recommendations

Based on the presence of AFFF at NRS Jim Creek during the time of use of this landfill, and because no waste left the base until after 1991, further investigation is recommended at Site 1 (Building 11 Landfill) as part of an SI.

Site 6 (Blue Campground Landfill)

Description and Operational History

Site 6 (Blue Campground Landfill) at NRS Jim Creek (**Figure 4-8**) is an approximately 160 square-foot abandoned landfill identified during a 1990 PA. The landfill is believed to have been in use prior to 1976; the composition and quantity of waste disposed here are unknown. An approximately 2-foot-thick uncompacted soil cover was placed over Site 6 in 1984 (NEESA, 1990). An NRS Jim Creek employee interviewed for this PFAS PA recalled that prior to 1991, no waste left the base (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.). The approximate geographic coordinates for Site 6 are provided in **Appendix B-4**.

Potential for PFAS Storage, Use, or Release

No records were available for review that would confirm disposal of AFFF or other PFAS-containing chemicals at the landfill. However, the landfill was in use when AFFF was known to be used by the Navy and present at NRS Jim Creek. Because no waste left NRS Jim Creek until after 1991, it is possible that the AFFF containers may have been from Building 6 were disposed of at this landfill.

Migration Pathway and Exposure Assessment

Groundwater

If AFFF or other PFAS-containing materials were disposed of at Site 6 (Blue Campground Landfill), AFFF or PFAS would have been released directly into the subsurface and could have potentially leached into the Shallow aquifer at this location.

The groundwater flow near Site 6 (Blue Campground Landfill) is assumed to mimic the topography and flow towards the northeast toward Jim Creek (**Figure 4-8**). Depth to groundwater at Site 6 is unknown. The general topography surrounding Site 6 is northeast toward Jim Creek. Any liquids released at the landfill, including AFFF, would have infiltrated into the subsurface and potentially into the shallow aquifer. Although there is a drinking supply well at Jim Creek (located south of Building 75), there are no on or off-base drinking water wells immediately downgradient of Site 6 (**Figure 4-2**).

Workers and visitors are present at Site 6 while workers, visitors, recreators, and residents are within 1 mile. If additional evaluation identifies impacted groundwater at Site 6, an assessment will be conducted to determine if the exposure pathway is complete for identified receptors.

If the depth to groundwater at Site 6 is shallower than 15 feet bgs, it is possible that construction workers could be exposed to PFAS-contaminated groundwater during excavation or other construction-related activities.

Soil and Air

AFFF spilled or released during disposal could potentially impact soil within the unlined landfill. Workers and visitors are present at Site 6 while workers, visitors, recreators and residents are within 1 mile. If additional evaluation identifies impacted soil at Site 6 (Blue Campground Landfill), an assessment will be conducted to determine if the exposure pathway is complete for identified receptors. Additionally, fugitive dust emissions may occur during dry periods. Construction or other ground-disturbing activities could result in potential future worker exposure to dust.

Sediment and Surface Water

Materials disposed of at the Site 6 were disposed of in the subsurface; therefore, PFAS impact to surface water through runoff or overland flow is unlikely. However, shallow groundwater in this portion of the installation is assumed to be hydraulically connected to Jim Creek, which provides a potential pathway to sediment and surface water. The area surrounding Site 6 (Blue Campground Landfill) is generally flat with a gradual slope to the northeast toward Jim Creek. Water and other liquids could potentially continue to flow into unpaved lower lying depressions and/or Jim Creek. Workers and visitors may be present at Site 6 while workers, visitors, and residents are within 1 mile. If additional evaluation identifies impacted sediment or surface water at Site 6, an assessment will be conducted to determine if the exposure pathway is complete for identified receptors.

Recommendations

Based on the presence of AFFF at NRS Jim Creek during the time of use of this landfill, and because no waste left the base until after 1991, further investigation is recommended at Site 6 (Blue Campground Landfill) as part of an SI.

Site 7 (Pit Road Landfill)

Description and Operational History

Site 7 (Pit Road Landfill) at NRS Jim Creek (**Figure 4-8)** is an approximately 4,200 square-foot abandoned landfill identified during a 1990 PA (NEESA, 1990). The landfill is believed to have been in use prior to 1976, and in 1984 it was covered with an approximately 2-foot-thick uncompacted soil cover (NEESA, 1990). The following materials were identified during a site visit in support of the 1990 PA: plastic cable casings, concrete fragments, tires, asphalt fragments, empty metal 10-gallon containers, furniture, lumber, scrap metal, and steel cable (NEESA, 1990). An NRS Jim Creek employee interviewed for this PFAS PA recalled that prior to 1991, no waste left the base (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.). The approximate geographic coordinates for Site 7 are provided in **Appendix B-4**.

Potential for PFAS Storage, Use, or Release

No records were available for review that would confirm disposal of AFFF or other PFAS-containing chemicals at the landfill. However, the landfill was in use when AFFF was known to be used by the Navy and present at NRS Jim Creek. Because no waste left NRS Jim Creek until after 1991, it is possible that the AFFF containers may have been from Building 6 were disposed of at this landfill.

Migration Pathway and Exposure Assessment

Groundwater

If AFFF or other PFAS-containing materials were disposed of at Site 7 (Pit Road Landfill), AFFF or PFAS would have been released directly into the subsurface and could have potentially leached into the Shallow aquifer at this location.

The groundwater flow near Site 7 (Pitt Road Landfill) is assumed to mimic the topography and flow towards the north/northwest toward Cub Creek (**Figure 4-8**). Depth to groundwater at Site 7 is unknown. Although there is a drinking water supply well at Jim Creek (located south of Building 75), there are no on or off-Base drinking water wells immediately downgradient of Site 7 Pit Road Landfill (**Figure 4-2**).

Workers and visitors may be present at Site 7 while workers, visitors, and residents are within 1 mile. If additional evaluation identifies impacted groundwater at Site 7 an assessment will be conducted to determine if the exposure pathway is complete for identified receptors.

If the depth to groundwater at Site 7 is shallower than 15 feet bgs, it is possible that construction workers could be exposed to PFAS-contaminated groundwater during excavation or other construction-related activities.

Soil and Air

AFFF spilled or released during disposal could potentially impact soil within the unlined landfill. Workers and visitors may be present at Site 7 while workers, visitors, and residents are within 1 mile. If additional evaluation identifies impacted soil at Site 7 (Pit Road Landfill), an assessment will be conducted to determine if the exposure pathway is complete for identified receptors. Additionally, fugitive dust emissions may occur during dry periods. Construction or other ground-disturbing activities could result in potential future worker exposure to dust.

Sediment and Surface Water

Materials disposed of at the Site 7 (Pit Road Landfill) were disposed of in the subsurface; therefore, PFAS impact to surface water through runoff or overland flow is unlikely. However, shallow groundwater in this portion of the installation is assumed to be hydraulically connected to Cub Creek, which provides a potential pathway to sediment and surface water. The area surrounding Site 7 is slopes towards the northwest toward Cub Creek. With enough flow volume, water and other liquids could potentially continue to flow into other lower lying catchments and/or Cub Creek and eventually Jim Creek.

Workers and visitors may be present at Site 7 while workers, visitors, recreators and residents are within 1 mile. If additional evaluation identifies impacted sediment or surface water at Site 7 (Pit Road Landfill), an assessment will be conducted to determine if the exposure pathway is complete for identified receptors.

Recommendations

AFFF was present at NRS Jim Creek and based on the operational timeframe of the Pit Road Landfill Site 7 and because no waste left the base until after 1991, further investigation is recommended at Site 7 (Pit Road Landfill) as part of an SI.

Bio Pit Disposal Area

Description and Operational History

The “Bio Pit” Disposal Area at NRS Jim Creek (**Figure 4-8**) is an active disposal area for grass clippings and other plant debris. Initial timeframe of use of this area for disposal is unknown. Sludge removed from stormwater catch basins at NRS Jim Creek is also disposed in this area (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.). The approximate geographic coordinates for the Bio Pit Disposal Area are provided in **Appendix B-4**.

Potential for PFAS Storage, Use, or Release

No records were available for review that would confirm disposal of AFFF or other PFAS-containing chemicals at the Bio Pit disposal area. While the disposal area was in use when AFFF was known to be used by the Navy at NRS Jim Creek, there is no evidence that AFFF or other PFAS-containing chemicals were released, or migrated to any catch basins at NRS Jim Creek. Therefore, the viability of release of AFFF or other PFAS-containing chemicals at the Bio Pit Disposal Area is unlikely.

Recommendations

AFFF was present at NRS Jim Creek based on the operational timeframe of the Bio Pit Disposal Area. There is no confirmation that AFFF or other PFAS-containing chemicals were released, or migrated to any catch basins at NRS Jim Creek therefore; further evaluation during the SI it is not recommended at this time. If results of an SI indicate presence of AFFF or PFAS-containing chemicals associated with Building 6 migrated to the catch basin, the Bio Pit Disposal Area will be recommended for further evaluation.

Site 4 (Metal Burial Pit)

Description and Operational History

Site 4 (Metal Burial Pit) at NRS Jim Creek (**Figure 4-9**) is an approximately 3,600 square-foot abandoned disposal area identified during a 1990 PA. Site 4 was an unlined natural depression that was reportedly in use as a disposal area prior to 1976 until 1984, when it was covered with an approximately 2-foot-thick uncompacted soil cover. The type and quantity of material disposed at this location are unknown (NEESA, 1990). An NRS Jim Creek

employee interviewed for this PFAS PA recalled that prior to 1991, no waste left the base (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.). The approximate geographic coordinates for Site 4 are provided in **Appendix B-4**.

Potential for PFAS Storage, Use, or Release

No records were available for review that would confirm disposal of AFFF or other PFAS-containing chemicals at the disposal area. However, the disposal area was in use when AFFF was known to be used by the Navy and present at NRS Jim Creek. Because no waste left NRS Jim Creek until after 1991, it is possible that AFFF containers from Building 6, as presented above under section 4.3.2 , may have been disposed of at this landfill.

Migration Pathway and Exposure Assessment

Groundwater

If AFFF or other PFAS-containing materials were disposed of at Site 4 (Metal Burial Pit), AFFF or PFAS would have been released directly into the subsurface and could have potentially leached into the Shallow aquifer at this location.

The groundwater flow near Site 4 (Metal Burial Pit) is assumed to mimic the topography and flow towards the southwest toward Jim Creek (**Figure 4-9**). Depth to groundwater at the Site 4 Metal Burial Pit is unknown. Although there is a drinking water supply well at Jim Creek (located south of Building 75), there are no on or off-drinking water wells immediately downgradient of Site 4 Metal Burial Pit (**Figure 4-3**).

Workers and visitors may be present at Site 4 while workers, visitors, recreators, and residents are within 1 mile. If additional evaluation identifies impacted groundwater at Site 4 Metal Burial Pit, an assessment will be conducted to determine if the exposure pathway is complete for identified receptors.

If the depth to groundwater at Site 4 is shallower than 15 feet bgs, it is possible that construction workers could be exposed to PFAS-contaminated groundwater during excavation or other construction-related activities.

Soil and Air

AFFF spilled or released during disposal could potentially impact soil within the unlined burial pit. Workers and visitors may be present at Site 4 while workers, visitors, recreators and residents are within 1 mile. If additional evaluation identifies impacted soil at Site 4 (Metal Burial Pit), an assessment will be conducted to determine if the exposure pathway is complete for identified receptors. Additionally, fugitive dust emissions may occur during dry periods. Construction or other ground-disturbing activities could result in potential future worker exposure to dust.

Sediment and Surface Water

The Site 4 Metal Burial Pit is a depression and is expected to collect in localized surface water flow. The area surrounding Metal Burial Pit is generally flat with a gradual slope to the southwest toward Jim Creek as shown in **Figure 4-9**. Materials disposed of at the Site 4 (Metal Burial Pit) were disposed of in the subsurface; therefore, PFAS impact to surface water through runoff or overland flow is unlikely. However, shallow groundwater in this portion of the installation is assumed to be hydraulically connected to Jim Creek, which provides a potential pathway to sediment and surface water. Water and other liquids could potentially continue to flow into other lower lying depressions and ultimately accumulate along the ditch alongside Jim Creek Road

Workers and visitors may be present at Site 4 while workers, visitors, recreators and residents are within 1 mile. If additional evaluation identifies impacted sediment or surface water at Site 4 (Metal Burial Pit), an assessment will be conducted to determine if the exposure pathway is complete for identified receptors.

Recommendations

AFFF was present at NRS Jim Creek and based on the operational timeframe of the Metal Burial Pit and because no waste left the base until after 1991, further investigation is recommended at Site 4 (Metal Burial Pit) as part on an SI.

Site 5 (Mixed Waste Landfill)

Description and Operational History

Site 5 (Mixed Waste Landfill) at NRS Jim Creek (**Figure 4-9**) is an approximately 20,000 square-foot abandoned landfill identified during a 1990 PA. Site 5 was an unlined landfill historically used for the disposal of NRS Jim Creek's waste material during 1976 to 1984 when it was covered by 2-foot thick soil cover (NEESA, 1990). While the type and quantity of disposed material that was disposed at this location is unknown, it is believed to include oils, greases, solvents, and paint sludges because these materials were historically generated at NRS Jim Creek in small quantities (NEESA, 1990). According to facility personnel interviewed for the 1990 PA, the landfill contains approximately 8 feet of debris (NEESA, 1990). Empty 55-gallon drums (potentially herbicide storage containers) and electrical transformers were identified in the fill material during final cover operations in 1984 (NEESA, 1990). An NRS Jim Creek employee interviewed for this PFAS PA recalled that prior to 1991, no waste left the base (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.). The approximate geographic coordinates for Site 5 are provided in **Appendix B-4**.

Potential for PFAS Storage, Use, or Release

No records were available for review that would confirm disposal of AFFF or other PFAS-containing chemicals at the disposal area. However, the disposal area was in use when AFFF was known to be used by the Navy, and present at NRS Jim Creek. Because no waste left NRS Jim Creek until after 1991, it is possible that the AFFF containers may have been from Building 6 were disposed of at this landfill.

Migration Pathway and Exposure Assessment

Groundwater

If AFFF or other PFAS-containing materials were disposed of at Site 5 (Mixed Waste Landfill), AFFF or PFAS would have been released directly into the subsurface and could have potentially leached into the Shallow aquifer at this location. The groundwater flow near Site 5 (Mixed Waste Landfill) is assumed to mimic the topography and flow towards the southwest toward Jim Creek (**Figure 4-9**). Depth to groundwater at Mixed Waste Landfill is unknown. Although there is a drinking water supply well at Jim Creek (located south of Building 75), there are no on or off-base drinking water wells immediately downgradient of Site 5 (**Figure 4-9).**

Workers and visitors may be present at Site 5 while workers, visitors, recreators and residents are within 1 mile. If additional evaluation identifies impacted groundwater at Mixed Waste Landfill, an assessment will be conducted to determine if the exposure pathway is complete for identified receptors.

If the depth to groundwater at Mixed Waste Landfill is shallower than 15 feet bgs, it is possible that construction workers could be exposed to PFAS-contaminated groundwater during excavation or other construction-related activities.

Soil and Air

AFFF spilled or released during disposal could potentially impact soil within the unlined landfill. Workers and visitors may be present at Site 5 while workers, visitors, recreators and residents are within 1 mile. If additional evaluation identifies impacted soil at Site 5 (Mixed Waste Landfill), an assessment will be conducted to determine if the exposure pathway is complete for identified receptors. Additionally, fugitive dust emissions may occur during dry periods. Construction or other ground-disturbing activities could result in potential future worker exposure to dust.

Sediment and Surface Water

The area surrounding Site 5 is generally flat with a gradual slope toward the southwest toward Jim Creek as shown in **Figure 4-9**. Water and other liquids could potentially continue to flow into other lower lying depressions and ultimately accumulate along the ditch alongside Flats Road.

Workers and visitors may be present at Site 5 while workers, visitors, recreators and residents are within 1 mile. If additional evaluation identifies impacted sediment or surface water at Site 5 (Mixed Waste Landfill), an assessment will be conducted to determine if the exposure pathway is complete for identified receptors.

Recommendations

AFFF was present at NRS Jim Creek and based on the operational timeframe of Site 5 and because no waste left the base until after 1991, further investigation is recommended at Site 5 (Mixed Waste Landfill) as part on an SI.

4.3.3 Pacific Beach

Building 106

Description and Operational History

Building 106 at NRC Pacific Beach (**Figure 4-10**) is a 3,929 square foot building built in 1958 (Navy, 2018c). Building 106 is currently the Public Works Storage building (Navy, 2018c). The building was originally constructed as part of the SOSUS facilities at the Boiler Plant, Garage (automotive repair shop), and Fire Station. The building is divided into 5 bays. Bay 1 on the south end of the building originally serviced the fire truck (Sackett, 2012). Bay 1 has large sectional overhead garage doors on the front and rear of the building that provided pull through access for the fire truck. Bay 5 at the north end of the building served as the boiler plant for the SOSUS facility (Sackett, 2012). The south end of Building 106 is currently used by MWR for storage and maintenance of grounds equipment (such as lawn mowers) and some flammable storage; the northern portion of the building is currently used as a recycling center (NRC Pacific Beach Public Works Employee, 2019, pers. comm.). The approximate geographic coordinates for Building 106 are provided in **Appendix B-4.**

The dates of use as a fire station are unknown. It is presumed that Building 6 was operational as a fire station soon after it was constructed in 1958. The SOSUS facility at NRC Pacific Beach was decommissioned in 1987; most of the facility, including Building 106, was turned over to NAVSTA Everett for management at this time (NAVFAC, 2017). A skeleton SOSUS crew remained at NRC Pacific Beach at Building 104 and Building 105 until 2011 when those buildings were also turned over to NAVSTA Everett for management (NAVFAC, 2017). To date, no current or former Navy employees who recall use of this building as a fire station have been identified; as such, the use of AFFF at this fire station could not be determined.

Potential for PFAS Storage, Use, or Release

According to interviews with former Navy employees at NRC Pacific Beach, there was no known storage, use or release of AFFF at this site. However, the operational timeframe of Building 106 as a fire station, from the late 1950s through the 1980s, spans the timeframe in which AFFF has been used by the Navy. At similar Naval fire stations, where there is no record of AFFF storage, use, or release, PFAS has been detected in site media nonetheless. As such, the potential for AFFF storage, use, or release during the fire station operation cannot be eliminated.

Migration Pathway and Exposure Assessment

Groundwater

A shallow aquifer is present between 10 and 25 feet below the surface, and several monitoring wells are screened within this interval. Static water levels at these wells indicate that water table is between 10 and 15 feet bgs and that the groundwater flow direction is to the northwest/west toward the Pacific Ocean (Foster Wheeler, 1997). There is a limited number of water supply wells in the vicinity of Pacific Beach; however, no identified off-Base drinking water wells are downgradient (**Figure 4-4**). Historically, there were two on-Base water supply wells (now decommissioned) that were screened at 163 to 168 bgs.

AFFF transfer and truck/equipment washing activities may have occurred outside Building 106. Even though not reported, minor spills and releases of AFFF may have occurred. The area surrounding Building 106 is paved and it

is unknown if there are storm drains in the vicinity. Any cracks or joints in the paved surface or potential storm sewer system could provide an alternate pathway to groundwater.

Workers, visitors, recreators and residents may be present at Building 106 or within 1 mile. If additional evaluation identifies impacted groundwater at Building 106, an assessment will be conducted to determine if the exposure pathway is complete for identified receptors.

Soil and Air

AFFF spilled or released during transfer could potentially impact soil within the unpaved area south and northwest of Building 106 (**Figure 4-10**). Workers, visitors, recreators and residents may be present at Building 106 or within 1 mile. If additional evaluation identifies impacted soil at Building 106, an assessment will be conducted to determine if the exposure pathway is complete for identified receptors. Additionally, fugitive dust emissions may occur during dry periods. Construction or other ground-disturbing activities could result in potential future worker exposure to dust.

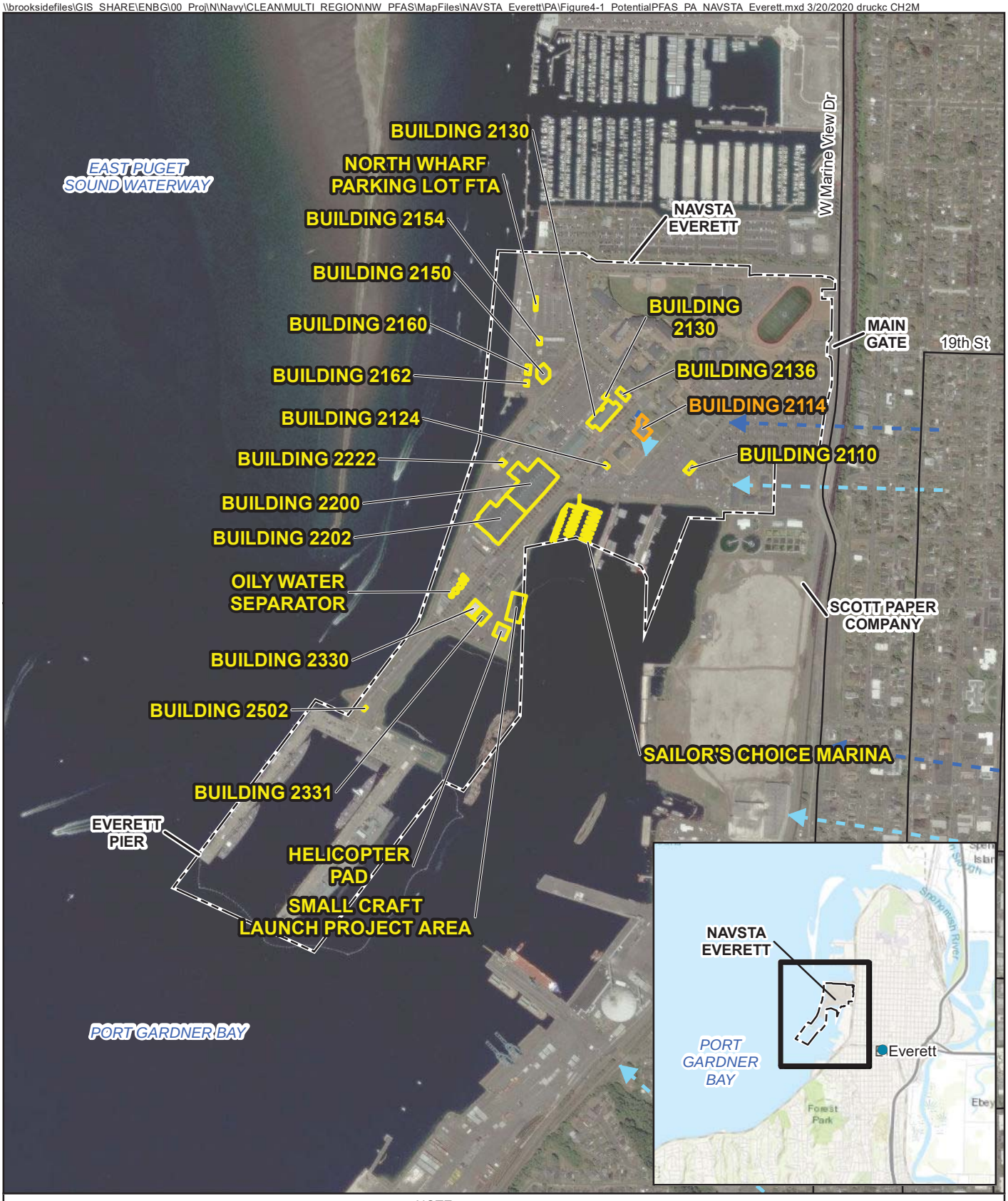
Sediment and Surface Water

The area surrounding Building 106 is generally flat; however, localized slopes are designed to direct surface water away from the structure. Any liquids, including AFFF, release on the fire truck ramp would flow overland to the northwest towards Center Service Road and to the Southern Drainage Ravine (**Figure 4-10**). Surface flow would travel along Center Service Road and along the Southern Drainage Ravine, providing a potential pathway to sediment and surface water. Additionally, shallow groundwater is likely hydraulically connected to the Southern Drainage Ravine and Pacific Ocean, providing an alternate pathway to sediment and surface water. There are no other perennial streams, lakes or other surface water bodies at the Pacific Beach installation.

