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FINAL SITE MANAGEMENT PLAN FISCAL YEAR 2020 NSY PORTSMOUTH ME

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TETRA TECH

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Naval Facilities Engineering Command Mid-Atlantic
Norfolk, Virginia

Final
Site Management Plan
Fiscal Year 2020

Portsmouth Naval Shipyard
Kittery, Maine

March 2020

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FINAL
SITE MANAGEMENT PLAN
FISCAL YEAR 2020

PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Naval Facilities Engineering Command Mid-Atlantic
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Norfolk, Virginia 23511-3095

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CONTRACT NUMBER N6247016D9008
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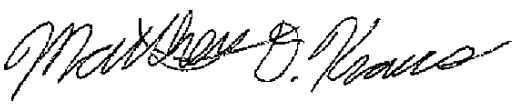

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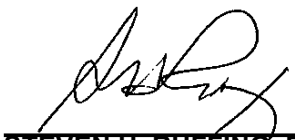

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Acronyms and Abbreviations

AOC	Area of Concern
ARF	Administrative Record File
CCR	Construction Completion Report
CDC	Child Development Center
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CHF	Contaminant Hazard Factor
CIA	Controlled Industrial Area
CIP	Community Involvement Plan
CLEAN	Comprehensive Long-Term Environmental Action Navy
CNO	Chief of Naval Operations
CTO	Contract Task Order
DoD	Department of Defense
DON	Department of the Navy
DRMO	Defense Reutilization and Marketing Office
EE/CA	Engineering Evaluation/Cost Analysis
EERA	Estuarine Ecological Risk Assessment
ERP	Environmental Restoration Program
ESD	Explanation of Significant Difference
FCS	Final Confirmation Study
FFA	Federal Facility Agreement
FS	Feasibility Study
FY	Fiscal Year
HRS	Hazard Ranking System
HSWA	Hazard and Solid Waste Amendments (of 1984)

Acronyms and Abbreviations (continued)

IAS	Initial Assessment Study
JILF	Jamaica Island Landfill
LTMgt	Long-Term Management
LUC	Land Use Control
LUCRD	Land Use Control Remedial Design
MB	Mercury Burial
MEDEP	Maine Department of Environmental Protection
MIDLANT	Mid-Atlantic
MILCON	Military construction
MPF	Migration Pathway Factor
NACIP	Navy Assessment and