Workers, visitors, recreators and residents may be present at Building 106 or within 1 mile. If additional evaluation identifies impacted sediment or surface water at Building 70, an assessment will be conducted to determine if the exposure pathway is complete for identified receptors.

Recommendations

Based on similar practices of AFFF transfer at other Navy bases during the same time period, and the lack of available information for the handling and training practices, there is the potential for spills or leaks to have occurred during the transfer of AFFF into fire trucks. Therefore, further investigation is recommended at Building 106 as part of an SI.



LEGEND

- Anticipated Groundwater Flow Direction
- Anticipated Surface Water Flow Direction
- Potential PFAS Source Area
- No Further Action Recommended
- Installation Boundary

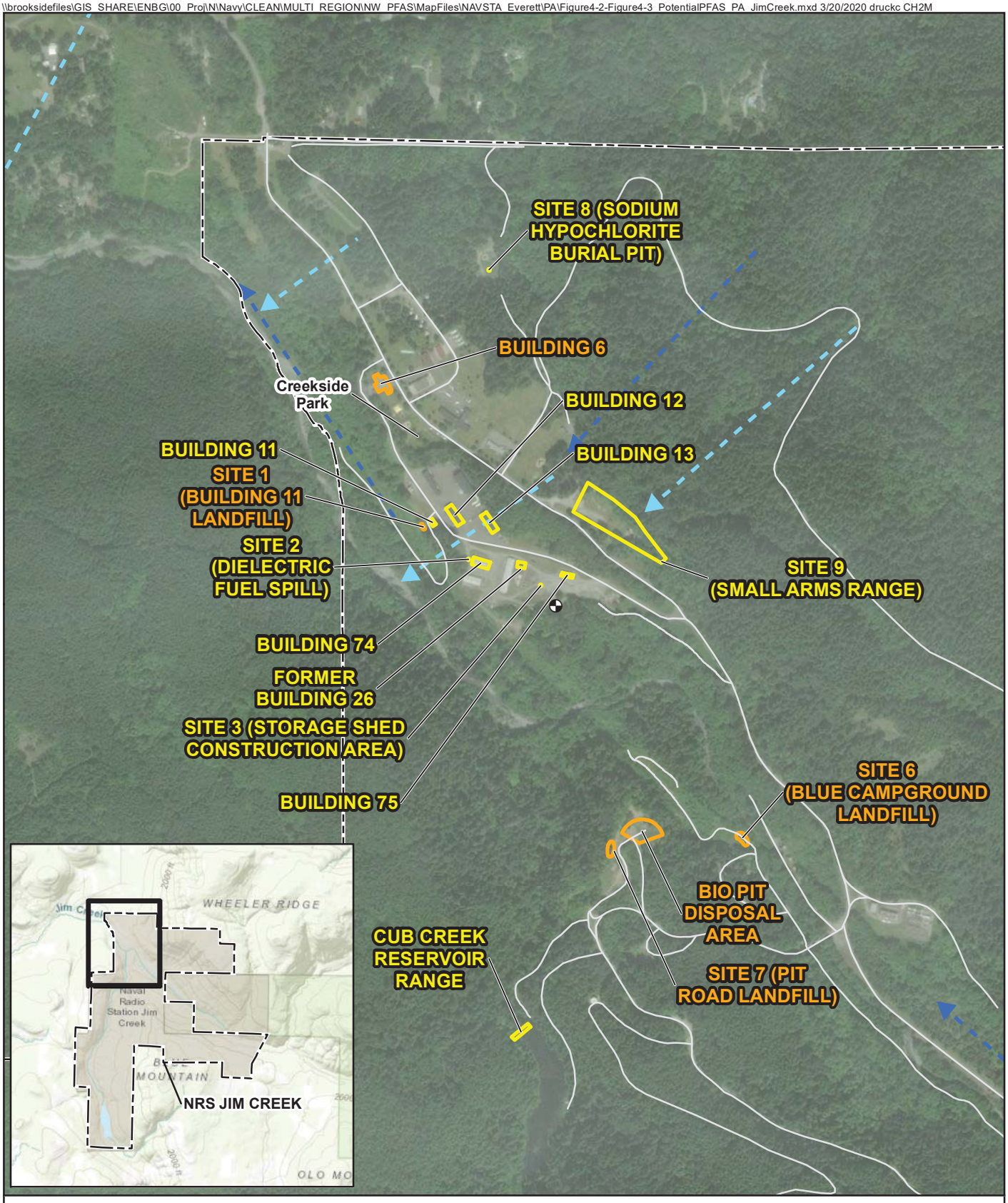
NOTE:
NAVSTA = Naval Station
Easements granted to the Navy/United States not shown.

Areas not shown (all recommended for no further action): Fires at NAVSTA Everett Pier, Former Hazardous Waste Accumulation Area

IMAGERY SOURCE:
ESRI ArcGIS Online Web Service, World Imagery, 2017

Figure 4-1
Potential PFAS Source Areas: NAVSTA Everett
Preliminary Assessment for PFAS
NAVSTA Everett, NRS Jim Creek,
NRC Pacific Beach, Washington

0 0.1 0.2 Miles
1 inch = 0.2 mile
N



LEGEND

- Water Supply Well
- Anticipated Groundwater Flow Direction
- Anticipated Surface Water Flow Direction
- Potential PFAS Source Area
- No Further Action Recommended
- Installation Boundary

NOTE:
Areas not shown (all recommended for no further action): Former Fire Training Area 1950s or 1960s Building Fire, Grass Fires

IMAGERY SOURCE:
ESRI ArcGIS Online Web Service, World Imagery, 2017

Figure 4-2

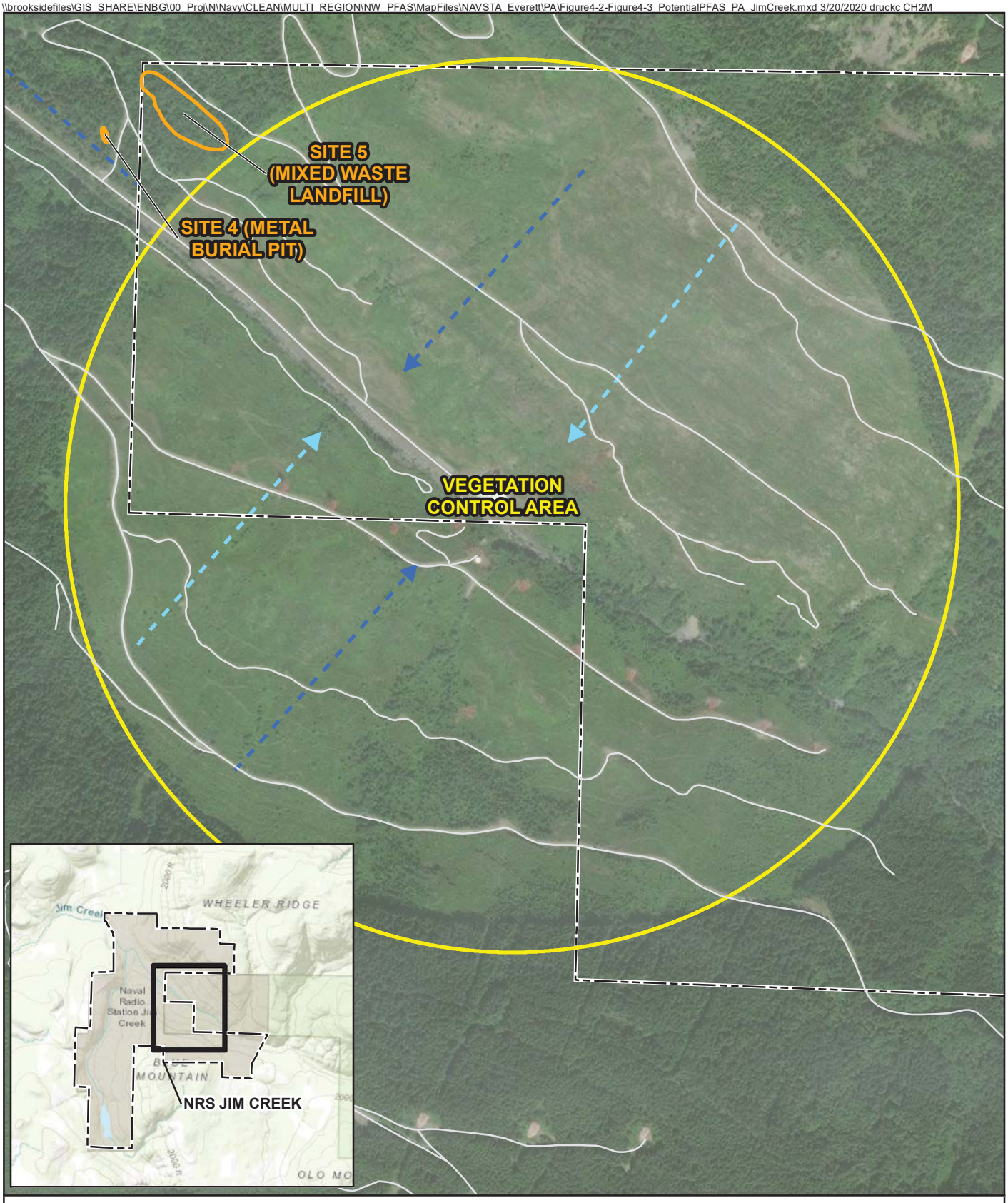
Potential PFAS Source Areas: NRS Jim Creek, Northwest

Preliminary Assessment for PFAS
NAVSTA Everett, NRS Jim Creek,
NRC Pacific Beach, Washington

0 0.075 0.15 Miles

1 inch = 0.15 mile

N



LEGEND

- Anticipated Groundwater Flow Direction
- Anticipated Surface Water Flow Direction
- Potential PFAS Source Area
- No Further Action Recommended
- Installation Boundary

NOTE:
Areas not shown (all recommended for no further action): Former Fire Training Area
1950s or 1960s Building Fire, Grass Fires

IMAGERY SOURCE:
ESRI ArcGIS Online Web Service,
World Imagery, 2017

Figure 4-3

Potential PFAS Source Areas: NRS Jim Creek, Southeast

Preliminary Assessment for PFAS
NAVSTA Everett, NRS Jim Creek,
NRC Pacific Beach, Washington

0 0.075 0.15 Miles

1 inch = 0.15 mile

N

LEGEND

- Local Connecting Road
- Important Local Road
- Anticipated Groundwater Flow Direction
- Anticipated Surface Water Flow Direction
- Potential PFAS Source Area
- No Further Action Recommended
- Installation Boundary

NOTE:
Easements granted to the Navy/United States not shown.

IMAGERY SOURCE:
ESRI ArcGIS Online Web Service, World Imagery, 2017

Figure 4-4
Potential PFAS Source Areas: NRC Pacific Beach
Preliminary Assessment for PFAS
NAVSTA Everett, NRS Jim Creek,
NRC Pacific Beach, Washington

0 0.05 0.1 Miles
1 inch = 0.1 mile

N

LEGEND

- Stormwater Catch Basin
- Anticipated Groundwater Flow Direction
- Anticipated Surface Water Flow Direction
- Important Local Road
- 5' Topographic Contours
- Potential PFAS Source Area
- Installation Boundary

NOTE:
NAVSTA = Naval Station
Easements granted to the Navy/United States not shown.

IMAGERY SOURCE:
ESRI ArcGIS Online Web Service, World Imagery, 2017

Figure 4-5

Potential PFAS Source Areas: NAVSTA Everett, Fire Station

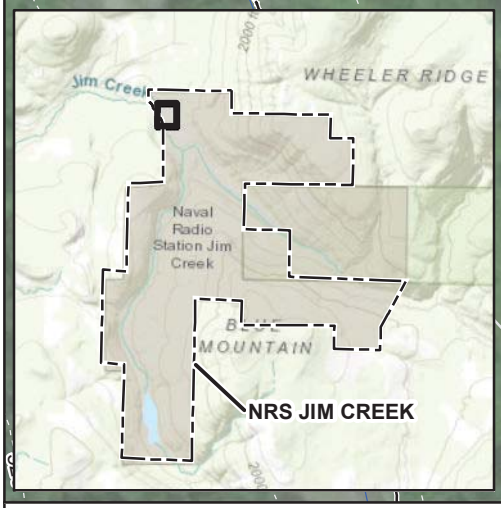
Preliminary Assessment for PFAS
NAVSTA Everett, NRS Jim Creek,
NRC Pacific Beach, Washington

0 75 150 Feet

1 inch = 150 feet

N

Former Fire Station
View direction: Southwest
Photo date: 1/17/2019



520
480
Jim Creek
FIRE TRUCK RAMPS
BUILDING 6
Creekside Park
560
520

LEGEND

- Stormwater Catch Basin
- Anticipated Groundwater Flow Direction
- Anticipated Surface Water Flow Direction
- Unpaved Ditch
- 40' Topographic Contours
- Surface Waterbodies
- Potential PFAS Source Area
- Installation Boundary

IMAGERY SOURCE:
ESRI ArcGIS Online Web Service, World Imagery, 2017

Figure 4-6
Potential PFAS Source Areas: NRS Jim Creek, Building 6
Preliminary Assessment for PFAS
NAVSTA Everett, NRS Jim Creek, NRC Pacific Beach, Washington

0 75 150 Feet
1 inch = 150 feet
N

LEGEND

Label

- Anticipated Groundwater Flow Direction
- Anticipated Surface Water Flow Direction
- Unpaved Ditch
- 40' Topographic Contours
- Surface Waterbodies
- Potential PFAS Source Area
- Installation Boundary

IMAGERY SOURCE:
ESRI ArcGIS Online Web Service, World Imagery, 2017

Figure 4-7
Potential PFAS Source Areas: NRS Jim Creek, Site 1
Preliminary Assessment for PFAS
NAVSTA Everett, NRS Jim Creek,
NRC Pacific Beach, Washington

0 75 150 Feet

1 inch = 150 feet

N

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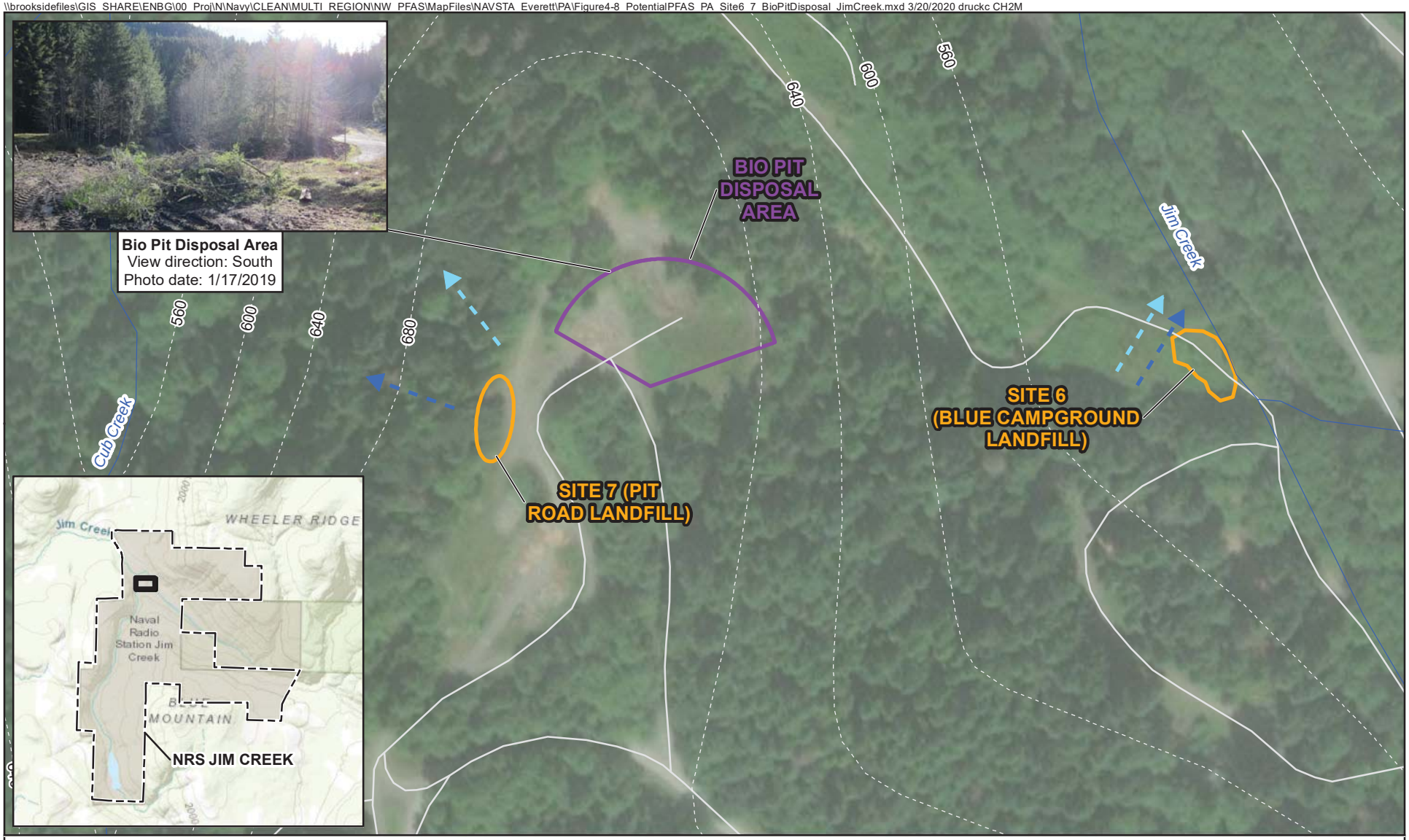


LEGEND

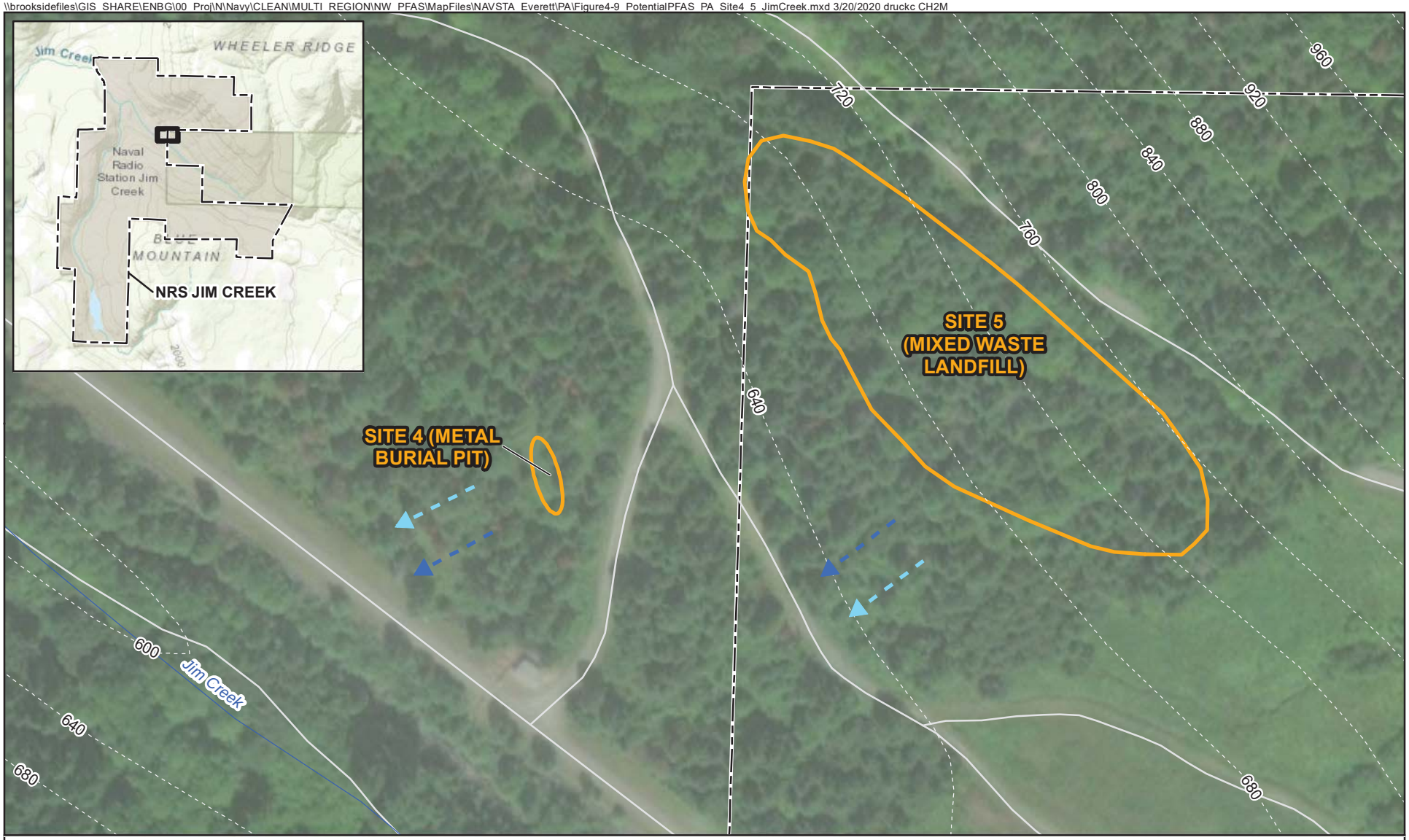
- Anticipated Groundwater Flow Direction
- Anticipated Surface Water Flow Direction
- Surface Waterbodies
- 40' Topographic Contours
- Installation Boundary
- Potential PFAS Source Area
- Potential PFAS Source Area - NFA Determination Deferred until SI

IMAGERY SOURCE:
ESRI ArcGIS Online Web Service, World Imagery, 2017

Figure 4-8
Potential PFAS Source Areas: NRS Jim Creek, Site 6, Site 7 and Bio Pit Disposal Area
Preliminary Assessment for PFAS NAVSTA Everett, NRS Jim Creek, NRC Pacific Beach, Washington

0 75 150 Feet
1 inch = 150 feet
N

\\brooksidefiles\GIS_SHARE\ENBG\00_Proj\N\Navy\CLEAN\MULTI_REGION\NW_PFAS\MapFiles\NAVSTA_Everett\PA\Figure4-9_PotentialPFAS_PA_Site4_5_JimCreek.mxd 3/20/2020 druckc CH2M



LEGEND

- Anticipated Groundwater Flow Direction
- Anticipated Surface Water Flow Direction
- 40' Topographic Contours
- Surface Waterbodies
- Potential PFAS Source Area
- Installation Boundary

IMAGERY SOURCE:
ESRI ArcGIS Online Web Service, World Imagery, 2017

0 75 150 Feet

1 inch = 150 feet

N

Figure 4-9
Potential PFAS Source Areas: NRS Jim Creek, Site 4 and Site 5
Preliminary Assessment for PFAS NAVSTA Everett, NRS Jim Creek, NRC Pacific Beach, Washington

LEGEND

- Important Local Road
- Anticipated Groundwater Flow Direction
- Anticipated Surface Water Flow Direction
- Surface Waterbodies
- 40' Topographic Contours
- Potential PFAS Source Area
- Installation Boundary

NOTE:
Easements granted to the Navy/United States not shown.

IMAGERY SOURCE:
ESRI ArcGIS Online Web Service, World Imagery, 2017

0 75 150 Feet
1 inch = 150 feet

N

Figure 4-10
Potential PFAS Source Areas: NRC Pacific Beach
Preliminary Assessment for PFAS
NAVSTA Everett, NRS Jim Creek,
NRC Pacific Beach, Washington

SECTION 5

Conclusions

Of the 23 evaluated areas at NAVSTA Everett, 22 areas are recommended for NFA and one area is recommended for further investigation as part of an SI. Of the 22 areas evaluated at NRS Jim Creek, 16 areas are recommended for NFA and the remaining 6 areas are recommended for further investigation as part of an SI. Of the 6 areas evaluated at NRC Pacific Beach, 5 areas are recommended for NFA and one area is recommended for further investigation as part of an SI. Areas are recommended for NFA if there is no evidence that PFAS-containing materials, primarily AFFF, was used or released at these locations. Areas are recommended for additional investigation based on the potential for AFFF or PFAS-containing materials having been stored, used, or released during Navy operations.

Potential receptors and migration pathways for the sites identified as potential PFAS sources are discussed in **Section 4.3**. Further evaluation of potential receptors and migration pathways will be evaluated during follow-on SI activities. The recommended path forward and rationale for each location are provided in **Table 5-1**.

At NAVSTA Everett and NRS Jim Creek, while groundwater within 1 mile of the Base is used as a source of drinking water, it is unlikely that a complete exposure pathway is present because the identified off-base drinking water wells are located upgradient. At NRC Pacific Beach, no off-base private drinking water wells were identified within 1 mile of the Base. If a release of AFFF or other PFAS-containing materials is confirmed during the SI, off-Base drinking water exposure will be re-evaluated.

In accordance with DoD Instruction 4715.18, *Emerging Contaminants* (June 2009, certified through June 2016 [DoD, 2009]), DoD policy requires that "Risks to people, the environment, and DoD missions, programs, and resources shall be assessed and, when appropriate, actions shall be taken to reduce risks related to ECs [emerging contaminants] development, use, or release." Additionally, Navy *Interim Per- and Polyfluoroalkyl Substances (PFAS) Site Guidance for NAVFAC Remedial Project Managers (RPMs)/September 2017 Update* (Navy, 2017) recommends:

> "RPMs should consider investigating ER sites for PFAS when the conceptual site model indicates:
>
> a. Historical release or use of aqueous film forming foam (AFFF), or
>
> b. Historical use of an area for other industrial activities (e.g., plating operations) that may have released PFAS.
>
> Based on recent Navy experience, sites at Naval and Marine Corps Air Stations (NAS and MCAS, respectively), including outlying or auxiliary landing fields, or other applicable installations with potential repeated (e.g., former firefighting training areas) or significant (e.g., crashes) AFFF releases should be prioritized for investigation."

This PA has identified locations that meet the first criterion, triggering the need for further investigation to determine whether a release to the environment occurred that resulted in impacts to soil, sediment, surface water, or groundwater at levels that warrant remedial actions.

Table 5-1. Preliminary Assessment Report Summary and Findings

Preliminary Assessment for PFAS at NAVSTA Everett, Everett, Washington and Associated Special Areas

Areas Investigated	Rationale	Recommendation
NAVSTA Everett		
Building 2114	• There were no reported spills or releases of AFFF associated with Building 2114; however, as noted above large quantities of AFFF were stored throughout its operating history as a fire station and satellite storage area. At similar facilities, firefighters historically filled the fire trucks by directly transferring AFFF from 5-gallon containers into fire trucks. Based on similar practices of AFFF transfer at other Navy bases during the same time period, and the lack of available information for the handling and training practices, there is the potential for spills or leaks to have occurred during the transfer of AFFF into fire trucks. Therefore, this area will be further evaluated in the PA report.	Initiate SI
NRS Jim Creek		
Building 6	• According to a former fire chief, storage of AFFF containers has occurred at NRS Jim Creek at Building 6 that leaked and were rinsed off outside the Building potentially releasing AFFF to the environment. • Public water supply wells and private wells exist within 1 mile of Building 11.	Initiate SI
Site 1 (Building 11 Landfill)	• Building 11 Landfill at NRS Jim Creek was an unlined landfill in use from mid-1950s until 1984. Because AFFF storage occurred at NRS Jim Creek and the landfill was in use after 1960, and there is a potential for disposal of leaking drums at the landfill, the potential for AFFF release to the environment may have occurred. • Public water supply wells and private wells exist within 1 mile of Building 11.	Initiate SI
Site 6 (Blue Campground Landfill)	• Site 6 (Blue Campground Landfill) is an abandoned landfill that was in operation prior to 1976 with an unknown quantity and composition of waste. Because AFFF was present at NRS Jim Creek, and there is a potential for disposal of leaking drums at the landfill, further evaluation is recommended. • Public water supply wells and private wells exist within 1 mile of Building 11.	Initiate SI
Site 7 (Pit Road Landfill)	• Site 7 (Pit Road Landfill) at NRS Jim Creek (**Figure 4-8**) is an approximately 4,200 square-foot abandoned landfill identified during a 1990 PA (NEESA, 1990). The landfill is believed to have been in use prior to 1976, and in 1984 it was covered with an approximately 2-foot-thick uncompacted soil cover. Plastic and metal debris, lumber, scrap metal and steel cable comprise debris in the landfill. Because AFFF was present at NRS Jim Creek and there is a potential for disposal of leaking drums at the landfill, further evaluation is recommended. • Public water supply wells and private wells exist within 1 mile of Building 11.	Initiate SI
Bio Pit Disposal Area	• The "Bio Pit" Disposal Area at NRS Jim Creek (**Figure 4-8**) is an active disposal area for grass clippings and other plant debris. Sludge removed from stormwater catch basins at NRS Jim Creek is also disposed in this area (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.). During a January 2019 site visit, the Bio Pit Disposal Area was observed to exist in a natural depression north of the Former Pit Road Landfill. Because there is no confirmation of an AFFF release (leak) has migrated to stormwater catch basin sludge, area will be recommended for NFA pending SI results from the Fire Station Area. • Public water supply wells and private wells exist within 1 mile of Building 11.	NFA

Table 5-1. Preliminary Assessment Report Summary and Findings

Preliminary Assessment for PFAS at NAVSTA Everett, Everett, Washington and Associated Special Areas

Areas Investigated	Rationale	Recommendation
Site 4 (Metal Burial Pit)	• Site 4 (Metal Burial Pit) at NRS Jim Creek (**Figure 4-9**) is an approximately 3,600 square-foot abandoned disposal area. Site 4 was an unlined natural depression that was reportedly in use prior to 1976 until 1984, when it was covered with an approximately 2-foot-thick uncompacted soil cover (NEESA, 1990). The type and quantity of material disposed at this location are unknown. Because AFFF was present at NRS Jim Creek and this disposal area was in use after 1960, and there is a potential for disposal of leaking drums at the landfill, this area will be further evaluated.	Initiate SI
Site 5 (Mixed Waste Landfill)	• Site 5 (Mixed Waste Landfill) at NRS Jim Creek (**Figure 4-9**) is an approximately 20,000 square-foot abandoned landfill. Site 5 is located on land used by the Navy under a permit from the Department of Agriculture US Forest Service. This landfill was historically used for general disposal of NRS Jim Creek's waste material from sometime prior to 1976 until 1984 when it was covered with an approximately 2-foot-thick uncompacted soil cover (NEESA, 1990). The type and quantity of material disposed at this location are unknown, a previous PA speculates it may contain oils, greases, solvents, and paint sludges because these materials were historically generated at NRS Jim Creek in small quantities (NEESA, 1990). According to facility personnel interviewed for the 1990 PA, the landfill contains approximately 8 feet of debris (NEESA, 1990). Empty 55-gallon drums (potentially herbicide storage containers) and electrical transformers were identified in the fill material during final cover operations in 1984 (NEESA, 1990). An NRS Jim Creek employee interviewed for this PFAS PA recalled that prior to 1991, no waste left the base (NRS Jim Creek Utility Systems Repair Operator, 2019, pers. comm.). Because AFFF was present at NRS Jim Creek and this landfill was in use after 1960 there is a chance AFFF-containing waste was disposed at this location. This site is considered a potential PFAS source area; therefore, it is recommended for further evaluation.	Initiate SI
NRC Pacific Beach		
Building 106	• Building 106 at NRC Pacific Beach (**Figure 4-10**) is a 3,929 square foot building built in 1958 that formerly operated as a fire station (Navy, 2018c). • The dates of use as a fire station are unknown. It is presumed that Building 6 became operational as a fire station soon after it was constructed in 1958. The SOSUS facility at NRC Pacific Beach was decommissioned in 1987; most of the facility, including Building 106, was turned over to NAVSTA Everett for management at that time (NAVFAC, 2017). A skeleton SOSUS crew remained at NRC Pacific Beach at Building 104 and Building 105 until 2011 when those buildings also were turned over to NAVSTA Everett for management (NAVFAC, 2017). To date, no current or former Navy employees who recall use of this building as a fire station have been identified; as such, the use of AFFF at this fire station could not be determined. For this reason, Building 106 is recommended for further evaluation.	Initiate SI

SECTION 6

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Appendix A
Summary of Special Areas Evaluated

Appendix A—Summary of Special Areas Evaluated

The following in Table A-1 were evaluated for potential PFAS source areas. The listed special areas are shown on Figure 1-1 in the main body of the report.

Table A-1. Special areas associated with NAVSTA Everett

Area	Potential PFAS Source Area (Y/N)	Description and Rational
Scott Paper Company (disposed)	See specific potential source areas below	Scott Paper Company is a former paper product manufacturer that owned land south of NAVSTA Everett (Figure 2-1). The Navy disposed land to Scott Paper Company in 1960 and 1994. In 1960 a portion of the former Naval Industrial Reserve Shipyard property was disposed by the Navy to Scott Paper Company (**Table 2-1**). At this time the Navy retained 3.78 acres of the former Naval Industrial Reserve Shipyard property on which a Naval Reserve Center operated. In 1994 the Naval Reserve Center property was disposed by the Navy to Scott Paper Company in a land swap (NAVFAC, 1990). In return, the Navy acquired 3.76 acres of land adjacent to NAVSTA Everett owned by Scott Paper Company The acquired 3.76 acres were incorporated into NAVSTA Everett. In this initial screening it is assumed that the "Scott Paper Company, Everett, Washington" special area refers to land disposed to Scott Paper Company, minus the portion reacquired by the Navy. No structures associated with the Naval Industrial Reserve Shipyard are visible on historical aerial photographs of Navy property disposed to Scott Paper Company (Everett Port Commission, 2016; EDR, 2019), suggesting that Navy operations on this portion of the property were limited. Navy activities at this property were primarily related to the Naval Reserve Center, which was built between 1947 and 1949 (Landau Associates, 1993). Vessels docked at the Naval Reserve Center up until about 1981 (Landau Associates, 1993). In the 1990s the Navy demolished all Naval Reserve Center structures, removed associated underground storage tanks (USTs), and remediated impacts exceeding screening levels (Foster Wheeler, 1998; AECOM, 2011). Three areas evaluated as potential PFAS source areas are described below.
Former Oil/Water Separator Shed	N	The Former Oil/Water Separator Shed was identified during a 1993 environmental site assessment of the Naval Reserve Center (Landau Associates, 1993). The shed housed an oil/water separator that treated oily bilge waste from ships docked at the Naval Reserve Center pier. The Former Oil/Water Separator Shed consisted of a steel tank on a wooden carriage, a smaller tank, and a square tank situated on concrete and surrounded by a 2-foot high concrete containment area filled with sand (Landau Associates, 1993). A sewer access vault was located adjacent to the shed (Landau Associates, 1993), suggesting treated water was discharged to the sewer system. As of the 1993 environmental site assessment, no staining or odor was noticeable in the shed (Landau Associates, 1993). All structures at the Old NRC were demolished in 1998 (Foster Wheeler, 1998). Analysis of soil samples collected at and around the demolished Former Oil/Water Separator Shed generally did not identify total petroleum hydrocarbons (TPH) at concentrations exceeding cleanup values (Foster Wheeler, 1998). TPH exceeded cleanup values in one sample collected from a boring north of the Former Oil/Water Separator Shed at a depth of 12 feet below ground surface; this sample also contained wood debris. Shallower and deeper samples at this location did not exceed cleanup values. It cannot be confirmed whether AFFF-containing bilge water was introduced to this oil/water separator during docking operations. However, it appears treated water was discharged to the sewer, and previous environmental assessments did not identify any on-site waste disposal locations where material from the oil/water separator may have been disposed. No staining or odor suggestive of a release at this location was identified in previous assessments. No further action is recommended for this area because (a) there is no evidence of PFAS-containing materials being released to the environment, and (b) it is not on property currently owned by the Navy.
Former Flammable/Hazardous Material Storage Shed	N	The Former Flammable/Hazardous Material Storage Shed was identified during a 1993 environmental site assessment of the Naval Reserve Center (Landau Associates, 1993). The shed was a metal corrugated structure with a concrete pad used to house hazardous substances such as paints, stains, thinners, and gasoline (Landau Associates, 1993). The shed was located in the northwestern corner of the Naval Reserve Center property near the harbor prior to all structures being demolished in 1998 (Foster Wheeler, 1998). After demolition, soil samples were collected near the Former Flammable/Hazardous Material Storage Shed (Foster Wheeler, 1998). The samples were non-detect for pesticides/PCBs. One sample collected south of the Former Flammable/Hazardous Material Storage Shed exceeded the cleanup level for TPH at one depth. Semivolatile organic compounds (SVOCs) were non-detect or detected at values below laboratory reporting limits. VOCs were primarily non-detect. Methylene chloride was detected above current cleanup levels at some locations. Acetone and carbon disulfide were detected in some samples but were below current cleanup levels. There is no evidence to suggest that materials stored in this shed contained PFAS; however, because no pesticide or VOC impacts were identified during a previous investigation, release of these materials appears unlikely. No further action is recommended for this area because (a) there is no evidence of PFAS-containing materials being released to the environment, and (b) it is not on property currently owned by the Navy.
NSWCCD ARD: Bayview ARD	See specific potential source areas below	NSWCCD ARD is an acoustic research facility located in Bayview, Idaho on Lake Pend Oreille occupying approximately 28 acres (**Figure 1-1**). The facility conducts Research, Development, Test & Evaluation (RDT&E) on submarine acoustic stealth technology using large scale submarine models (NAVSEA, 2018). The facility is located on four noncontiguous parcels designated as Bayview ARD, Bayview ARD Site 2, Wigwam Kootenai, and Outpost Kootenai. Bayview ARD and Bayview ARD Site 2 are located adjacent to each other and comprise the main portion of the shore-based facilities for NSWCCD ARD. Two outposts are located on the western shore of Lake Pond Oreille: Wigwam Kootenai and Outpost Kootenai, located 5 and 8 miles north of Bayview, respectively. Each outpost is approximately 1 acre in size and is leased from the Department of Agriculture US Forest Service. The Navy first acquired 4,050 acres of property near Bayview, Idaho in 1942 for construction of the Farragut Naval Training Station (URS, 1995). The training center was used for lifeboat training until 1946 (URS, 1995). From 1946 to 1949 the property was used for the Farragut College and Technical Institute (URS, 1995). Use of other PFAS-containing chemicals was not prevalent at this time (ITRC, 2017). After World War II the remaining facility began to be used for submarine research. Current day facilities at Bayview ARD and Bayview ARD Site 2 include shops, storage, and administrative buildings. The remote outposts were designed to support testing ranges in the lake for buoyancy and acoustic stealth and to support scientific examination of the structural acoustic response of submarines. Facilities include winches used to pull the submarine models into position in the in-lake ranges and range support buildings (Navy, 1997; NAVFAC, 2013). A PA of NSWCCD ARD published in 1995 identified several industrial operation and chemical storage areas at the facility (URS, 1995). Ten areas at NSWCCD ARD were evaluated to determine the potential to be a PFAS source area.
Structure 11 (Boat House)	N	Structure 11 (Boat House) at Bayview ARD houses a Navy fireboat (NSWCCD ARD Site Director, 2019, pers. comm.). This fireboat is not equipped with AFFF and uses only water for fire suppression (NSWCCD ARD Site Director, 2019, pers. comm.). Observations of the fire boat conducted during a January 2019 site visit confirmed that the onboard water cannon is only capable of using fresh water and no foam substances. Based on interviews and observations at the time of the site visit, no further action is recommended for this area.

Appendix A—Summary of Special Areas Evaluated

The following in Table A-1 were evaluated for potential PFAS source areas. The listed special areas are shown on Figure 1-1 in the main body of the report.

Table A-1. Special areas associated with NAVSTA Everett

Area	Potential PFAS Source Area (Y/N)	Description and Rational
Forest Fire Crew Staging Area	N	The Forest Fire Crew Staging Area at Bayview ARD is an asphalt parking lot area where fire crews from Fairchild Air Force Base were staged during a nearby off-site forest fire in 2015. This forest fire, the Cape Horn fire, occurred north of Bayview ARD and Bayview ARD Site 2 and did not impact Navy property. The fire was first reported on July 5, 2015 and was 100-percent contained by July 17, 2015 (KHQ, 2015; Maben, 2015; Hagadone, 2015). During the fire, fire crews from Fairchild Air Force Base were staged at Bayview ARD on an asphalt lot east of Building 200. The Fairchild fire crews were at the base for 1 or 2 days until the US Forest Service arrived on site and staged a crew at the same location for an unspecified duration (NSWCCD ARD Site Director et al, 2019, pers. comm.; NSWCCD ARD Environmental Safety and Health Manager, et al., 2019, pers. comm.). Neither crew used equipment or fire tactics at the facility (NSWCCD ARD Site Director et al, 2019, pers. comm.; NSWCCD ARD Environmental Safety and Health Manager, et al., 2019, pers.). It is not known whether AFFF-ready equipment was used by the fire crew or if AFFF was present during staging; however, because of the short duration of staging and the lack of fire response actions, no further action is recommended for this area.
Building 63	N	Building 63 Bayview ARD is a 4,425 square-foot building built in 1999 (Navy, 2018c). It is used as a shipping and receiving warehouse and office for specialty equipment, parts, and supplies used for submarine model building (NSWCCD ARD Environmental Safety and Health Manager, 2019a, pers. comm.). Two hazardous materials waste storage lockers (HAZMAT Storage Locker #1 and #2) are located on the west side of Building 63. Materials stored in the HAZMAT lockers include epoxies, solvents, adhesives, paints, motor oils, hydraulic oils, starting fluids, primers, and greases. There is no known storage of AFFF at the NSWCCD ARD, including at Building 63 or the HAZMAT storage lockers (NSWCCD ARD Site Director, et al. 2019, pers. comm.), and an AUL provided by NSWCCD ARD staff (NSWCCD ARD Environmental Safety and Health Manager, 2019b, pers. comm.) does not list AFFF or other known PFAS-containing chemicals. During a January 2019 site visit, material stored at the facilities was consistent with the AUL list provided. No further action is recommended for this area.
Former Building 1	N	Former Building 1 at Bayview ARD (location not shown) was identified in a 1995 PA of NSWCCD ARD (URS, 1995). The former shop building has since been demolished but was previously located east of where Building 200 was constructed (the former location is currently a parking lot and is identified as the Forest Fire Crew Staging Area on. This building was the predecessor to Building 200 and supported model submarine construction (URS, 1995). A hazardous waste storage area was located on the west side of Building 1. It had a concrete floor with a spill berm and sumps (URS, 1995). A large quantity supply storage area was located on the southwest side of Building 1. It was used for storage of drums such as gear oil, antifreeze, motor oil, engine oil, hydraulic oil, turbine oil, and lubricants (URS, 1995). There is no known storage of AFFF at the NSWCCD ARD currently or historically (NSWCCD ARD Site Director, et al. 2019, pers. comm.). AFFF and other known PFAS-containing chemicals are not listed on a 1985 list of chemicals disposed during a base-wide cleanup effort (URS, 1995), a 1995 chemical inventory (URS, 1995), and an AUL provided by NSWCCD ARD staff (NSWCCD ARD Environmental Safety and Health Manager, 2019b, pers. comm.). No further action is recommended for this area.
Former Building 3	N	Former Building 3 was a former flammable/hazardous materials storage building at Bayview ARD (location not shown) was identified in a 1995 PA of NSWCCD ARD (URS, 1995). The building has since been demolished but was previously located east of where Building 200 was constructed (the former location is currently a parking lot and is identified as the Forest Fire Crew Staging Area on. An area adjacent to Building 3 also was used as a chemical dispensing area (URS, 1995). Until approximately 1989 chemicals were stored on racks at this area and dispensed with no containment. There is no known storage of AFFF at the NSWCCD ARD currently or historically (NSWCCD ARD Site Director, et al. 2019, pers. comm.). AFFF and other known PFAS-containing chemicals are not listed on a 1985 list of chemicals disposed during a base-wide cleanup effort (URS, 1995), a 1995 chemical inventory (URS, 1995), and an AUL provided by NSWCCD ARD staff (NSWCCD ARD Environmental Safety and Health Manager, 2019b, pers. comm.). No further action is recommended for this area.
Fuel Tank Farm	N	The Fuel Tank Farm at Bayview ARD was identified in a 1995 PA of the installation (URS, 1995). The farm currently includes three USTs: unleaded gasoline (10,000 gallon), diesel (10,000 gallon), and Marine Fuel Mix (5,000 gallon) (NAVFAC, 2016a). No AFFF fire suppression system is or has been associated with the Fuel Tank Farm or any other fuel tank location at the installation (NSWCCD ARD Site Director et. Al, 2019, pers. comm.; NSWCCD ARD Environmental Safety and Health Manager et. al, 2019, pers. comm). No further action is recommended for this area.
Building 51	N	Building 51 at Bayview ARD is a 2,343 square-foot building built in 1981 (Navy, 2018c). The building is used primarily for painting and applying water proofing coatings and adhesives to submarine models and associated testing equipment (NSWCCD ARD Environmental Safety and Health Manager et al., 2019, pers. comm.). Materials observed during a January 2019 site visit included resin paint, propanol, multi-coat paints, toluene, urethane paints, and a large volume (nine, 55-gallon drums) of epoxy coating material. A 1985 chemical disposal list (URS, 1995), a 1995 chemical inventory (URS, 1995), and an AUL provided by NSWCCD ARD staff (NSWCCD ARD Environmental Safety and Health Manager, 2019b, pers. comm.) do not list AFFF or other known PFAS-containing chemicals. During a January 2019 site visit, material observed was consistent with the AUL list. It is unknown whether PFAS-containing chemicals are currently used or have historically been used at this facility. However, there are no documented releases, and proper housekeeping and disposal practices have been observed within the building. Therefore, no further action is recommended for this area.
Building 200	N	Building 200 at Bayview ARD is a 27,760 square-foot building built in 2002 (Navy, 2018c). The building functions primarily as an administrative office space for civil service and Navy staff serving at NSWCCD ARD. The building also contains a machine shop on the lower level where specialized submarine model parts and components are fabricated and maintained. Several lathes, large drill presses, and other specialized fabrication equipment are kept in this portion of the building. Two paint cabinets and one HAZMAT cabinet were observed inside the Machine Shop during a January 2019 site visit. The contents (various paints, solvents, epoxies, and coatings) were consistent with materials found in other portions of the installation. An AUL provided by NSWCCD ARD staff (NSWCCD ARD Environmental Safety and Health Manager, 2019b, pers. comm.) does not list AFFF or other known PFAS-containing chemicals. It is unknown whether PFAS-containing chemicals are used at this facility. However, there are no documented releases, and proper housekeeping and disposal practices have been observed within the building. Therefore, no further action is recommended for this area.
Building 210	N	Building 210 is a 16,993 square-foot building built in 2000 (Navy, 2018c). It includes a shop, laboratory, and office space. Details as to the operational and activities conducted within Building 210 are sensitive in nature and cannot be disclosed (NSWCCD ARD Environmental Safety and Health Manager et. al, 2019, per comms.). During a January 2019 site visit, access was not permitted due to the sensitive nature of operations. Equipment inside the building includes electrical and metal materials necessary for fabrication of submarine models (NSWCCD ARD Environmental Safety and Health Manager et. al, 2019, per comm.). An AUL provided by NSWCCD ARD staff (NSWCCD ARD Environmental Safety and Health Manager, 2019b, pers. comm.) does not list AFFF or other known PFAS-containing chemicals. No further action is recommended for this area.

Appendix A—Summary of Special Areas Evaluated

The following in Table A-1 were evaluated for potential PFAS source areas. The listed special areas are shown on Figure 1-1 in the main body of the report.

Table A-1. Special areas associated with NAVSTA Everett

Area	Potential PFAS Source Area (Y/N)	Description and Rational
2002 Hydraulic Oil Spill	N	In December 2002, approximately 70 gallons of hydraulic oil spilled from a crane that was situated on one of the ARD piers (location not shown) (Foster Wheeler, 2003). Approximately 50 gallons were recovered; 20 gallons spilled into Lake Pend Oreille and were contained with a boom. A small area of sheening was observed. The sheen was not recoverable and was allowed to dissipate naturally. Some hydraulic fluids used in the aviation industry are reported to contain PFAS as an additive (UNEP, 2011). It is unknown whether PFAS are present in other types of hydraulic fluids, including the hydraulic oil from this 2003 spill[a]. Based on currently available information, no further action is recommended for this area.
NSWCCD ARD: Bayview ARD Site 2	See specific potential source areas below	(See description for NSWCCD ARD: Bayview ARD.) Four areas at NSWCCD ARD Site 2 were evaluated to determine the potential to be a PFAS source area.
Building 61	N	Building 61 at Bayview ARD Site 2 is a 3,600 square-foot building built in 1990 (Navy, 2018c) and is enclosed on three sides. It was identified in a 1995 PA of NSWCCD ARD (URS, 1995). Building 61 was historically and is currently used for storage of RDT&E supplies and equipment, project storage, and public works storage (NSWCCD ARD Environmental Safety and Health Manager et al., 2019, pers. comm.). Examples of material stored in this area in the past include remnants of submarine models, cable reels, spill containment booms, building materials, and lead tiles (URS, 1995). A 1995 chemical inventory (URS, 1995) and an AUL provided by NSWCCD ARD staff (NSWCCD ARD Environmental Safety and Health Manager, 2019b, pers. comm.) do not list AFFF or other known PFAS-containing chemicals. During a January 2019 site visit there was no evidence of AFFF or other known PFAS-containing chemicals. No further action is recommended for this area.
Building 62	N	Building 62 at Bayview ARD Site 2 is a 6,000 square-foot building built in 1992 (Navy, 2018c) and is enclosed on three sides. It was identified in a 1995 PA of NSWCCD ARD (URS, 1995). Building 61 was historically and is currently used for storage of RDT&E supplies and equipment, project storage, and public works storage (NSWCCD ARD Environmental Safety and Health Manager et al., 2019, pers. comm.). Examples of material stored in this area in the past include remnants of submarine models, cable reels, spill containment booms, building materials, and lead tiles (URS, 1995). A 1995 chemical inventory (URS, 1995) and an AUL provided by NSWCCD ARD staff (NSWCCD ARD Environmental Safety and Health Manager, 2019b, pers. comm.) do not list AFFF or other known PFAS-containing chemicals. During a January 2019 site visit there was no evidence of AFFF or other known PFAS-containing chemicals. No further action is recommended for this area.
Open Storage Area *Upper Storage Yard*	N N	The Open Storage Area and Upper Storage Yard at Bayview ARD Site 2 were identified in a 1995 PA of NSWCCD ARD (URS, 1995). Based on observations at the time of the 1995 PA and a January 2019 site visit, material stored in this area includes or has included boats, empty, above-ground storage tanks, buoys, cable reels, spill containment booms, railroad ties, cranes, trucks, tractors, trailers, and other facility maintenance equipment. A 1995 chemical inventory (URS, 1995) and an AUL provided by NSWCCD ARD staff (NSWCCD ARD Environmental Safety and Health Manager, 2019b, pers. comm.) do not list AFFF or other known PFAS-containing chemicals. During a January 2019 site visit there was no evidence of AFFF or other known PFAS-containing chemicals. No further action is recommended for this area.
NSWCCD ARD: Wigwam Kootenai (leased)	N	Wigwam Kootenai is a remote outpost located on the western shore of Lake Pend Oreille and has been inactive for many years (NSWCCD ARD Environmental Safety and Health Manager et al., 2019, pers. comm)[a]. The facility is located on 1 acre of land leased from the Department of Agriculture US Forest Service and is only accessible by boat. Facilities at the outpost include an office, winch system to lower and raise submarine models into the lake, and an electronic laboratory for the purpose of testing model on-board functions and acoustic parameters. Only A-B-C fire extinguishers are used for fire emergencies, and AFFF is not used as a fire suppressant (NSWCCD ARD Environmental Safety and Health Manager et al. 2019, pers. comm). Lube oil is present for pulley and winch maintenance and is stored in a 5-gallon pail (NSWCCD ARD Environmental Safety and Health Manager et al. 2019, pers. comm). A 1995 PA identified minimal material storage at this location (a small flammable locker containing 1-gallon product supplies for machinery maintenance) (URS, 1995). Based on a review of available historical information and information obtained during interviews, there is no evidence of AFFF or other known PFAS-containing chemicals. No further action is recommended for this special area because (a) there is no evidence of PFAS-containing materials being released to the environment, and (b) it is not on property currently owned by the Navy.
NSWCCD ARD: Outpost Kootenai (leased)	N	Wigwam Kootenai is a remote outpost area located along the western shore of Lake Pend Oreille and has been inactive for many years (NSWCCD ARD Environmental Safety and Health Manager et al., 2019, pers. comm.). The facility is located on 1 acre of land leased from the Department of Agriculture US Forest Service and is only accessible by boat. Facilities at the outpost include an office and a winch system to lower and raise submarine models into the lake. Only A-B-C fire extinguishers are used for fire emergencies, and AFFF is not used as a fire suppressant (NSWCCD ARD Environmental Safety and Health Manager et al. 2019, pers. comm). Lube oil is present for pulley and winch maintenance and is stored in a 5-gallon pail. A 1995 PA identified minimal material storage at this location (a small flammable locker containing 1-gallon product supplies for machinery maintenance) (URS, 1995). Based on a review of available historical information and information obtained during interviews, there is no evidence of AFFF or other known PFAS-containing chemicals. No further action is recommended for this special area because (a) there is no evidence of PFAS-containing materials being released to the environment, and (b) it is not on property currently owned by the Navy.
Smokey Point Family Support Complex	See specific potential source areas below	Smokey Point Family Support Complex (Smokey Point Complex) in Marysville, Washington **(Figure 1-1)** is a community support complex that serves sailors, families, and military retirees living in the region. The complex is located on a 52-acre parcel that the Navy acquired in 1995 (Navy, 2018b). Buildings and facilities include a Navy Exchange, commissary, administrative buildings, a gas station, and car-care facilities. Two areas at Smokey Point Family Support Complex were evaluated to determine the potential to be a PFAS source area.

Appendix A—Summary of Special Areas Evaluated

The following in Table A-1 were evaluated for potential PFAS source areas. The listed special areas are shown on Figure 1-1 in the main body of the report.

Table A-1. Special areas associated with NAVSTA Everett

Area	Potential PFAS Source Area (Y/N)	Description and Rational
Building 13928	N	Building 13928 is an auto body shop at Smokey Point Family Support Complex, also known as the Autoport Service Center, is a 4,788 square-foot building built in 1995 (Navy, 2018c). The Autoport Service Center provides basic car maintenance including oil changes, brake replacement, engine repair, and tire rotation and replacement (NAVSTA Everett Naval Exchange Operations Manager, 2019, pers. comm.). An auto hobby shop known as the Car Care Center is located within the Autoport Service Center (Navy Exchange, 2019). Customers can rent stalls at the Car Care Center to perform basic car repairs on their vehicles (NAVSTA Everett Naval Exchange Operations Manager, 2019, pers. comm.). This facility has never serviced firefighting vehicles, and there is no storage of paints, pesticides, or cleaners (NAVSTA Everett Naval Exchange Operations Manager, 2019, pers. comm.). There is no known storage or release of AFFF or other PFAS-containing chemicals; therefore, no further action is recommended for this area.
Building 13926	N	Building 13926 at Smokey Point Family Support Complex is a 1,888 square-foot structure built in 1995 (Navy, 2018c). This structure is an open-air carport associated with Building 13928, also known as the Autoport Service Center. The Autoport Service Center has never serviced firefighting vehicles, and there is no storage of paints, pesticides, or cleaners (NAVSTA Everett Naval Exchange Operations Manager, 2019, pers. comm.). There is no known storage or release of AFFF or other PFAS-containing chemicals; therefore, no further action is recommended for this area.
Brier Family Housing *(disposed)*	N	Brier Family Housing in Brier, Washington (**Figure 1-1**) is a disposed property that was a 5-acre military family housing annex under the management of NAVSTA Everett. The property was developed by the Army for military housing in 1955 and consisted of 12 houses (NEESA, 1991). The Navy purchased the property in 1978 and continued to use it as military housing (NEESA, 1991). In 2005 the houses were transferred to the Public-Private Venture (PPV), which leased the property itself from the US Navy (NAVFAC, 2016b). The houses were demolished in 2015 (NAVFAC, 2016b). The Navy disposed the property to Arcadia Homes LLC in 2017 (NAVFAC NW AM PPV Project Manager, 2018, pers. comm.). There has been no known storage or release of AFFF at this property. Historically the buildings and grounds were maintained by the Public Works Department at Paine Field and because of this, there was not a reason to store any paint, solvent, or pesticide/herbicide at the property (NEESA, 1991). During Navy ownership of the property, pesticides were applied on an as-needed basis, but they were not stored at the property (NAVFAC, 2016b). No further action is recommended for this special area because (a) there is no evidence of PFAS-containing materials being released to the environment, and (b) it is not on property currently owned by the Navy.
Pier 91 Annex (disposed)	N	Pier 91 Annex in Seattle, Washington (**Figure 1-1**) consists of two, non-contiguous property areas that were retained by the Navy after the sale of Naval Supply Center, Seattle, Washington. Pier 91 Annex has since been disposed by the Navy. The Naval Supply Center operated from 1941 to the 1970s (GSA, 1972; Denfeld, 2014). The facility included administrative buildings, automotive and locomotive repair shops, warehouses, and a cold storage plant and supporting utilities (GSA, 1972). In 1970 the Port of Seattle began leasing the piers, and in 1976 the Navy disposed 198 acres of the Naval Supply Complex to the Port of Seattle (**Table 2-1**). The Pier 90/91 Complex property falls under the responsibility of Formerly Used Defense Sites (FUDS), and therefore, is outside the scope of this initial screening (NAVSTA Everett Remedial Project Manager, 2018, pers. comm.). At the time of the 1976 disposal, two property areas along the western boundary of the Naval Supply Center were retained by the Navy. These became known as Pier 91 Annex. A portion of Pier 91 Annex on the waterfront included Quarters A, also known as the Admiral's House, a historic house built in 1944 and formerly occupied by installation commanding officers (GSA, 1972; Denfeld, 2014; Sheridan, 2010). Other Navy personnel quarters and facilities (dispensary, officers club) were located on both portions of the Pier 91 Annex property (Navy, 1981). A review of available documentation regarding the Naval Supply Center and Pier 91 Annex did not reveal any likely sources of PFAS (Denfeld, 2014; Shapiro, 2006; URS, 1993; Navy, 1981; Navy, 2014b). Pier 91 Annex was primarily used for military housing. No further action is recommended for this special area because (a) there is no evidence of PFAS-containing materials being released to the environment, and (b) it is not on property currently owned by the Navy.
NRS Lamoure	See specific potential source areas below	NRS Lamoure, also known as Naval Computer and Telecommunications Area Master Station Atlantic (NCTAMS LANT) Detachment Lamoure, is an 830-acre, Navy-owned communication system site located near LaMoure, North Dakota (**Figure 1-1**). NRS Lamoure was constructed by the USCG in 1972 as a communication system to support navigation of ships, aircraft, and land vehicles (Asche, 1972). The property was transferred from the USCG to the Navy in 1997 (Navy, 2018c). The facility's current mission is to provide communications between Navy assets (Navy, 2019). The predominant structure at the facility is a large communication system. Other buildings and structures include a communication building, storage building, pump house, water towers, and flammable storage shed. Three areas at NRS Lamoure were evaluated to determine the potential to be a PFAS source area.
Facility 3 (Helix House)	N	A fire is reported to have occurred in Facility 3 (Helix House) at NRS Lamoure; the date of the fire is unknown (NCTAMS LANT Detachment LaMoure Technical Director/COR, 2019a, 2019c, pers. comm). The extent of the fire was limited to one room and burned some electronics and wood that were part of the Lamoure transmitter system (NCTAMS LANT Detachment LaMoure Technical Director/COR, 2019c, pers. comm). The local volunteer fire department who responded to this incident uses only water in firefighting and has no chemical fire equipment (NCTAMS LANT Detachment LaMoure Technical Director/COR, 2019a, 2019c, pers. comm). There has been no known military fire response at NRS Lamoure (NCTAMS LANT Detachment LaMoure Technical Director/COR, 2019a, pers. comm). No further action is recommended for this area.
Former Wastewater Lagoon	N	Former Wastewater Lagoon at NRS Lamoure is a decommissioned wastewater lagoon (NCTAMS LANT Detachment LaMoure Technical Director/COR, 2019a, pers. comm.). The lagoon was in use prior to transfer of the property from the USCG to the Navy in 1997. It was decommissioned approximately 30 to 40 years ago (NCTAMS LANT Detachment LaMoure Technical Director/COR, 2019a, pers. comm.). During USCG use of the installation as a communication system, the property included barracks and other related structures; specific records regarding that time period have been lost (NCTAMS LANT Detachment LaMoure Technical Director/COR, 2019a, pers. comm.). While it has not been confirmed that AFFF or other PFAS-containing chemicals were not used by the USCG while this wastewater lagoon was active, based on the former use (a communication station with associated barracks), no further action is recommended.
Facility 6 (Flammable Storage Shed)	N	Facility 6 (Flammable Storage Shed) at NRS Lamoure is a 120 square-foot flammable storage shed built in 1969 (Navy, 2018c). It is used to store paint and similar materials (NCTAMS LANT Detachment LaMoure Technical Director/COR, 2019a, pers. comm.). There is no known use of AFFF or other PFAS-containing chemicals at NRS Lamoure (NCTAMS LANT Detachment LaMoure Technical Director/COR, 2019b, pers. comm.). No further action is recommended for this area.

Appendix A—Summary of Special Areas Evaluated

The following in Table A-1 were evaluated for potential PFAS source areas. The listed special areas are shown on Figure 1-1 in the main body of the report.

Table A-1. Special areas associated with NAVSTA Everett

Area	Potential PFAS Source Area (Y/N)	Description and Rational
NRS Lamoure Remote Site	N	The NRS Lamoure Remote Site is a communications site 20 miles northeast of NRS Lamoure situated on 1.6 acres of Navy-owned land (**Figure 1-1**). It consists of a free-standing skeletal (open frame) communication system and an associated monitor building situated on 1.6 acres of Navy-owned land. There are no industrial operations and no use of pesticides at the facility (NAVFAC Public Works Facility Management Director et al., 2018, pers. comm.). There has been no known storage or use of AFFF or other PFAS-containing chemicals at this facility (NCTAMS LANT Detachment LaMoure Technical Director/COR, 2019b, pers. comm.). No further action is recommended for this special area.
NOSC Portland	N	NOSC Portland is an active, Navy-owned installation in Portland, Oregon (**Figure 1-1**). The mission of all NOSCs described in this initial screening is to provide support and training for Navy Reserve sailors and their families. NOSC Portland consists of nine buildings on approximately 14 acres of Navy-owned land. The USMC Forces Reserve (MARFORRES) is a tenant at this facility. Based on information provided by NAVSTA Everett and NOSC Portland staff, there has been no known storage or use of AFFF or large quantities of other PFAS-containing chemicals associated with Navy Reserve activities at this NOSC (NAVSTA Everett Assistant Public Works Officer, 2019, pers. comm.; NOSC Portland Commanding Officer, 2019, pers. comm.). A 2017 AUL[d] for all NOSCs under the management of NAVSTA Everett does not list any AFFF or known PFAS-containing chemicals. The NOSC does not support firefighting vehicles or firefighting training (NAVSTA Everett Assistant Public Works Officer, 2019, pers. comm.). MARFORRES is a tenant at this facility. This location is the headquarters and service company for an engineer support battalion (NOSC Portland USMC Inspector-Instructor and NOSC Portland USMC Supply and Facilities Officer, 2019, pers. comm.). Activities conducted include administration, planning, and oversight of various battalion functions (NOSC Portland USMC Inspector-Instructor and NOSC Portland USMC Supply and Facilities Officer, 2019, pers. comm.). There is no use of AFFF or other PFAS-containing chemicals currently and no known use historically (NOSC Portland USMC Inspector-Instructor and NOSC Portland USMC Supply and Facilities Officer, 2019, pers. comm.). No potential PFAS source areas were identified at this special area; therefore, no further action is recommended.
NOSC Springfield (leased)	N	NOSC Springfield is an active installation in Springfield, Oregon (**Figure 1-1**). The Navy Reserve and MARFORRES are tenants at the facility, which consists of eight buildings on 23 acres of land operated by the Oregon Military Department and owned by the State of Oregon. The NOSC provides administrative support for the Navy Reserve. Based on information provided by NAVSTA Everett, NOSC Springfield, and Oregon Military Department staff, there has been no known storage or use of AFFF or large quantities of other PFAS-containing chemicals associated with Navy Reserve activities at this NOSC (NAVSTA Everett Assistant Public Works Officer, 2019, pers. comm.; Oregon Military Department Installations Division Water Quality Program Manager et al., 2019, pers. comm.). A 2017 AUL[d] for all NOSCs under the management of NAVSTA Everett does not list any AFFF or known PFAS-containing chemicals. The NOSC does not support firefighting vehicles or firefighting training (NAVSTA Everett Assistant Public Works Officer, 2019, pers. comm.). MARFORRES also is a tenant at this facility. The unit's mission is to provide limited general engineering support and it does not have any firefighting capabilities (Springfield USMC Inspector-Instructor and Springfield USMC Maintenance Chief, 2019, pers. comm.). There is no known storage or use of AFFF or PFAS-containing chemicals associated with MARFORRES activities at the NOSC (Springfield USMC Inspector-Instructor and Springfield USMC Maintenance Chief). No further action is recommended for this special area because (a) there is no evidence of PFAS-containing materials being released to the environment, and (b) it is not on property currently owned by the Navy.
NOSC Spokane	N	NOSC Spokane is an active, Navy-owned installation in Spokane, Washington (**Figure 1-1**). The facility consists of 7 buildings on approximately 22 acres of Navy-owned land. The NOSC provides administrative support for the Navy Reserve. MARFORRES is a tenant at this facility. Based on information provided by NAVSTA Everett and NOSC Spokane staff, there has been no known storage or use of AFFF or large quantities of other PFAS-containing chemicals associated with Navy Reserve activities at this NOSC (NAVSTA Everett Assistant Public Works Officer, 2019, pers. comm.; NOSC Spokane Commanding Officer, 2019, pers. comm.). A 2017 AUL[d] for all NOSCs under the management of NAVSTA Everett does not list any AFFF or known PFAS-containing chemicals. The USMC maintains active duty and reserve forces at the facility. These forces are associated with an artillery unit that has been in place since the NOSC was founded in 1946 (NOSC Spokane Motor Transport Chief, 2019, pers. comm.). There has been no known use or release of AFFF or other PFAS-containing chemicals associated with USMC activities at this location (NOSC Spokane Motor Transport Chief, 2019, pers. comm.). The current USMC AUL for the installation does not list any AFFF or known PFAS-containing chemicals (NOSC Spokane Motor Transport Chief, 2019, pers. comm.). No potential PFAS source areas were identified at this special area; therefore, no further action is recommended for this special area.
NOSC Boise (leased)	N	NOSC Boise is an active installation in Boise, Idaho (**Figure 1-1**). The Navy is a tenant at the facility, which consists of 6 buildings on 7.5 acres of land at Gowen Field (a civil-military airport). The Navy Reserve subleases the facility from the Army National Guard, which in turn, leases the land from the City of Boise (Idaho Army National Guard Environmental Sustainment and Training Specialist, 2019). The NOSC provides administrative support for the Navy Reserve. MARFORRES is a tenant at this facility. Based on information provided by NAVSTA Everett, NOSC Boise, and Idaho Army National Guard staff, there has been no known storage or use of AFFF or large quantities of other PFAS-containing chemicals associated with Navy Reserve activities at this NOSC (NAVSTA Everett Assistant Public Works Officer, 2019, pers. comm.; NOSC Boise Commanding Officer, 2019, pers. comm.; Idaho Army National Guard Environmental Sustainment and Training Specialist, 2019, pers. comm.). A 2017 AUL[d] for all NOSCs under the management of NAVSTA Everett does not list any AFFF or known PFAS-containing chemicals. MARFORRES also is a tenant at this facility. The 4th Tank Battalion, Charlie Company, operates out of this location and performs classroom training and mechanical asset maintenance; they do not have firefighting capabilities, and there is no known use of AFFF or other PFAS-containing chemicals (NOSC Boise Motor Transport Chief, 2019, pers. comm.). No further action is recommended for this special area because (a) there is no evidence of PFAS-containing materials being released to the environment, and (b) it is not on property currently owned by the Navy.

Appendix A—Summary of Special Areas Evaluated

The following in Table A-1 were evaluated for potential PFAS source areas. The listed special areas are shown on Figure 1-1 in the main body of the report.

Table A-1. Special areas associated with NAVSTA Everett

Area	Potential PFAS Source Area (Y/N)	Description and Rational
NOSC Helena (leased)	N	NOSC Helena is an active installation in Helena, Montana (**Figure 1-1**). The Navy is a tenant at the facility, which consists of 1 building on approximately 5 acres of land at Fort Harrison that the Navy uses under a permit granted by the Army National Guard. The NOSC provides administrative support for the Navy Reserve. Based on information provided by NAVSTA Everett and Army National Guard staff, there has been no known storage or use of AFFF or large quantities of other PFAS-containing chemicals associated with Navy Reserve activities at this NOSC (NAVSTA Everett Assistant Public Works Officer, 2019, pers. comm.; Montana Army National Guard Fort Harrison Environmental Program Manager, 2019, pers. comm.) A 2017 AUL[d] for all NOSCs under the management of NAVSTA Everett does not list any AFFF or known PFAS-containing chemicals. No further action is recommended for this special area because (a) there is no evidence of PFAS-containing materials being released to the environment, and (b) it is not on property currently owned by the Navy.
NOSC Billings (leased)	N	NOSC Billings is an active installation in Billings, Montana (**Figure 1-1**). The Navy is a tenant at the facility, which consists of one office building owned by the Army National Guard and used by the Army National Guard, Navy Reserve, and MARFORRES. No land is associated with this facility. The NOSC provides administrative support for the Navy Reserve. The Army National Guard and Marine Corps also use portions of the building, which is an office-style building. Based on information provided by NAVSTA Everett and Army National Guard staff, there has been no known storage or use of AFFF or large quantities of other PFAS-containing chemicals associated with Navy Reserve or MARFORRES activities at this NOSC (NAVSTA Everett Assistant Public Works Officer, 2019, pers. comm.; Montana Army National Guard Fort Harrison Environmental Program Manager, 2019, pers. comm.). A 2017 AUL[d] for all NOSCs under the management of NAVSTA Everett does not list any AFFF or known PFAS-containing chemicals. No further action is recommended for this special area because (a) there is no evidence of PFAS-containing materials being released to the environment, and (b) it is not on property currently owned by the Navy.
NOSC Cheyenne (leased)	N	NOSC Cheyenne is an active installation in Cheyenne, Wyoming (**Figure 1-1**). The Navy is a tenant at the facility, which consists of two buildings at Warren Air Force Base that are leased by the Navy from the Army National Guard. No land is associated with this facility. The NOSC provides administrative support for the Navy Reserve. Based on information provided by NAVSTA Everett and NOSC Cheyenne staff, there has been no known storage or use of AFFF or large quantities of other PFAS-containing chemicals associated with Navy Reserve activities at this NOSC (NAVSTA Everett Assistant Public Works Officer, 2019, pers. comm.; NOSC Cheyenne Safety Department Head, 2019, pers. comm.). A 2017 AUL[e] for all NOSCs under the management of NAVSTA Everett does not list any AFFF or known PFAS-containing chemicals. No further action is recommended for this special area because (a) there is no evidence of PFAS-containing materials being released to the environment, and (b) it is not on property currently owned by the Navy.
NOSC Fargo (leased)	N	NOSC Fargo is an active installation in Fargo, North Dakota (**Figure 1-1**). The Navy is a tenant at the facility, which consists of one jointly-occupied building, about 28 percent of which is leased by the Navy (as office space) from the Army National Guard (NAVFAC Public Works Facility Management Director et al. 2018, pers. comm.; NOSC Fargo Safety Officer and NOSC Fargo Facilities Maintenance Supervisor, 2019, pers. comm.). No land is associated with this facility. The NOSC provides administrative support for the Navy Reserve. Based on information provided by NAVSTA Everett and NOSC Fargo staff, there has been no known storage or use of AFFF or large quantities of other PFAS-containing chemicals associated with Navy Reserve activities at this NOSC (NAVSTA Everett Assistant Public Works Officer, 2019, pers. comm.; NOSC Fargo Safety Officer and NOSC Fargo Facilities Maintenance Supervisor, 2019, pers. comm.). A 2017 AUL[d] for all NOSCs under the management of NAVSTA Everett does not list any AFFF or known PFAS-containing chemicals. No further action is recommended for this special area because (a) there is no evidence of PFAS-containing materials being released to the environment, and (b) it is not on property currently owned by the Navy.
NOSC Sioux Falls (leased)	N	NOSC Sioux Falls is an active installation in Sioux Falls, South Dakota (**Figure 1-1**). The Navy is a tenant at this facility, which consists of a building and 2.82-acre land easement, under a host-tenant real estate agreement with the US Army. Based on information provided by NAVSTA Everett and NOSC Sioux Falls staff, the facility performs administrative activities only, and there has been no known storage or use of AFFF or large quantities of other PFAS-containing chemicals associated with Navy Reserve activities at this NOSC (NAVSTA Everett Assistant Public Works Officer, 2019, pers. comm.; NOSC Sioux Falls NOSC Sioux Falls Senior Enlisted Leader, 2019, pers. comm.). A 2017 AUL[e] for all NOSCs under the management of NAVSTA Everett does not list any AFFF or known PFAS-containing chemicals. No further action is recommended for this special area because (a) there is no evidence of PFAS-containing materials being released to the environment, and (b) it is not on property currently owned by the Navy.
NOSC Minneapolis	N	NOSC Minneapolis is an active, Navy-owned installation in Minneapolis, Minnesota (**Figure 1-1**). The facility consists of 3 buildings on approximately 12 acres of Navy-owned land. MARFORRES is a tenant at this facility. The main facilities at the installation were built in 2001 (Navy, 2018c). The NOSC provides administrative support for the Navy Reserve. Based on information provided by NAVSTA Everett and NOSC Minneapolis staff, there has been no known storage or use of AFFF or large quantities of other PFAS-containing chemicals associated with Navy Reserve activities at this NOSC (NAVSTA Everett Assistant Public Works Officer, 2019, pers. comm.; NOSC Minneapolis Commanding Officer, 2019, pers. comm.). A 2017 AUL[d] for all NOSCs under the management of NAVSTA Everett does not list any AFFF or known PFAS-containing chemicals. The NOSC does not support firefighting vehicles or firefighting training (NAVSTA Everett Assistant Public Works Officer, 2019, pers. comm.; NOSC Minneapolis Commanding Officer, 2019, pers. comm.). MARFORRES is a tenant at this installation and operates a Marine Corps Reserve Center (MCRC). MCRC Minneapolis currently stores approximately 750 to 1,000 gallons of AFFF on site for mission purposes (NAVSTA Great Lakes Environmental Engineer, 2019, pers. comm.). Based on interviews and a February 2019 site visit, the AFFF has been stored at Facility 213524 (Operational Vehicle Parking) and Building N-1 (the primary NOSC and MCRC building). Up until recently, approximately 189, 5-gallon containers of AFFF are stored in a Conex box in the Operational Vehicle Parking area without secondary containment; the AFFF is dated 2015 (NAVSTA Great Lakes Environmental Engineer, 2019, pers. comm.). Portable fire suppression systems (skid-mounted rigs with 100-gallon tanks and hose reels) also are present at the installation in the Operational Vehicle Parking area (NAVSTA Great Lakes Environmental Engineer, 2019, pers. comm.). At the time of a February 2019 site visit, the AFFF was staged in Building N-1 in the motor pool bay. 5-gallon containers of AFFF concentrate were stored in mini-Conex boxes. At time of site visit, 80 containers were staged for disposal, and another 100 containers were in storage for future use or

Appendix A—Summary of Special Areas Evaluated

The following in Table A-1 were evaluated for potential PFAS source areas. The listed special areas are shown on Figure 1-1 in the main body of the report.

Table A-1. Special areas associated with NAVSTA Everett

Area	Potential PFAS Source Area (Y/N)	Description and Rational
		eventual replacement. AFFF is stored in original containers, and there is no known transfer or release on site. AFFF training occurs offsite (for example, Twentynine Palms Marine Corps Base, California; Camp Ripley, Minnesota; Canadian Forces Base Cold Lake, Canada; and potentially Fort McCoy, Wisconsin) (MCRC Minneapolis Firefighter, 2019, pers. comm.; NAVFAC NW Facility Engineer, 2019, pers. comm.). All transfer of AFFF to equipment, draining, and cleaning occurs at the training sites (MCRC Minneapolis Firefighter, 2019, pers. comm.). A vehicle maintenance garage also is present in Building N-1 (Navy, 2018c); maintenance of drained/cleaned AFFF equipment occurs at this location (MCRC Minneapolis Firefighter, 2019, pers. comm.). Based on all information reviewed, AFFF is known to be stored at NOSC Minneapolis, but there has been no known release to the environment. No further action is recommended for this special area.
NOSC Des Moines	N	NOSC Des Moines is an active, Navy-owned installation in Des Moines, Iowa (**Figure 1-1**). The facility consists of 1 building located on approximately 3.5 acres of Navy-owned land. Four adjacent parcels previously associated with NOSC Des Moines have been disposed of by the Navy (transferred to the US Department of the Army (Army) (**Table 2-1**). The property is located at Fort Des Moines, an Army National Guard base. The NOSC provides administrative support and classroom training for the Navy Reserve. MARFORRES is a tenant at this facility. Based on information provided by NAVSTA Everett and NOSC Des Moines staff, there has been no known storage or use of AFFF or large quantities of other PFAS-containing chemicals associated with Navy Reserve activities at NOSC Des Moines (NAVSTA Everett Assistant Public Works Officer, 2019, pers. comm.; NOSC Des Moines Supply Technician and Facilities Manager, 2019, pers. comm.). A 2017 AUL[d] for all NOSCs under the management of NAVSTA Everett does not list any AFFF or known PFAS-containing chemicals. MARFORRES is a tenant at this facility. The unit's mission is to provide classroom training for the reserve company and support funerals and charity events; non-classroom training occurs offsite (Echo Company 2nd Battalion Motor Transport Representative, 2019a, pers. comm.). It does not have firefighting capabilities other than standard fire extinguishers (Echo Company 2nd Battalion Motor Transport Representative, 2019a, pers. comm.). There is no known use or release of AFFF or other PFAS-containing chemicals associated with MARFORRES activities at this NOSC (Echo Company 2nd Battalion Motor Transport Representative, 2019b, pers. comm.). No further action is recommended for this special area.
MCRC St. Paul	N	The Marine Corps Reserve Center (MCRC) St. Paul (**Figure 1-1**), also known as MCRC Fort Snelling, is currently a MARFORRES-owned and operated recruiting and reserve center for reservists who specialize in a particular industry or division (such as maintenance, security, or technology). The specialty rotates over time and is currently law enforcement (Marine Force Reserve Headquarters Deputy Environmental Director, 2019, pers. comm.). The installation currently consists of 2 buildings and associated structures on approximately 16 acres of land. The facility was previously owned by the US Navy and was known as the Navy and Marine Corps Reserve Center St. Paul (NAVFAC NW Facility Engineer, 2019, pers. comm.). Most buildings and structures at the installation were built in 1968 (Marine Corps Support Facility Real Property Staff, 2019, pers. comm.). The facility was used by the Navy Reserve and MARFORRES for reserve administrative operations and training (NAVFAC NW Facility Engineer, 2019, pers. comm.). The installation housed a Damage Control Center, which is a ship simulator used to practice responses actions following damage to ships (NAVFAC NW Facility Engineer, 2019, pers. comm.). For example, personnel would punch holes in the simulator, send water in through the holes, and practice patching up the ship (NAVFAC NW Facility Engineer, 2019, pers. comm.). This simulator did not have the capability to light fires, but crews did have the capability to spray fire hoses to practice firefighting; it is not known whether AFFF was or was not used during these exercises (NAVFAC NW Facility Engineer, 2019, pers. comm.). The simulator is no longer in use but is still present at the facility at its original location inside the main building (NAVFAC NW Facility Engineer, 2019, pers. comm.). In 2003 the Navy Reserve moved to the NOSC Minneapolis facility; MARFORRES operations remained at MCRC St. Paul (NAVFAC NW Facility Engineer, 2019, pers. comm.). The installation was transferred from the US Navy to the US Marine Corps in 2014. There has been no known storage or use of AFFF or large quantities of other PFAS-containing chemicals associated with current-day MORFORRES operations (Marine Force Reserve Headquarters Deputy Environmental Director, 2019, pers. comm.; 4th Law Enforcement Battalion Supply/S-4 Officer, 2019; pers. comm.). There are no records of AFFF use at this facility (NAVSTA Great Lakes Environmental Engineer, 2019, pers. comm.). No further action is recommended for this special area.

Notes;

[a] No hangars, buildings with AFFF suppression systems, AFFF spray test areas, runways, or chromium plating shops were identified at any special area.

[b] Questionnaires documenting interviews will be included in the PA report.

[c] Current and former NRS Jim Creek personnel interviewed in support of this PA were not employed at the installation at the time of this fire. No information regarding this fire was found in an internet search or National Archives Catalog search.

[d] 2017 AUL provided by NAVSTA Everett staff (NAVSTA Everett NAVSUP Employee, 2019, pers. comm.).

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NAVFAC. 2016b. Environmental Condition of Property Brier Housing Seattle, Washington. January.
NAVFAC. 2017. Cultural Resources Sensitivity Study of the U.S. Navy Pacific Beach Annex, Naval Station Everett, Pacific Beach, Washington. December.
NAVFAC NW AM PPV Project Manager. 2018. Pier 91 Annex Spatial Data and POC/Brier History. Personal communication (email to CH2M). December 19.
NAVFAC NW Facility Engineer. 2019. Personal communication (interview with CH2M). February 25.
NAVFAC Public Works Facility Management Director. 2018. Personal communication (interview with CH2M). December 11.
NAVFAC Public Works Facility Management Director, NAVSTA Everett Lead Facility Management Specialist, NAVSTA Everett Environmental Director, NAVSTA Everett Environmental Operations Supervisor, NAVSTA Everett Deputy Public Works Officer, NAVSTA Everett Public Works Officer, NAVSTA Everett Assistant Public Works Officer, and NAVSTA Everett Facility Operations Specialist/Asbestos Program Manager. 2018. Personal communication (interview with CH2M). December 6.
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NAVSTA Everett Environmental Operations Supervisor. 2019. NAVSTA Everett PFAS Pacific Beach. Personal communication (email to CH2M with attached questionnaire filled out January 15, 2019). January 16.
NAVSTA Everett Naval Exchange Operations Manager. 2019. Re: question about Smokey Point Auto Hobby Shop. Personal communication (email to CH2M). January 3.
NAVSTA Everett Remedial Project Manager. 2018. Personal communication (email to CH2M). December 20.
NAVSTA Great Lakes Environmental Engineer. 2019. Personal communication (interview with CH2M). January 25.
NAVSUP Everett NAVSUP Employee. 2019. AUL request. Personal communication (email to CH2M). January 7.
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Naval Computer and Telecommunications Area Master Station Atlantic (NCTAMS LANT) Detachment LaMoure Technical Director/COR. 2019a. NAVSTA Everett PFAS Investigation NRS Lamoure. Personal communication (email to CH2M). February 6.
NCTAMS LANT Detachment LaMoure Technical Director/COR. 2019b. RE: NAVSTA Everett PFAS Investigation NRS Lamoure. Personal communication (email to CH2M with attached questionnaire). January 25.
NCTAMS LANT Detachment LaMoure Technical Director/COR. 2019c. RE: NAVSTA Everett PFAS Investigation NRS Lamoure. Personal communication (email to CH2M with attached questionnaire). February 13.
Naval Operations Support Center (NOSC) Boise Commanding Officer. 2019. NAVSTA Everett PFAS Investigation NOSC Boise. Personal communication (email to CH2M). January 9.
NOSC Boise Motor Transport Chief. 2019. Personal communication (email to CH2M with attached questionnaire). March 5.
NOSC Cheyenne Safety Department Head. 2019. Personal communication (interview with CH2M). January 24.
NOSC Des Moines Supply Technician and Facilities Manager. Personal communication (interview with CH2M). January 17.
NOSC Fargo Safety Officer and NOSC Fargo Facilities Maintenance Supervisor. 2019. Personal communication (interview with CH2M). January 15.
NOSC Minneapolis Commanding Officer. 2019. NOSC Minneapolis POC for PFAS PA. Personal communication (email to CH2M). January 16.
NOSC Portland Commanding Officer. 2019. Personal communication (interview with CH2M). January 24.
NOSC Portland USMC Inspector-Instructor and NOSC Portland USMC Supply and Facilities Officer. 2019. Personal communication (email to CH2M with attached questionnaire). March 14.
NOSC Sioux Falls Senior Enlisted Leader. 2019. Personal communication (interview with CH2M). February 21.
NOSC Spokane Commanding Officer. 2019. RE: NAVSTA Everett PFAS Investigation NOSC Spokane. Personal communication (email to CH2M with attached questionnaire). February 7.
NOSC Spokane Motor Transport Chief. 2019. Personal communication (interview with CH2M). February 26.
Naval Recreation Complex (NRC) Pacific Beach Public Works Employee. 2019. Personal communication (interview with CH2M). March 12.

Naval Surface Warfare Center, Carderock Division Acoustic Research Detachment (NSWCCD ARD) Environmental and Safety Manager. 2019a. Personal communication. January 23.
NSWCCD ARD Environmental Safety and Health Manager. 2019b. AUL and SPCC Plan. Personal communication (email to CH2M). January 23.
NSWCCD ARD Environmental and Safety Manager, NSWCCD ARD Facility Manager, NSWCCD ARD Maintenance Staff, and NSWCCD ARD Testing Manager. 2019. Personal communication (Communication Record). January 23.
NSWCCD ARD Site Director, NSWCCD ARD Facility Manager, and NSWCCD ARD Environmental and Safety Manager. 2019. Personal communication (interview with CH2M). January 11.
Oregon Military Department Installations Division Water Quality Program Manager, Environmental Branch Installations Division Chief, NOSC Springfield Commanding Officer. 2019. Personal communication (interview with CH2M). January 22.
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Springfield USMC Inspector-Instructor and Springfield USMC Maintenance Chief. 2019. Personal communication (email to CH2M with attached questionnaire). March 6.
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URS. 1995. Final Preliminary Assessment for the Comprehensive Long-term Environmental Action Navy (CLEAN) Contract, Northwest Area Acoustic Research Detachment Bayview, Idaho Contract Task Order 0171. April.

Appendix B
Summary of Records Reviewed, Interview Contacts, and Area Coordinates

Appendix B-1
Summary of Records Reviewed

Author	Document Date	Document Type	Document title	NIRIS Record No.
DoN NAVFAC NW	11/7/2017	Statement of Work	XZ81_Initial RFP_11-09-17	ACQR 5081751
NAVFAC/Sealaska Environmental Services, LLC	1/24/2011	Site Assessment Report	Site Assessment Report Soil and Groundwater Sampling Brier Housing	N68967_000001
NAVY	5/28/96	Site Characterization Report	Preliminary Site Characterization & Analysis with SCAPS	N68967_000013
Foster Wheeler Environmental	December 11th 1997	Remedial Investigation Report	Pacific Beach: Remedial Investigation Independent Cleanup Action Petroleum Contaminated Soil at Buildings 105 & 106	N68967_000031
URS	July 13th 1994	Environmental Baseline Survey Report	Paine Field Housing Environmental Baseline Survey Report	N68967_000049
URS	April-93	Screening Site Inspection	Homeport: Screening Site Inspection Report	N68967_000052
ENSR Consulting and Engineering	October-93	Final Site Characterization Report	Department of Navy Engineering Field Activity, Northwest Navel Facilities Engineering Command. Site Characterization	N68967_000068
URS	November-92	Site Investigation	Site Investigation Naval Station Puget Sound Paine Field. Everett, Pacific Beach	N68967_000259
The Environmental Company, Ch2m Hill, Pentec, URS forms at end	October-01	Long-Term Monitoring Project Work Plan	Environmental Services Monitoring: Monitoring Well Closure Site 5 and 39 Naval Radio Station Jim Creek. (oct)	N68967_000306
URS	June 19 1992	Site Investigation	Site Investigation Naval Station Puget sound Everett. Draft	N68967_000314
URS	June-89	Reconnaissance Study RI/FS Remediation and Potential EIS	East Waterway cleanup Reconnaissance Study RI/FS and EIS Workplan	N68967_000328
Engineering Field Activity, Northwest, Naval Facilities Engineering Command	August-96	Baseline Survey	Phase I Environmental Baseline Survey For Transfer of Naval Station Everett West Marine View Drive and 18th street Properties. The properties are proposed for transfer, via easement, to the City of Everett for maintenance and improvements	N68967_000335
NAVY	February-96	Environmental Assessment	Environmental Assessment for the Replacement and New Construction of Navy Housing in the Vicinity of NAVSTA Everett	N68967_000339
EMCON	November-97	Analysis Report	October 1997 Water Quality Monitoring Long-Term Water and Sediment Monitoring Naval Station Everett Written Analysis Report	N68967_000355
The Environmental Company, Ch2m Hill, Pentec, URS forms at end	Unknown (1995?)	Long-Term Monitoring Project Work Plan	Environmental Services Monitoring: Monitoring Well Closure Site 5 and 39 Naval Radio Station Jim Creek. (nov)	N68967_000357
ENSR Consulting and Engineering	Oct-95	Groundwater Monitoring Report	Department of Navy Engineering Field Activity, Northwest Navel Facilities Engineering Command. Final Ground water Monitoring Report. Brier Housing, etc.	N68967_000368
ENSR Consulting and Engineering	Mar-93	Site Characterization Report	Department of Navy Engineering Field Activity, Northwest Navel Facilities Engineering Command. Site Characterization of Brier House Area	N68967_000370
TEC LTM Team. The Environmental Company, Ch2m, Pentec	Oct-02	Long-Term Monitoring site Investigation report	Environmental Services Monitoring. Final. Site investigation Report Abandoned Firing Range -site 9 and Naval Radio Station	N68967_000377
Washington Department of Ecology	14-Mar-06	Letter	Final Preliminary Assessment Naval Radio Station (T) Jim Creek, Washington. January 2006. (letter cover)	N68967_000379
NAVFAC	7-Oct-10	Sampling and Analysis Plan and QC Plan	Sampling and Analysis Plan and Quality Control Plan. Soil and Groundwater sampling. Brier Housing	N68967_000392
URS	21-Feb-92	Preliminary Assessment	Preliminary Assessment Naval Station Puget Sound (IAS)	NA
EPA Northwest Enviroment. NAVFAC	5-Aug-92	Report	Environmental Pollution Report	NA
Unknown	Unknown	Unknown	INFADS (facility files)	NA
Unknown	Unknown	Unknown	OEL files	NA
Unknown	30-Nov-00	Report	A report on the Status of some of the Sewage Systems Serving the Naval Radio Station (T) Jim Creek.	NA
Engineering Field Activity, Northwest, Naval Facilities Engineering Command	6/13/1996	Summary Report	Site Characterization and Analysis Penetrometer System (SCAPS) Summary Report	N68967_000012
Engineering Field Activity, Northwest, Naval Facilities Engineering Command	february 21. 1992	Preliminary Assessment	Final Preliminary Assessment Naval Station Puget Sound	N68967_000016
Pacific NW GeoReadiness Center	January 2018	Maps	Naval Station Everett, Map Library: Base Map Series, Map Date: January 2018	NA
Pacific NW GeoReadiness Center	January 2018	Maps	Naval Station Everett Marysville, Map Library: Base Map Series, Map Date: January 2019	NA
URS	22-Oct-93	Environmental Site Assessment	Phase 1 Environmental Site Assessment: Slip 5, Slip 7 and Bldg. M86-Pier 90	N68967_000021
Unknown	8/18/1992	Unknown	Final Project Plans Naval Station Puget Sound, Everett, Washington: Site Inspection	N68967_000026
URS, Science applications international, B & V waste science and technoloy, Shannon & Wilson	Dec-92	Technical Memorandum	Technical Memorandum Screen Site Inspection: Naval Station Puget Sound Everett Washington CTO 0079	N68967_000029
Department of the Navy. Engineering filed activity northwest	21-Jan-94	Environmental Review	Final Report Environmental Review Naval Station Everett Everett Washignton	N68967_000038
Naval Energy and Environmental Support Activity	Jul-90	Preliminary Assessment	Final Preliminary Assessment report Naval Radio Station(T), Jim Creek OSO, Washington	N68967_000055

Author	Document Date	Document Type	Document title	NIRIS Record No.
URS	5-Oct-92	Quality Assurance Project Plan	Site Inspection Naval Station Puget Sound, Paine Field, Everett Washington and Pacifica Beach, Washington, Draft Quality Assurance Project Plan	N68967_000255
URS	5-Oct-92	Work plan and Site investifation	Site Investigation Naval Station Puget Sound Paine Field Everett Washington and Pacific Beach Washington: Draft Work Plan	N68967_000256
URS	5-Oct-92	Site Inpection/Field sampling Plan	Site Inspection Naval Station Puget Sound Paine Field Everett Washington and Pacific Beach Washington: Draft Field sampling Plan	N68967_000257
URS	5-Oct-92	Site inspection/Draft Health & Safty Plan	Site Inspection Naval Station Puget Sound Paine Field Everett Washington and Pacific Beach Washington Draft Health & Safety Plan	N68967_000258
Naval Energy and Environmental Support Activity	16-Dec-91	Preliminary Assessment	Preliminary Assessment Report Naval Station Puget Sound Family Housing Annexes	N68967_000263
Unknown	18-Dec-91	Letter	Environmental Contamination at Everett Homeport Site (Letter)	N68967_000265
Unknown	1926	Unknown	History of Snohomish Country Washington	N68967_000294
Snohomish County Department of Planning and Community Development	September 28 1998	Preliminary Assessment Draft	Draft Preliminary Assessment of North Snohomish Country Public Water supply Issues	N68967_000304
Unknown	Novermber 9, 1992	Unknown	Final Report Repair and improvements to Pier Echo, Naval Station Puget Sound: Inspection and Structural Condition Assessment of Piles and Superstructure	N68967_000316
Unknown	1-Dec-92	Unknown	Additional Environmental Evaluation Navy Community Support Complex Near Marysville, Washington	N68967_000327
Unknown	Jan-06	Unknown	Final Preliminary Assessment Naval Radio Station Jim Creek Washington	N68967_000378
Unknown	Nov-84	Map	NRS Jim Creek Culverts Map	NA
Unknown	1/1/1984	Boring Log	Well Installation Report Pacific Beach	NA
Landau Associates, Inc.	28-Jun-93	Site Assessment	SA NRC Everett	N62144_000001
Department of Ecology	11/19/2015	Letter	Letter of No Further Action - Brier Family Housing	NA
NAVFAC	Jan-16	Unknown	Environmental Conditon of Property - Brier Family Housing	NA
Department of Ecology	5/10/2011	Unknown	Termination of Voluntary Cleanup - Brier Family Housing	NA
Department of Ecology	2/2/2012	Letter	LUST - NFA Letter - Pier 91	NA
Unknown	Unknown	Unknown	Exhibit A from Billings Lease	NA
Unknown	Unknown	Unknown	Exhibits A and B from Cheyenne in-permit 14RP00046	NA
Ecology	2/14/2018	Letter	Letter	NA
Aspect Consulting	3/15/2013	Data Report	Data Report for Phase 2 ESA-Final	NA
Unknown	9/29/2014	Report appendices	Everett Mill RI Data Report Appendices	NA
Unknown	9/29/2014	Data Report	Everett Mill RI Data Report	NA
NW Archaeological Associates	3/25/2013	Archaeological Resources Assessement	Final Non-Confidential ARA Kimberly Clark Everett Mill	NA
Aspect Consulting	11/22/2013	Work Plan	Final RIFS Work Plan with non-confidential ARA	NA
Aspect Consulting	6/12/2014	Work Plan	IA GW Compliance Monitoring WP Final	NA
Aspect Consulting	4/8/2018	Interim Action Report	IA Report - Final	NA
Aspect Consulting	7/13/2018	Work Plan	Interim Action Plan 2018 - Draft Final	NA
Ecology	1/24/2018	Letter	Kimberly-Clark January 2018 Letter	NA
Aspect Consulting	2/25/2014	Memo	Porewater Sampling Plan	NA
Aspect Consulting	2/13/2015	memo	Porewater Sulfide SAP Memo-Final	NA
Aspect Consulting	11/12/2013	Closure Report	RCRA Closure Report for Kimberly-Clark Mill	NA
Aspect Consulting	9/18/2015	Memo	RIFS Work Plan Addendum - Final	NA
Aspect Consulting	2/18/2014	Memo	Vapor Sampling Addendum_REV	NA
AECOM	Apr-11	Environmental Site Assessment	Everett Mill Phase 1 ESA Final	NA
Aspect Consulting	5/21/2012	Work plan	Work Plan for Independent Phase 2 Environmental Assessment	NA
Aspect Consulting	9/7/2012	Work plan addendum	Addendum to Work Plan for Independent Phase 2 Environmental Assessment	NA
David Evans & Assoc.	3/1/2012	Storm Water Pollution Prevention Plan	Storm Water Pollution Preveition Plan	NA
Unknown	12/23/2018	Site Hazard Assessment	Site Hazard Assessment	NA
Federal Facilities Site Assessment Manager	5/23/1997	Letter	Bayview ARD Letter	N62182_000002
URS	4/21/1995	Preliminary Assessment	Final Preliminary Assessment ARD Bayview	N62182_000004
URS	Nov-96	Site Inspection Report	Final Site Inspection Report ARD Bayview	N62182_000006
Unknown	7/25/1996		Toxicity Characteristic Leaching Procedure Results for Lake Sediments	N62182_000009
Foster Wheeler Environmental	1/14/2003	Intermediate/Rapid Response Report	Final Bayview IRR Report	N62182_000011
NAVFAC	Feb-11	ESA	Jim Creek ESA	NA

Author	Document Date	Document Type	Document title	NIRIS Record No.
NAVFAC Public Works Facility Management Director - NAVSTA Everett	11/13/2018	Email	Email	NA
Unknown	1/12/2018	Categorical Exclusion Documentation	CATEX PB Demolish	NA
Groundwater Technology/Foster Wheeler Environmental	5/8/1996	Cleanup action report	Independent Cleanup Action - Final Report Site xx - NRS Jim Creek	NA
Unknown	3/18/1997	Unknown	Site Addition Request	NA
Foster Wheeler Environmental	6/27/1997	Unknown	Site Demolition Plan - Old Naval Reserve Center	N61244_000003
Foster Wheeler Environmental	12/16/1998	Unknown	Independent Remedial Action Closure Report - Old Naval Reserve Center	N61244_000005
Foster Wheeler Environmental	6/20/1997	Unknown	Remedial Action Work Plans - Demolition and Soil Rmediation - Old Naval Reserve Center	N61244_000008
Navy	10/15/1981	Survey map	Naval Supply Center Land Disposal Map	NA
Unknown	Unknown	Unknown	Inventory and Evaluation: The Navy's Pacific Beach Facilities, Pacific Beach, Washington	NA
NAVFAC	Dec-17	Report	Cultural Resources Sensitivity Study of the U.S. Navy Pacific Beach Annex, Naval Station Everett, Pacific Beach, Washington	NA
Unknown	Unknown	Unknown	Re: question about Smokey Point auto hobby shop	NA
Unknown	Unknown	Unknown	Re: AUL request	NA
Unknown	Unknown	Unknown	NRS (T) jim Creek Missing ERN Sites	NA
Unknown	Unknown	Unknown	Cultural Resources Assessment of the Deluxe Cabin Project at Naval Radio Station Transmitter Jim Creek, Snohomish County, Washington	NA
Unknown	Unknown	Unknown	Historic Property Report Jim Creek Radio Station - Administration Building/Bldg #2	NA
Unknown	Unknown	Unknown	Historic Property Report Jim Creek Radio Station - Barracks Building/Bldg #3	NA
Unknown	Unknown	Unknown	Historic Property Report Jim Creek Radio Station - Gate House Building/Bldg #5	NA
Unknown	Unknown	Unknown	Historic Property Report Jim Creek Radio Station - Fire Station Building/Bldg #6	NA
Unknown	Unknown	Unknown	Historic Property Report Jim Creek Radio Station - Gasoline Station Building/Bldg #8	NA
Unknown	Unknown	Unknown	Historic Property Report Jim Creek Radio Station - Reserve Storage Garage Building/Bldg #9	NA
Unknown	Unknown	Unknown	Historic Property Report Jim Creek Radio Station - Central Storage Building/Bldg #10	NA
Unknown	Unknown	Unknown	Historic Property Report Jim Creek Radio Station - Reserve Storage Shop/Paint Shop Building/Bldg #11	NA
Unknown	Unknown	Unknown	Historic Property Report Jim Creek Radio Station - Shop/Riggers Building/Bldg #12	NA
Unknown	Unknown	Unknown	Historic Property Report Jim Creek Radio Station - Reserve Storage Building/Bldg #13	NA
Unknown	Unknown	Unknown	Historic Property Report Jim Creek Radio Station - Flagpole/$42	NA
Unknown	Unknown	Unknown	Historic Property Report Jim Creek Radio Station - Recreation Building/Bldg #4	NA
Unknown	Unknown	Unknown	Historic Property Report Jim Creek Radio Station - Tennis Court/#46	NA
Unknown	Unknown	Unknown	Historic Property Report Jim Creek Radio Station - Storage Shed Building/Bldg #63	NA
Unknown	Unknown	Unknown	Historic Property Report Jim Creek Radio Station - Storage Shed Building/Bldg #62	NA
Unknown	Unknown	Unknown	Historic Property Report Jim Creek Radio Station - Storage Shed Building/Bldg #64	NA
Unknown	Unknown	Unknown	Historic Property Report Jim Creek Radio Station - Picnic Shelter Building/Bldg #66	NA
Unknown	Unknown	Unknown	Historic Property Report Jim Creek Radio Station - Retaining Wall 2	NA
Unknown	Unknown	Unknown	Historic Property Report Jim Creek Radio Station - Softball Field	NA
Unknown	Unknown	Unknown	Architectual Survey and Evaluation; Naval Station Evertt	NA
Unknown	Unknown	Unknown	Historic Property Report Naval Station Everett - Location Exchange	NA
Unknown	Unknown	Unknown	Historic Property Report Naval Station Everett - Sweage Pump Station	NA
Unknown	Unknown	Unknown	Historic Property Report Naval Station Everett - Sentry House	NA
Unknown	Unknown	Unknown	Historic Property Report Naval Station Everett - Sentry House	NA
Unknown	Unknown	Unknown	Historic Property Report Naval Station Everett - Pier D	NA
Unknown	Unknown	Unknown	Historic Property Report Naval Station Everett - Pier E	NA
Unknown	Unknown	Unknown	Historic Property Report Naval Station Everett - Seawall/Bulkhead	NA
Unknown	Unknown	Unknown	Historic Property Report Naval Station Everett - 1930s Bulkhead	NA
Unknown	Unknown	Unknown	Cultural Resource Sensitivity Study of the U.S. Navy Pacific Beach Annex, Naval Station Everett, Pacific Beach, Washington	NA
Unknown	Unknown	Unknown	Inventory and Evaluation: The Navy's Pacific Beach Facilities, Pacific Beach, Washington	NA
Unknown	Unknown	Unknown	Historic Property Report - Shop Building	NA
Unknown	Unknown	Unknown	Historic Property Report - Storehouse	NA
Unknown	Unknown	Unknown	Historic Property Report - Grounds Equipment Building	NA
Unknown	Unknown	Unknown	Historic Property Report - Boiler Plant and Fire Station	NA

Author	Document Date	Document Type	Document title	NIRIS Record No.
Unknown	Unknown	Unknown	Historic Property Report - Generator Building	NA
Unknown	Unknown	Unknown	Historic Property Report - Transmitter Building	NA
Unknown	Unknown	Unknown	Historic Property Report - Personnel Building	NA
Unknown	Unknown	Unknown	Historic Property Report - Gym	NA
Unknown	Unknown	Unknown	Historic Property Report - Boat Storage	NA
Unknown	Unknown	Unknown	Historic Property Report - Special Service Building	NA
Unknown	Unknown	Unknown	Historic Property Report - Bachelor Officer's Quarters	NA
Unknown	Unknown	Unknown	Historic Property Report - Bowling Alley	NA
Unknown	Unknown	Unknown	Historic Property Report - Potable Water Plant	NA
Unknown	Unknown	Unknown	Historic Property Report - Water Tank - Pacific Beach	NA
Unknown	Unknown	Unknown	Historic Property Report - Restroom/Shower Facility	NA
Unknown	Unknown	Unknown	Historic Property Report - Small Arms Magazine	NA
Unknown	Unknown	Unknown	Historic Property Report - North RV Park	NA
Unknown	Unknown	Unknown	Historic Property Report - Picnic Shelter	NA
Unknown	Unknown	Unknown	Historic Property Report - Foot Bridge	NA
Unknown	Unknown	Unknown	Historic Property Report - Foot Bridge	NA
Unknown	Unknown	Unknown	Historic Property Report - Navy Pacific Beach - Building 52 - Observation Platform	NA
Unknown	Unknown	Unknown	Historic Property Report - Softball Field Dugout Foundation	NA
Unknown	Unknown	Unknown	Historic Property Report - Storage Shed	NA
Unknown	Unknown	Unknown	Naval Station Everett Utilities Plan Drawing	NA
Unknown	Unknown	Unknown	Naval Station Everett Utilities Plan Drawing Storm Drain Plan	NA
Unknown	Unknown	Unknown	Email: OW conveyance system	NA
HRA Inc.	Dec-97	Cultural Resource Survey Report	Bayview ARD Archaeoligical Survey	NA
Unknown	Unknown	Unknown	Naval Reserve Training Center Real Estate Summary Map	NA
Unknown	Unknown	Unknown	Scott Paper Company Map	NA
Unknown	Unknown	Unknown	Boundary Line Adjustment for Scott Paper Company	NA
Unknown	1/13/1997	Unknown	Naval Reserve Center Quitclaim Deed	NA
Unknown	Jun-06	Discipline report	Historic, Cultural, and Archaeological Resrouces Magnolia Bridge Replacement - Parts 1, 2, &3	NA
Unknown	Unknown	Unknown	Bayview AUL	NA
Unknown	Unknown	Unknown	Spill Prevention Control and Countermeasure Plan certification	NA
HistoryLink	2/20/2014	Unknown	Washington Naval Depots (WWII)	NA
NAVFAC Public Works Facility Management Director - NAVSTA Everett	1/28/2019	Email	NAVSTA Everett Building Inquiry - Email Correspondance	NA
Ft. Snelling - POC	1/29/2019	email with pdf attachment	Email with Ft. Snelling map	NA
Ft. Snelling - POC	1/28/2019	email with zip file attachment	Email with GIS zip file	NA
NAVSTA Everett Fire Chief	1/29/2019	email	Email - Sailor's Choice Marina Fire	NA
Michael Baker International	Jul-18	Stormwater compliance review	MCRC Ft. Snelling Stormwater Compliance Review	NA
Michael Baker International	Jul-18	Water process unit report	MCRC Ft. Snelling Water Process Unit Report	NA
Blaine Brock, Regional Sanitatian, Naval Hospital Bremerton	6/6/2017	Unknown	Written Opinion on Drinking Water for NCTAMS-Detatchment Lamoure	NA
Blacktrail Environmental	11/17/2016	Unknown	Spill Prevention, Control, and Countermeasure Plan - NCTAMS LANT Det LaMoure	NA
Technical Director NCTAMS LANT LaMoure	2/6/2019	email	NAVSTA Everett PFAS Investigation NRS Lamoure - email	NA
Leidos	2016	report	St. Paul/Minneapolis Air National Guard PFAS PA	NA
BB&E	2015	report	St. Paul/Minneapolis Air National Guard PA/SI	NA
Motor Transport Maintenance Chief - NOSC Spokane	2/26/2019	email with attachment	Email with attachment - AUL for USMC at NOSC Spokane	NA
Unknown	2013, 2014	Notes from CORs	Naval Station Everett COR Review	NA
Unknown	Mar-16	Map	Jim Creek Map 2016	NA
City of Everett	accessed 4/15/2019	statement	Everett PFAS Statement	NA
Everett Port Commission	2/2/2016	Meeting Packet	Regular Meeting Packet	NA
Landau Associeates, Inc.	1993	Environmental Site Assessment	Phase 1 Environmental Site Assessment Naval Reserve Center Everett, Washington	N62144_000001
Navy	May-18	Unknown	Consistency Instructions for Navy Preliminary Assesments for Per- and Polyfluoroalkyl Substances.	NA
Navy	11/2/2018	Website	CNIC Naval Station Everett	NA
AUL Contact	1/7/2019	Personal Communication	AUL Request	NA
Public Works Utility Supervisor - NAVSTA Everett	12/10/2018	Personal Communication	Interview	NA

Author	Document Date	Document Type	Document title	NIRIS Record No.
Integrated Solid Waste Manager	12/10/2018	Personal Communication	Interview	NA
Supply Technician / Logistics Clerk	12/10/2018	Personal Communication	Interview	NA
PSNS/IMF Logistic Specialist	12/10/2018	Personal Communication	Interview	NA
Logistics Management Specialist	1/14/2019	Personal Communication	Email Questionnaire	NA
Logistics Management Specialist	1/24/2019	Personal Communication	Email Questionnaire	NA
NAVSTA Everett Fire Chief	12/11/2018	Personal Communication	Interview	NA
Utility Repairer Service Operator	12/11/2018	Personal Communication	Interview	NA
Hazardous Waste Disposer / Environmental Operations Supervisor	12/11/2018	Personal Communication	Interview	NA
NAVFAC Public Works Facility Management Director	1/29/2019	Personal Communication	Interview	NA
Department of Ecology	10/24/2018	Website	Navy Brier Housing Area	NA
NAVFAC NW - Land Surveyor	11/1/2018	Personal Communication	Brier Housing Spatial Data and POC	NA
Public Private Ventures Program Contact	12/19/2018	Personal Communication	Pier 91 Annex Spatial Data and POC/Brier History	NA
General Services Administration	Jan-72	Draft Environmental Statement	Draft Environmental Statement Naval Supply Center, Puget Sound, Seattle Division (Pier 90/91) Seattle, Washington	NA
Department of Ecology	10/24/2018	Website	Naval Station Seattle Pier 91 Qtrs B	NA
Department of Ecology	10/24/2018	Website	Naval Station Sandpoint Closure	NA
Department of Ecology	2/2/2012	Letter	Letter to Property Owner/US Navy Station Seattle regarding No Further Action (NFA) Determination associated with Leaking Underground Storage Tank (LUST) Site	NA
NAVFAC NW - Land Surveyor	12/19/2018	Personal Communication	RE: Pier 91 Annex Spatial Data and POC	NA
Public Private Ventures Program Contact	12/19/2018	Personal Communication	RE: Pier 91 Annex Spatial Data and POC	NA
Department of Ecology	10/23/2018	Website	US NAVY Radio Station Jim Creek	NA
Department of Ecology	10/23/2018	Website	Cleanup Site Details US NAVY Radio Station Jim Creek	NA
Navy	11/5/2018	Website	CNIC Naval Station Everett	NA
NEESA	July, 1990	Preliminary Assessment	Preliminary Assessment Report Naval Radio Station (T), Jim Creek Oso, Washington	NA
Foster Wheeler Environmental	5/14/1996	Final Report	Independent Cleanup Action – Final Report Site 26 Naval Radio Station (T), Jim Creek Arlington, Washington	NA
The Environmental Company	Dec-01	Report	Monitoring Well Closure Report Areas 5 and 39 Naval Radio Station Jim Creek Snohomish County, Washington	NA
Malcom Pirne, Inc.	Jan-06	Preliminary Assessment	Final Preliminary Assessment Naval Radio Station (T) Jim Creek, Washington.	NA
NAVFAC	Feb-11	Site Assessment	Phase 1 Environmental Site Assessment Naval Radio Station Jim Creek Housing Arlington, Washington	NA
Department of Ecology	10/24/2018	Website	US Naval Station Pacific Beach	NA
Navy	9/1/2014	Environmental Assessment	Pacific Northwest Electronic Warfare Range Final Enviornmental Assessment.	NA
Environmental Operations Supervisor	1/16/2019	Personal Communication	NAVSTA Everett PFAS Pacific Beach	NA
Department of Ecology	11/20/2018	Website	Scott Paper Co Everett	NA
Department of Ecology	11/20/2018	Website	Kemberly-Clark Worldwide	NA
Foster Wheeler Environmental	12/1/1998	Report	Independent Remedial Action Closure Report Old Naval Reserve Center Everett, Washington	N62144_000005
Site Hazard Assessment Worker	Dec-13	Worksheet	Site Hazard Assessment Worksheet 1 Summary Score Sheet	NA
Asche, G.P.	Apr-72	Conference	The Omega System of Global Navigation. 10th International Hydrographic Conference	NA
Navy	2/11/2019	Website	NCTAMS LANT Detachment Lamoure (11)	NA
Idaho Department of Environmental Quality	11/2/2018	Map	Waste Remediation Facility Mapper	NA
NAVSEA	2018	Website	Acoustic Research Detachment-Bayview, Idaho	NA
URS Consultants, Inc.	Apr-95	Preliminary Assessment	Final Preliminary Assessment for the Comprehensive Long-term Environmental Action Navy (CLEAN) Contract, Northwest Area Acoustic Research Detachment Bayview, Idaho	N62182_000004
Navy	Jan-97	Book	Naval Surface Warface Center Acoustic Research Detachment (ARD) Bayview, Idaho Final Environmental Impact Statement for Capital Improvements	NA
Foster Wheeler Environmental	1/14/2003	Letter	Letter to NAVFAC regarding Final Letter Report on IRR to Perform Spill Assessment and Cleanup, Navy Surface Warfare Detachment, Bayview, Idaho	NA
Site Director - NSWCCD ARD	1/15/2019	Personal Communication	NSWCCD ARD Building Fire Suppression Types	NA
Public Works Officer	Jan-19	Personal Communication	PFAS Study	NA
Public Works Officer	1/14/2019	Personal Communication	PFAS Study	NA
Commanding Officer - NOSC Boise	1/9/2019	Personal Communication	NAVSTA Everett PFAS Investigation NOSC Boise.	NA
Commanding Officer - NOSC Boise	1/10/2019	Personal Communication	NAVSTA Everett PFAS Investigation NOSC Boise.	NA
Environmental Sustainment and Training Specialist	1/17/2019	Personal Communication	Interview	NA

Author	Document Date	Document Type	Document title	NIRIS Record No.
NOSC Helena - Commanding Officer	1/15/2019	Personal Communication	NAVSTA Everett PFAS Investigation NOSC HELENA	NA
Safety Department Head - NOSC Cheyenne	1/24/2019	Personal Communication	Interview	NA
Commanding Officer - Springfield	1/10/2019	Personal Communication	LCDR, returning Calll; NAVSTA Everett PFAS Investigation NOSC Springfield	NA
Installations Division (AGI) Water Quality Program Manager / Installation Division Environmental Branch Chief / Commanding Officer - Springfield	1/22/2019	Personal Communication	Interview	NA
Commanding Officer - Springfield	1/22/2019	Personal Communication	LCDR, returning Calll; NAVSTA Everett PFAS Investigation NOSC Springfield	NA
Installations Division (AGI) Water Quality Program Manager	1/22/2019	Personal Communication	LCDR, returning Calll; NAVSTA Everett PFAS Investigation NOSC Springfield	NA
Safety Officer - NOSC Fargo	1/11/2019	Initial Contact	NAVSTA Everett PFAS Investigation NOSC Fargo	NA
Safety Officer - NOSC Fargo / Facilities Maintenance Supervisor	1/15/2019	Personal Communication	Interview	NA
Department of Ecology	11/5/2018	Website	Department of Ecology Cleanup Site Search	NA
HartCrowser, Inc.	12/1/1992	Letter	Letter NBBJ regarding Additional Environmental Evaluation Navy Community Support Complex Near Marysville, Washington	N68967_000327
Pacific NW GeoReadiness Center	Jan-18	Map	Naval Station Everett Marysville Map Library: Base Map Series Map Date: January 2018	NA
Snohomish County	Sep-88	Preliminary Assessment	Preliminary Assessment of North Snohomish County Public Water Supply Issues (draft)	N68967_000304
Operations Manager	1/3/2019	Personal Communication	Re: question about Smokey Point auto hobby shop. Personal communication	NA
Navy	1/4/2019	Website	Navy Exchange	NA
Oregon Department of Environmental Quality	11/5/2018	Website	US Navy and Marine Reserve Center	NA
EPA	Jan-17	Record	Record of Decision Portland Harbor Superfund Site Portland, Oregon	NA
Hardy Heck Moore & Myers	1997	Report	Cultural Resources Survey and Assessment Naval & Marine Corps Reserve Center Portland, Oregon	NA
Environmental Engineer - NAVSTA Great Lakes	11/19/2018	Personal Communication	Everett (NAVSTA) PFAS Investigation	NA
NOSC Minneapolis - Commanding Officer	1/16/2019	Personal Communication	NOSC Minneapolis POC for PFAS PA	NA
Environmental Engineer - NAVSTA Great Lakes	1/25/2019	Personal Communication	Interview	NA
Supply Technician/Facilities Manager - NOSC Des Moines	1/11/2019	Personal Communication	NAVSTA Everett PFAS Investigation NOSC DES MOINES	NA
Supply Technician/Facilities Manager - NOSC Des Moines	1/17/2019	Personal Communication	Interview	NA
Environmental Engineer - NAVSTA Great Lakes	11/1/2018	Personal Communication	Everett (NAVSTA) PFAS Investigation	NA
Real Property, Marine Corps Support Facility POC	1/7/2019	Personal Communication	Everett (NAVSTA) PFAS Investigation	NA
Environmental Engineer - NAVSTA Great Lakes	1/25/2019	Personal Communication	Interview	NA
Logistics Management Specialist	1/24/2019	Personal Communication	RE: NAVSTA Everett PFAS GSE	NA
NAVFAC NW - Land Surveyor	10/25/2018	Personal Communication	Bayview, Wigwam, Outpost Spatial Data and POC	NA
NAVFAC NW - Land Surveyor	11/1/2018	Personal Communication	Brier Housing Spatial Data and POC - SITE DISPOSED OF	NA
NAVFAC NW - Land Surveyor	10/24/2018	Personal Communication	Jim Creek Spatial Data and POC	NA
NAVFAC NW - Land Surveyor	10/30/2018	Personal Communication	Lamoure, Lamoure Remote, and NOSC Fargo Sites Spatial Data and POC	NA
NAVFAC NW - Land Surveyor	10/24/2018	Personal Communication	Naval Station Everett Spatial Data and POC	NA
NAVFAC NW - Land Surveyor	10/31/2018	Personal Communication	NOSC Boise Spatial Data and POC	NA
NAVFAC NW - Land Surveyor	10/24/02018	Personal Communication	Pacific Beach Sites Spatial Data and POC	NA
NAVFAC NW - Land Surveyor	11/1/2018	Personal Communication	Pier 91 Annex Spatial Data and POC	NA
NAVFAC NW - Land Surveyor	11/1/2018	Personal Communication	Additional POC for St. Paul, MN Site	NA
NAVFAC NW - Land Surveyor	10/31/2018	Personal Communication	Billings Spatial Data and POC	NA
NAVFAC NW - Land Surveyor	10/31/2018	Personal Communication	Cheyenne Spatial Data and POC	NA
NAVFAC NW - Land Surveyor	11/1/2018	Personal Communication	Des Moines Spatial Data and POC	NA
NAVFAC NW - Land Surveyor	11/1/2018	Personal Communication	Helena Spatial Data and POC	NA
NAVFAC NW - Land Surveyor	10/31/2018	Personal Communication	NOSC Boise Spatial Data and POC	NA
NAVFAC NW - Land Surveyor	10/30/2018	Personal Communication	NOSC Minneapolis POC, NIROP Minneapolis, NOSC Rosemount, MCRC St Paul Spatial Data and POC	NA
NAVFAC NW - Land Surveyor	10/31/2018	Personal Communication	NOSC Spokane Spatial Data and POC	NA
NAVFAC NW - Land Surveyor	11/1/2018	Personal Communication	Pier 91 Annex Spatial Data and POC	NA
NAVFAC NW - Land Surveyor	11/1/2018	Personal Communication	Sioux Falls Spatial Data and POC	NA
NAVFAC NW - Land Surveyor	10/31/2018	Personal Communication	Smokey Point Spatial Data and POC	NA
NAVFAC NW - Land Surveyor	11/1/2018	Personal Communication	Springfield Spatial Data and POC	NA

Author	Document Date	Document Type	Document title	NIRIS Record No.
NAVFAC NW - Land Surveyor	11/5/2018	Personal Communication	NAVSTA POCs	NA
NAVFAC NW - Historical Architect	12/19/2018	Personal Communication	NAVSTA Everett PFAS Investigation	NA
NAVFAC NW - Historical Architect	12/26/2018	Personal Communication	NAVSTA Everett PFAS Investigation	NA
Marine Force Reserve, Deputy Environmental Director	1/30/2019	Personal Communication	180701_MN_Fort_Snelling_Stormwater_Report	NA
Marine Force Reserve, Deputy Environmental Director	1/30/2019	Personal Communication	180701_MN_Fort_Snelling_Water_Process_Unit_Report	NA
Engineering Division Officer - NAVSTA Everett	2/28/2019	Personal Communication	NAVSTA Everett PFAS Investigation Coast Guard	NA
Chief	2/22/2019	Personal Communication	NAVSTA Everett PFAS Investigation NOSC PORTLAND	NA
Staff Sergeant and Motor Transport - NOSC Des Moines	2/27/2019	Personal Communication	NAVSTA Everett PFAS Investigation NOSC	NA
Ft. Snelling - Commanding Officer	1/30/2019	Personal Communication	180701_MN_Fort_Snelling_Water_Process_Unit_Report	NA
NAVFAC MIDLANT MFR FST	1/30/2019	Personal Communication	180701_MN_Fort_Snelling_Water_Process_Unit_Report	NA
NAVFAC Public Works Facility Management Director - NAVSTA Everett	2/27/2019	Personal Communication	Building 13 Question	NA
Environmental Director	2/27/2019	Personal Communication	Building 13 Questions	NA
Engineering Division Officer - NAVSTA Everett	2/28/2019	Personal Communication	NAVSTA Everett PFAS Investigation Coast Guard	NA
Jim Creek - Logistics Officer	2/27/2018	Personal Communication	NAVSTA Everett PFAS Investigation Jim Creek	NA
Motor Transportation Chief - NOSC Boise	3/5/2019	Personal Communication	NAVSTA Everett PFAS Investigation NOSC Boise Marines	NA
Inspector-Instructor	2/27/2019	Personal Communication	NAVSTA Everett PFAS Investigation NOSC DES MOINES Marines	NA
NOSC Des Moines - Commanding Officer	2/27/2019	Personal Communication	NAVSTA Everett PFAS Investigation NOSC DES MOINES	NA
Motor Transport Maintenance Chief - NOSC Spokane	2/22/2019	Personal Communication	NAVSTA Everett PFAS Investigation NOSC Spokane	NA
Commanding Officer - NOSC Spokane	2/7/2019	Personal Communication	NAVSTA Everett PFAS Investigation NOSC Spokane	NA
Commanding Officer - NOSC Spokane	2/26/2019	Personal Communication	NAVSTA Everett PFAS Investigation NOSC Spokane	NA
Technical Director/COR - NCTAMS LANT LaMoure	2/13/2019	Personal Communication	NAVSTA Everett PFAS Investigation NRS Lamoure	NA
Environmental Engineer - NAVSTA Great Lakes	1/25/2019	Personal Communication	NAVSTA Everett PFAS Investigation St. Paul	NA
Public Works Department Utility Supervisor - NAVSTA Everett	1/29/2019	Personal Communication	NAVSTA Everett PFAS Investigation St. Paul	NA
PSNS/IMF Logistic Specialist - NAVSTA Everett	2/7/2019	Personal Communication	NAVSTA Everett PFAS Investigation	NA
Staff Sergeant and Motor Transport - NOSC Des Moines	3/1/2019	Personal Communication	NAVSTA Everett PFAS Investigation NOSC Marines	NA
Staff Sergeant and Motor Transport - NOSC Des Moines	3/1/2019	Personal Communication	NAVSTA Everett PFAS Investigation NOSC	NA
Commanding Officer - Springfield	2/28/2019	Personal Communication	LCDR, returning Call; NAVSTA Everett PFAS Investigation NOSC Springfield	NA
Environmental Sustainment and Training Specialist	2/27/2019	Personal Communication	NAVSTA Everett PFAS Investigation NOSC Boise	NA
NOSC Minneapolis - Commanding Officer	2/6/2019	Personal Communication	NOSC Minneapolis POC for PFAS PA	NA
Motor Transport Maintenance Chief - NOSC Spokane	2/26/2019	Personal Communication	USMC Authorized Use List	NA
Installations Division (AGI) Water Quality Program Manager	2/26/2019	Personal Communication	LCDR, returning Call; NAVSTA Everett PFAS Investigation NOSC Springfield	NA
NOSC Minneapolis POC	1/22/2019	Personal Communication	Auto Reply: NOSC Minneapolis POC for PFAS PA	NA
Site Director - NSWCCD ARD	1/16/2019	Personal Communication	Archaeological Survey	NA
Environmental Operations Supervisor NAVSTA Everett	1/16/2019	Personal Communication	NAVSTA Everett PFAS Pacific Beach	NA
Site Director - NSWCCD ARD	1/15/2019	Personal Communication	NSWCCD ARD Building Fire Suppression Types	NA
Safety Officer - NOSC Fargo	1/15/2019	Personal Communication	Initial Contact, NAVSTA Everett PFAS Investigation NOSC Fargo	NA
NAVFAC NW - Historical Architect	12/26/2019	Personal Communication	NAVSTA Everett PFAS Investigation	NA
Utility Systems Repair Operator - NRS Jim Creek	1/9/2019	Personal Communication	NAVSTA Everett PFAS Investigation	NA
Supply Technician/Facilities Manager - NOSC Des Moines	1/17/2019	Personal Communication	NAVSTA Everett PFAS Investigation NOSC DES MOINES	NA
NOSC Helena - Commanding Officer	1/15/2019	Personal Communication	NAVSTA Everett PFAS Investigation NOSC HELENA	NA
Technical Director/COR - NCTAMS LANT LaMoure	1/25/2019	Personal Communication	NAVSTA Everett PFAS Investigation NRS Lamoure	NA
Environmental Engineer - NAVSTA Great Lakes	1/25/2019	Personal Communication	NAVSTA Everett PFAS Investigation St. Paul	NA
Public Works Department Utility Supervisor - NAVSTA Everett	1/29/2019	Personal Communication	NAVSTA Everett PFAS Investigation St. Paul	NA
Public Works - NRC Pacific Beach	1/11/2019	Personal Communication	NAVSTA Everett PFAS Pacific Beach	NA
Facility Maintenance Supervisor	1/25/2019	Personal Communication	NAVSTA Everett PFAS Pacific Beach	NA
Safety Department Head - NOSC Cheyenne	1/17/2019	Personal Communication	NOSC CHEYENNE PFAS UPDATE	NA

Author	Document Date	Document Type	Document title	NIRIS Record No.
Safety Department Head - NOSC Cheyenne	1/23/2019	Personal Communication	NOSC CHEYENNE PFAS UPDATE	NA
NOSC Minneapolis - Commanding Officer	1/16/2019	Personal Communication	NOSC Minneapolis POC for PFAS PA	NA
Safety Officer - NOSC Fargo	1/11/2019	Personal Communication	Initial Contact, NAVSTA Everett PFAS Investigation NOSC Fargo	NA
Commanding Officer - NOSC Portland	1/18/2019	Personal Communication	NAVSTA Everett PFAS Investigation NOSC PORTLAND	NA
Commanding Officer - Springfield	1/22/2019	Personal Communication	LCDR Harbaugh, returning Call; NAVSTA Everett PFAS Investigation NOSC Springfield	NA
Installations Division (AGI) Water Quality Program Manager	1/22/2019	Personal Communication	LCDR Harbaugh, returning Call; NAVSTA Everett PFAS Investigation NOSC Springfield	NA

Appendix B-2
Records Reviewed

Preliminary Assessment for
Per- and Polyfluoroalkyl Substances
Naval Station Everett and
Associated Special Areas
Everett, Washington

NOTIFICATION: APPENDIX B-2 CONTAINS SENSITIVE BUT UNCLASSIFIED INFORMATION WHICH IS PROTECTED BY THE FREEDOM OF INFORMATION ACT

FOIA Exemption 5 (5 USC 552(b)(6))
Intra-agency Memoranda and Correspondence

TO REQUEST A COPY OF THE DOCUMENT

PLEASE CONTACT

Department of the Navy
Freedom of Information Act Office

http://www.secnav.navy.mil/foia/Pages/default.aspx

Distribute to U. S. Government Agencies Only

Appendix B-3
Interview Contacts

Preliminary Assessment for
Per- and Polyfluoroalkyl Substances
Naval Station Everett and
Associated Special Areas
Everett, Washington

NOTIFICATION: APPENDIX B-3 CONTAINS SENSITIVE BUT UNCLASSIFIED INFORMATION WHICH IS PROTECTED BY THE FREEDOM OF INFORMATION ACT

FOIA Exemption 6 (5 USC 552(b)(7))
Personal Information Affecting an Individual's Privacy

TO REQUEST A COPY OF THE DOCUMENT

PLEASE CONTACT

Department of the Navy
Freedom of Information Act Office

http://www.secnav.navy.mil/foia/Pages/default.aspx

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Appendix B-4
Area Coordinates

Preliminary Assessment for
Per- and Polyfluoroalkyl Substances
Naval Station Everett and
Associated Special Areas
Everett, Washington

NOTIFICATION: APPENDIX B-4 CONTAINS SENSITIVE BUT UNCLASSIFIED INFORMATION WHICH IS PROTECTED BY THE FREEDOM OF INFORMATION ACT

FOIA Exemption 5 (5 USC 552(b)(6))
Intra-agency Memoranda and Correspondence

TO REQUEST A COPY OF THE DOCUMENT

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Department of the Navy
Freedom of Information Act Office

http://www.secnav.navy.mil/foia/Pages/default.aspx

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Appendix C
Interview Record

PFAS Preliminary Assessment Questionnaire

Fire Chief or Designees

Title:	Navy Region Northwest Fire & Emergency Services Assistant Chief of Operations (ACO) – 4 years NAVSTA Everett Fire Chief – 6 years
Date of Interview:	12/11/18 @ 10:00 – 11:00 am

Note:

If you can recommend additional contacts that you feel may be able to provide additional information, please provide the name and as much contact information as you have. Thank you.

Background:
The NAVSTA Everett Fire Chief stated that the Everett fire station has a mutual agreement for the surroundings area which has been renewed every 5 years and goes back at least to 2008. However, other city's/country stations are more like to respond first. Everett fire station will travel off base to response to areas such as Jim creek, Whidbey, Pacific Beach, Bayview, and Smokey point. However, they have not had to response to any fire at this state in time. No AFFF has been used off base.

AFFF Purchasing, Handling, and Storage

1. Was perfluorinated AFFF historically or currently used on the base? If so, provide any information regarding where and when.

   The NAVSTA Everett Fire Chief did not recall any use of AFFF historically or currently used on the base. Although there has been no use or training with AFFF on base there has been storage of AFFF on base. When they do need to load AFFF into an engine, the NAVSTA Everett Fire Chief stated that they would top load AFFF and not use an inductor. This has been the process at this base including Engine 29 (45 gal), and Engine 29A and the engine before their current engine (Retired Engine 29).

2. To the best of your knowledge, where has the AFFF solution been handled (currently and historically) (such as mixed, contained, released for calibration, transferred)?

   The NAVSTA Everett Fire Chief did not recall any a AFFF historically or currently used on the base however it was stored on base in three places. AFFF is initially shipped to Whidbey and then it is shipped to Everett. Once it is on base it was either be stored in a storage closet above the bay (ladder access) at Building 2114 or building 2110. In the upstairs closest (no drains) the firefights would store 50 -100 gallons of AFFF in 5 gal drums. At building 2110 AFFF would be also be stored in 50 -100 gal in 5-gal drums. However. Building 2110 has 3 bays where each bay has a drain. Of the three bays Port Opps owns two of the bays to store various equipment, while the fire station owns the other bay (the most north bay). Although there are drains in the bay there is no French drain along the entrance to the bay. Lastly, AFFF was stored in some of the engines including Engine 29 Engine 29A, and retired Engine 29. The NAVSTA Everett Fire Chief stated that their reserve engine from 1995/1999 (12 years) had a 50 gal of Class B. It currently is at Whidbey for maintenance, however when it is normally on base it is stored inside one of the bays of building 2110 or in the parking lot near the side of the building. Lastly, all AFFF on base was moved to Whidbey in around 2007/2012

3. Where is AFFF and AFFF equipment stored on base (currently and historically), and in what approximate quantities? (Please show locations on map provided or describe locations).

   The NAVSTA Everett Fire Chief did not recall any AFFF historically or currently used on the base however AFFF its self was stored on base in three places. Therefore, AFFF related equipment possibly could be found in the same three locations as mentioned. However, since the NAVSTA Everett Fire Chief recalled never using AFFF then it is unlikely that AFFF equipment was used.

   a. Please describe procedures for how AFFF equipment is cleaned/decontaminated.

      The NAVSTA Everett Fire Chief did not recall any use of AFFF historically or currently used on the base, therefore this question is not applicable.

   b. To the best of your knowledge, where has the equipment currently or formerly been maintained?

      The NAVSTA Everett Fire Chief did not recall any use of AFFF historically or currently used on the therefore this question is not applicable.

Firefighting Training Areas

1. As part historical or current operational training, are any current or historical Firefighting Training Areas (FTAs) present on the facility? If yes, please show the location/s of the FTAs on the map provided.

   The NAVSTA Everett Fire Chief stated that fire fighters historically and currently have trained on various parts of the base however all their training only uses waste or is SAR. The main areas are as follows: 1) The North Wharf parking is used for live fire training with a mobile box propane fire simulator. In the last 5 years it has been used at least one quarter. 2) There has been some training at the helicopter pad to practice net technique among other things. In the last 10 years this area has been used approximately once.

2. To the best of your knowledge, what are/were the years of operation for each FTA you identified in your answer to Question #1 above?

   The NAVSTA Everett Fire Chief stated that fire fighters historically and currently have trained on various parts of the base however all their training only uses waste or is SAR. The years for the main areas are as follows: 1) The North Wharf parking has been used since 2013 2) The helicopter pad training year, the NAVSTA Everett Fire Chief could not confirm a year for.

3. How many FTAs are currently active? Inactive (historical in nature)? To the extent possible, please specify which are active versus historical.

   The NAVSTA Everett Fire Chief stated that fire fighters historically and currently have trained on various parts of the base however all their training only uses waste or is SAR. The years for the main areas are as follows: 1) The North Wharf parking lot has been used since 2013 and is active 2) The helicopter pad training year, The NAVSTA Everett Fire Chief could not confirm a year for and is not active but still exists.

4. To the best of your knowledge, were fuels/flammables other than “typical” (such as JP-5, #2 Fuel Oil) used at the FTAs? If yes, what was used?

   The NAVSTA Everett Fire Chief stated that fire fighters historically and currently have trained on various parts of the base however all their training only uses waste or is SAR. The NAVSTA Everett Fire Chief did not mention if other fuels/flammables other than “typical” are used at these fire trainings areas.

5. For inactive FTAs, to the best of your knowledge, when was the last time that fire training using AFFF was conducted at each one?

   The NAVSTA Everett Fire Chief stated that fire fighters historically and currently have trained on various parts of the base. The NAVSTA Everett Fire Chief was not able to confirm the last time the helicopter pad was used from training.

6. When AFFF was used during a fire training exercise, to the best of your knowledge, was the AFFF used contained and disposed, and if so, how was the AFFF cleaned up and disposed?

   The NAVSTA Everett Fire Chief stated that fire fighters historically and currently have trained on various parts of the base however all their training only uses waste or is SAR and therefore no AFFF was used.

7. To the best of your knowledge, are current and historical FTAs lined? If so, with anything other than concrete?

   The NAVSTA Everett Fire Chief stated that fire fighters historically and currently have trained on various parts of the base. However, their main areas being the North Wharf parking lot and helicopter are both areas that are completely concrete.

Hangars and Buildings

1. To the best of your knowledge, which areas (such as hangars, buildings, fuel or hazardous waste storage areas) historically had or currently have automated and/or manually-activated AFFF fire suppression systems?

   The NAVSTA Everett Fire Chief stated that there are no buildings that automated and/or manually-activated AFFF fire suppression systems historically or currently on the base

2. To the best of your knowledge, please describe the procedure on how the suppression systems are supplied with AFFF (that is, is system contained within the building, or are there separate buildings that serve to mix AFFF to supply one or more hangers with suppression systems).

   The NAVSTA Everett Fire Chief stated that there are no buildings that automated and/or manually-activated AFFF fire suppression systems historically or currently on the base and therefore this question is not applicable.

3. Please describe the fire suppression system layout/activation process and if available, provide system plans or drawings.

   The NAVSTA Everett Fire Chief stated that there are no buildings that automated and/or manually-activated AFFF fire suppression systems historically or currently on the base and therefore this question is not applicable.

4. When the fire suppression system engages/or engaged, what is the current, and if different, historical response process for addressing AFFF used (that is, was AFFF cleaned up after being used and how)?

   The NAVSTA Everett Fire Chief stated that there are no buildings that automated and/or manually-activated AFFF fire suppression systems historically or currently on the base and therefore this question is not applicable.

5. To the best of your knowledge, have there been inadvertent releases of AFFF from hangar fire suppression systems (such as equipment failure)? If so, please provide additional details (such as when, in which hangars/buildings, could the release be quantified, was the release removed or cleaned up)?

   The NAVSTA Everett Fire Chief stated that there are no buildings that automated and/or manually-activated AFFF fire suppression systems historically or currently on the base and therefore this question is not applicable.

6. To the best of your, knowledge, who was responsible for current or historical routine maintenance of the AFFF system/s? To the best of your knowledge, were maintenance records kept, and if so where are they located?

   The NAVSTA Everett Fire Chief stated that there are no buildings that automated and/or manually-activated AFFF fire suppression systems historically or currently on the base and therefore this question is not applicable.

7. To the best of your knowledge, for any historical activation (accidental, testing, or in response to an emergency) of AFFF systems within hangars and/or buildings, provide any information regarding the fate of the release (that is, did releases occur near drainage swales; were they washed to a pervious surface; did they occur on poorly maintained pervious surfaces [cracked concrete, porous asphalt]; were they directed to a storm drain, trench drain, oil/water separator [OWS], wastewater treatment plant).

   The NAVSTA Everett Fire Chief stated that there are no buildings that automated and/or manually-activated AFFF fire suppression systems historically or currently on the base and therefore this question is not applicable.

Trucks and Trailers

1. Provide a list of current and historical parking/storage areas for AFFF equipment.

   The NAVSTA Everett Fire Chief stated that AFFF is not utilized historically or currently on the base and therefore this question is not applicable.

2. To the best of your knowledge, were the trucks currently and historically tested for spray patterns to make sure equipment is working properly? If so, how often and where are/were these spray tests performed?

   The NAVSTA Everett Fire Chief stated that AFFF is not utilized historically or currently on the base. However, regular firefighting equipment is tested during training sessions.

3. To the best of your knowledge, what is the procedure on how trucks and trailers are/were supplied with AFFF?

   a. Where does/did this resupply occur?

The NAVSTA Everett Fire Chief stated that AFFF is not utilized historically or currently on the base. However, if needed to supply an engine with AFFF it would be top filled inside one of the bays of Building 2110 on base.

b. Is/was there secondary containment in this area?

The NAVSTA Everett Fire Chief stated that AFFF is not utilized historically or currently on the base. However, if needed to supply an engine with AFFF it would be top filled inside one of the bays of Building 2110 on base. All the bays are made of concrete and there is a drain in the center of each bay.

c. What happens to the empty AFFF containers?

The NAVSTA Everett Fire Chief stated that AFFF is not utilized historically or currently on the base. However, empty containers of AFFF are taken to Hazardous water center for proper disposal.

4. To the best of your knowledge, what is the procedure for how these vehicles are/were cleaned, and where is/was vehicle cleaning performed (currently as well as historically)?

The NAVSTA Everett Fire Chief stated that AFFF is not utilized historically or currently on the base. However, all fire engine washing is completed inside the bay of the fire station on base.

Records, Spill logs, Historical Information

1. To the best of your knowledge, are there any current or historical data/documents/records associated with AFFF that we may review/copy (such as reports/work plans, historical or operational records, incident reports, crash data, inspection reports, AFFF spill logs, documentation of AFFF releases, photo interpretation)?

The NAVSTA Everett Fire Chief did not recall any major spills historically or currently on the base.

2. Do you have recollection or records of AFFF being used in response to the following:

a. Fuel releases to prevent fires

The NAVSTA Everett Fire Chief stated that AFFF is not utilized historically or currently on the base. However, the NAVSTA Everett Fire Chief recalls that they report to fires at the pier approximately once to twice a year. There have been no major fires and they have only used water or dry chemicals as most of them were electrical fires on ships. Also, there was a large fire at that private marina however only water was used and therefore no foam.

b. Emergency response sites (such as plane, helicopter, or vehicle crash sites and fires)

The NAVSTA Everett Fire Chief stated that there have been no emergency responses on base historically or currently.

c. Emergency runway landings where foam might have been used as a precaution

The NAVSTA Everett Fire Chief stated that there are no emergency runways landings on base historically or currently. However, there is a helicopter pad, but form has never been used as a precaution at this site.

d. Other (such as air show demonstrations, AFFF "salutes")

The NAVSTA Everett Fire Chief stated that AFFF is not utilized historically or currently on the base.

3. If yes to #2, please provide any information you have regarding how and if the releases were addressed and how any released material (including foam and contaminated soil) was disposed?

The NAVSTA Everett Fire Chief stated that AFFF is not utilized historically or currently on the base and therefore this question is not applicable.

4. In the potential absence of written records or incomplete written records, can you provide anecdotal/ verbal information and locations of spills or other emergency response incidents where AFFF was used that haven't already been previously discussed?

The NAVSTA Everett Fire Chief stated that AFFF is not utilized historically or currently on the base and therefore this question is not applicable.

5. What are the current and historical storage location(s) of the wreckage from emergency response incidents (if wreckage is stored outside)?

The NAVSTA Everett Fire Chief stated that there are no current and storage location(s) of the wreckage from emergency response incidents historically or currently on the base.

Location Information

1. If not already covered in previous questions, please provide any information on releases of AFFF that may have been diverted to or could have impacted the following items/areas:

a. Stormwater conveyances/outfalls that drain runways, taxiways, and aprons

The NAVSTA Everett Fire Chief was unaware of the Stormwater conveyances/outfalls that drain runways, taxiways, and apron historically or currently on the base. The NAVSTA Everett Fire Chief only could recall of the various drains that are inside the bays and near the fire station building. Further, there is also a drain at building 2110 in the corner of the lot.

b. Stormwater management system (such as drainage swales, outfalls, retention/detention basins)

The NAVSTA Everett Fire Chief was unaware of the Stormwater management system historically or currently on the base.

c. Industrial or sanitary wastewater treatment system (such as storm drain, sanitary sewer, OWS, building and plumbing drains)

The NAVSTA Everett Fire Chief was unaware of most details regarding the industrial or sanitary wastewater treatment system historically or currently on the base. However, he was able to recall that all sanitary waste goes to the lift station, all bio waste goes to the hospital, and all hazardous waste goes to the hazardous center.

d. Water supply wells (such as potable, agricultural, industrial)

   The NAVSTA Everett Fire Chief recalled no water supply wells historically or currently on the base.

e. Large-scale disposal (such as landfilling, land application of WWTP sludge, washing, dumping)

   The NAVSTA Everett Fire Chief recalled no large-scale disposal sites historically or currently on the base.

f. Other

   The NAVSTA Everett Fire Chief recalled no other sites of historical or current significance on the base.

General Information

1. Is there anyone else or other base organization personnel that you would recommend we interview? Name, organization, position, phone number, e-mail.

   The NAVSTA Everett Fire Chief didn't have any other base organization personnel the he recommended to interview.

2. Are there any other tenants/tenant organizations that currently (or historically) use/used AFFF?

   The NAVSTA Everett Fire Chief did not recall any tenants/tenant organizations that currently (or historically) use/used AFFF.

PFAS Preliminary Assessment Questionnaire

Public Works Staff

Title:	Utility Supervisor Public Works Department
Date of Interview:	12/10/2018 @ 3:00 pm

Note:

If you can recommend additional contacts that you feel may be able to provide additional information, please provide the name and as much contact information as you have. Thank you.

Background:

Building 2222 is for all the sanitary and sewage discharge from NAVSTA base and the Pier (vessels). In other words, all sanitary waste streams come to the lift station includes CHT, possible AFFF from CHT, and minimal drainage from "industrial" operation. The size of the lift station is approximately 110,000 gal and has about 10-12 feet of liquid inside it. All the sewage discharge is collected in the wet well, which underground and located near the lift station. There is blower to aggregate and aerate the solution. The only other treatment for the lift station is with dosing of Ferrous Chloride once every 5-6 seconds. The Ferrous Chloride is used as an order and corrosion control, as well as dichlorination and TSS. After processing the sanitary waste streams is discharged to the main line and then to the City of Everett treatment facility. There is no biosolids accumulation as part of the lift station. If there is AFFF that comes into the lift station, there is no major change to the regular treatment process. The Public Works Utility Supervisor stated in attempt to dilute the AFFF solution more water to the process before it is transferred. The Public Works Utility Supervisor stated that there were no other PFAS source areas he was aware of as part of the lift station or the base.

Base Information

1. Is there a Teflon-coating shop on base? Historically? Provide location and years of operation.

   The Public Works Utility Supervisor did not recall any a Teflon-coating shop at the base historically or currently.

2. Is there a chrome-plating shop on base? Historically? Years of operation?

   The Public Works Utility Supervisor did not recall any a chrome-plating shop at the base historically or currently.

   a. Was foam used to suppress vapors in the process?

      The Public Works Utility Supervisor did not recall any foam suppressants on base historically or currently.

3. Where are the current or former locations of auto hobby shops and car/truck washes?

   The Public Works Utility Supervisor did not recall there are no auto hobby shops and a few car/truck washes on base historically or currently, however did not provide any details.

4. Are there supply wells of any kind on base (such as, potable, irrigation, industrial) and if so, have they previously been tested for PFAS compounds?

   The Public Works Utility Supervisor did not recall any supply wells on base historically or currently. The Public Works Utility Supervisor however believed that the water for the base came from the city of Everett.

5. Where are the current and historical landfills/disposal sites on base? What are the estimated years of use for each location? Confirm known landfills/disposal sites on map.

   The Public Works Utility Supervisor did not recall any current or historical landfills/disposal sites on base.

Industrial Wastewater Treatment Plant (IWTP) or Sanitary Wastewater Treatment Plant (WWTP)

1. Does the Base currently have (or has the Base historically had) an IWTP or WWTP? If yes, what are/were the years of use and where is effluent from the IWTP and WWTP discharged to?

   The Public Works Utility Supervisor did not recall any IWTP or WWTP on base historically or currently.

2. Does the facility utilize oil water separators (OWSs) for the collection and separation of petroleum, and where AFFF might have been used for operations (such as, Fire Training Areas, Hangers, Maintenance Operations)? If so, where did the OWSs discharge to (such as WWTP, outfalls) and are there drawings available for the construction of these systems?

   The Public Works Utility Supervisor stated that the base has a OWS currently and referred us to speak to the Utility Service Repairer Operator at the OWS for more details.

3. How are/have sludges and biosolids from the IWTP, WWTP, and OWS been disposed of (such as, land application, discharge to municipal sewer system, irrigation)?

   a. If known, where are any current or historical drying beds/spray fields/sludge lagoons? Please identify the approximate location/s of such features on the facility map provided.

      The Public Works Utility Supervisor did not recall any drying beds/spray fields/sludge lagoons on base historically or currently.

   b. If known, has any sludge been land-applied on base for fertilizer or for use as landfill cover? If so, please identify the approximate location/s of such features on the facility map attached?

      The Public Works Utility Supervisor did not recall any sludge that been land-applied on base for fertilizer or for use as landfill cover on base historically or currently.

4. Are there any current or historical diversionary flow valves that would allow for waste to bypass the base's treatment plant(s)?

   The Public Works Utility Supervisor did not recall any diversionary flow valves on base historically or currently.

5. Has a reverse osmosis system been used in the IWTP and/or WWTP? If so, where/how is the waste concentrate disposed?

   The Public Works Utility Supervisor did not recall any reverse osmosis system on base historically or currently.

6. Which buildings and drainage features, including OWSs, discharge to the IWTP and/or WWTP?

   The Public Works Utility Supervisor stated that the sewage lift station (BLDG 2222) is for all the sanitary and sewage discharges from NAVSTA base and the Pier (vessels). All oily waste bilge water from the pier is transferred to the OWS.

Paints and Pesticide Use/Storage/Release

1. Do you know if specialty paints containing PFAS were used in large quantities on base? If so, please provide paint and pesticide storage warehouse and disposal locations.

   The Public Works Utility Supervisor did not recall any current or historical storage of paints or pesticides on base.

2. How are unused or waste pesticides managed?

   The Public Works Utility Supervisor stated that for disposal are unused or waste pesticides, all hazardous waste goes to the hazardous waste center and all nonhazardous waste is collected or taken to the Solid Waste/ Recycling center. Otherwise, The Public Works Utility Supervisor did not recall how unused or waste pesticides are managed.

3. How are unused or waste paints managed?

   The Public Works Utility Supervisor stated that for disposal are unused or waste paints, all hazardous waste goes to the hazardous waste center and all nonhazardous waste is collected or taken to the Solid Waste/ Recycling center. Otherwise, The Public Works Utility Supervisor did not recall how unused or waste paints are managed.

Records, Spill logs, Historical Information

1. To the best of your knowledge, are there any current or historical data/documents/records associated with AFFF that we may review/copy (such as reports/work plans, historical or operational records, incident reports, crash data, inspection reports, AFFF spill logs, documentation of AFFF releases, photo interpretation)?

   The Public Works Utility Supervisor does not recall any major spill at the base or in his warehouse historically or currently.

2. Do you have recollection or records of AFFF being used in response to the following:
   a. Fuel releases to prevent fires

      The Public Works Utility Supervisor did not recall any fuel releases or AFFF use current or historical on base.

b. Emergency response sites (such as, plane, helicopter, or vehicle crash sites and fires)

The Public Works Utility Supervisor did not recall any emergency response sites or AFFF use current or historical on base.

c. Emergency runway landings where foam might have been used as a precaution

The Public Works Utility Supervisor did not recall any emergency runway landings or AFFF use current or historical on base.

d. Other (such as air show demonstrations, AFFF "salutes")

The Public Works Utility Supervisor did not recall any current or historical landfills/disposal sites on base.

3. If yes to Question #2, please provide any information you have regarding how and if the releases were addressed and how any released material (including foam and contaminated soil) was disposed.

The Public Works Utility Supervisor did not recall any use of AFFF on base historically or currently and therefore this question is not applicable.

4. In the potential absence of written records or incomplete written records, can you provide anecdotal/verbal information and locations of spills or other emergency response incidents where AFFF was used that have not already been previously discussed?

The Public Works Utility Supervisor did not recall any other anecdotal or verbal information related to the investigation on base historically or currently.

5. What are the current and historical storage location(s) of the wreckage from emergency response incidents (if wreckage is stored outside)?

The Public Works Utility Supervisor did not recall any storage location(s) of the wreckage on base historically or currently.

Location Information

1. If not already covered in previous questions, please provide any information on releases of AFFF that may have been diverted to or could have impacted the following items/areas:

a. Stormwater conveyances/outfalls that drain runways, taxiways, and aprons

The Public Works Utility Supervisor could not confirm the details of the stormwater conveyances/outfalls on base historically or currently.

b. Stormwater management system (such as drainage swales, outfalls, retention/detention basins)

The Public Works Utility Supervisor could not confirm the details of the stormwater management system on base historically or currently.

c. Industrial or sanitary wastewater treatment system (such as storm drain, sanitary sewer, OWS, building and plumbing drains)

The Public Works Utility Supervisor did not recall any industrial or sanitary wastewater treatment system on base historically or currently.

d. Water supply wells (such as potable, agricultural, industrial)

The Public Works Utility Supervisor did not recall any water supply wells on base historically or currently.

e. Large-scale disposal (such as landfilling, land application of WWTP sludge, washing, dumping)

The Public Works Utility Supervisor did not recall any current or historical landfills/disposal sites on base.

f. Other

The Public Works Utility Supervisor did not recall any other locations that would be of interest to the investigation.

General Information

1. Is there anyone else or other base organization personnel that you would recommend we interview? Name, organization, position, phone number, e-mail.

   The Public Works Utility Supervisor referred the Utility Service Repairer Operator as a point of contact for the OWS.

2. Are there any other tenants/tenant organizations that currently (or historically) use/used AFFF?

   The Public Works Utility Supervisor did not recall any tenants/tenant organizations that currently (or historically) use/used AFFF.

PFAS Preliminary Assessment Questionnaire

Public Works Staff

Title:	Supply Technician 7 years; NAVSUP; vesical side contractor – shore logistics Clerk (October 1st, 2018)
Date of Interview:	12/10/18 12:00

Note:
If you can recommend additional contacts that you feel may be able to provide additional information, please provide the name and as much contact information as you have. Thank you.

Background

The Supply Technician works as a supply technician at the Building 2202), NAVSUP warehouse to help supply support for all the naval service/centers at that base and some special areas. He oversees the warehouse which stores paints, solvents, oils, and other chemicals. The warehouse is spilt up into two sides where one side manages ship vessels and the other shore personal. The Supply Technician is part of NAVSUP and therefore it is the counterpart to DLA. For materials to be in the warehouse they must be on the AUL list to be stored and sold. Therefore, when someone comes to the warehouse, The Supply Technician goes by the stock number to check that it is on the list and then check that it is in stock. There is an AUL for each center on base. Further, to get new materials on the list it has to go thru safely, environmental and hygienist and need to have a material authorization form (HM&R). The Supply Technician does not always purchase for other work centers, but he is required to sign off on it.

Building 2202 itself is very organized, clean, and well containment. Each bay is well organized and category. For example, bay one contains mostly paint, bay 4 has mostly areoles, and bay 5 has mostly corrosives. There are drains in every front and back of the bay which all connect to a underground storage tank in the back of the warehouse. This tank is inspected annually, but since there has never been a spill it has never been emptied.

The Supply Technician recalled that the Corrosion Control Facility used to store some of their material in NAVSUP at least as far back as 2012 when he stated at the base. Corrosion Control removed all the hazardous material in Building 2202 in 2015.

Base Information

1. Is there a Teflon-coating shop on base? Historically? Provide location and years of operation.

   The Supply Technician did not recall any a Teflon-coating shop at the base historically or currently.

2. Is there a chrome-plating shop on base? Historically? Years of operation?

   The Supply Technician did not recall any a chrome-plating shop at the base historically or currently.

   a. Was foam used to suppress vapors in the process?

      The Supply Technician did not recall any foam suppressants on base historically or currently.

3. Where are the current or former locations of auto hobby shops and car/truck washes?

   The Supply Technician did not recall any auto hobby shops on base historically or currently. The only and car/truck washes he recalled was the one at the gas station. There is no maintenance performed in The Supply Technician's warehouse area. The warehouse does utilize an electric fork lift to help move supplies and drums around the warehouse.

4. Are there supply wells of any kind on base (such as, potable, irrigation, industrial) and if so, have they previously been tested for PFAS compounds?

   The Supply Technician did not recall any supply wells on base historically or currently. The Supply Technician however believed that the water for the base came from the city of Everett.

5. Where are the current and historical landfills/disposal sites on base? What are the estimated years of use for each location? Confirm known landfills/disposal sites on map.

   The Supply Technician did not recall any current or historical landfills/disposal sites on base. The warehouse is temporary storage for materials that come into the warehouse. For disposal, all hazardous waste goes to the hazardous waste center and all nonhazardous waste is collected or taken to the Solid Waste/ Recycling center. The Supply Technician stated that that there is a waste drain that goes to the OWS that he pours some liquids down.

Industrial Wastewater Treatment Plant (IWTP) or Sanitary Wastewater Treatment Plant (WWTP)

1. Does the Base currently have (or has the Base historically had) an IWTP or WWTP? If yes, what are/were the years of use and where is effluent from the IWTP and WWTP discharged to?

   The Supply Technician did not recall any IWTP or WWTP on base historically or currently.

2. Does the facility utilize oil water separators (OWSs) for the collection and separation of petroleum, and where AFFF might have been used for operations (such as, Fire Training Areas, Hangers, Maintenance Operations)? If so, where did the OWSs discharge to (such as WWTP, outfalls) and are there drawings available for the construction of these systems?

   The Supply Technician stated that the base uses an OWS on base currently but did not confirm any details about the operations.

3. How are/have sludges and biosolids from the IWTP, WWTP, and OWS been disposed of (such as, land application, discharge to municipal sewer system, irrigation)?

   a. If known, where are any current or historical drying beds/spray fields/sludge lagoons? Please identify the approximate location/s of such features on the facility map provided.

      The Supply Technician did not recall any drying beds/spray fields/sludge lagoons on base historically or currently.

b. If known, has any sludge been land-applied on base for fertilizer or for use as landfill cover? If so, please identify the approximate location/s of such features on the facility map attached?

The Supply Technician did not recall any sludge that been land-applied on base for fertilizer or for use as landfill cover on base historically or currently.

4. Are there any current or historical diversionary flow valves that would allow for waste to bypass the base's treatment plant(s)?

The Supply Technician did not recall any diversionary flow valves on base historically or currently.

5. Has a reverse osmosis system been used in the IWTP and/or WWTP? If so, where/how is the waste concentrate disposed?

The Supply Technician did not recall any reverse osmosis system on base historically or currently.

6. Which buildings and drainage features, including OWSs, discharge to the IWTP and/or WWTP?

The Supply Technician stated that the base uses an OWS on base currently but did not confirm any details about the operations. However, The Supply Technician believed that there was a drain at the warehouse that went to the OWS.

Paints and Pesticide Use/Storage/Release

1. Do you know if specialty paints containing PFAS were used in large quantities on base? If so, please provide paint and pesticide storage warehouse and disposal locations.

The Supply Technician did not recall any current or historical storage of paints or pesticides on base.

2. How are unused or waste pesticides managed?

The Supply Technician stated that for disposal are unused or waste pesticides, all hazardous waste goes to the hazardous waste center and all nonhazardous waste is collected or taken to the Solid Waste/ Recycling center. Otherwise, The Supply Technician did not recall how unused or waste pesticides are managed.

3. How are unused or waste paints managed?

The Supply Technician stated that for disposal are unused or waste paints, all hazardous waste goes to the hazardous waste center and all nonhazardous waste is collected or taken to the Solid Waste/ Recycling center. Otherwise, The Supply Technician did not recall how unused or waste paints are managed.

Records, Spill logs, Historical Information

1. To the best of your knowledge, are there any current or historical data/documents/records associated with AFFF that we may review/copy (such as reports/work plans, historical or operational records, incident reports, crash data, inspection reports, AFFF spill logs, documentation of AFFF releases, photo interpretation)?

The Supply Technician does not recall any major spill at the base or in his warehouse historically or currently. The warehouse is very well contained as it is all cement, slight downward gradient, with drains the front and back of each bay. Further, the drains connect to underground storage tank, which is inspected annually and has never been needed to be drained.

2. Do you have recollection or records of AFFF being used in response to the following:
    a. Fuel releases to prevent fires

        The Supply Technician did not recall any fuel releases or AFFF use current or historical on base.

    b. Emergency response sites (such as, plane, helicopter, or vehicle crash sites and fires)

        The Supply Technician did not recall any emergency response sites or AFFF use current or historical on base.

    c. Emergency runway landings where foam might have been used as a precaution

        The Supply Technician did not recall any emergency runway landings or AFFF use current or historical on base.

    d. Other (such as air show demonstrations, AFFF "salutes")

        The Supply Technician did not recall any current or historical landfills/disposal sites on base.

3. If yes to Question #2, please provide any information you have regarding how and if the releases were addressed and how any released material (including foam and contaminated soil) was disposed.

    The Supply Technician did not recall any use of AFFF on base historically or currently and therefore this question is not applicable.

4. In the potential absence of written records or incomplete written records, can you provide anecdotal/verbal information and locations of spills or other emergency response incidents where AFFF was used that have not already been previously discussed?

    The Supply Technician did not recall any other anecdotal or verbal information related to the investigation on base historically or currently.

5. What are the current and historical storage location(s) of the wreckage from emergency response incidents (if wreckage is stored outside)?

    The Supply Technician did not recall any storage location(s) of the wreckage on base historically or currently.

Location Information

1. If not already covered in previous questions, please provide any information on releases of AFFF that may have been diverted to or could have impacted the following items/areas:
    a. Stormwater conveyances/outfalls that drain runways, taxiways, and aprons

        The Supply Technician could not confirm the details of the stormwater conveyances/outfalls on base historically or currently.

b. Stormwater management system (such as drainage swales, outfalls, retention/detention basins)

The Supply Technician could not confirm the details of the stormwater management system on base historically or currently.

c. Industrial or sanitary wastewater treatment system (such as storm drain, sanitary sewer, OWS, building and plumbing drains)

The Supply Technician did not recall any industrial or sanitary wastewater treatment system on base historically or currently.

d. Water supply wells (such as potable, agricultural, industrial)

The Supply Technician did not recall any water supply wells on base historically or currently.

e. Large-scale disposal (such as landfilling, land application of WWTP sludge, washing, dumping)

The Supply Technician did not recall any current or historical landfills/disposal sites on base.

f. Other

The Supply Technician did not recall any other locations that would be of interest to the investigation.

General Information

1. Is there anyone else or other base organization personnel that you would recommend we interview? Name, organization, position, phone number, e-mail.

   The Supply Technician recommended that we reach out to the AUL Contact for information on the AUL. The Supply Technician has stated that that Hazardous material portal they use to is referred to as the HMC&M Tool.

2. Are there any other tenants/tenant organizations that currently (or historically) use/used AFFF?

   The Supply Technician did not recall any tenants/tenant organizations that currently (or historically) use/used AFFF.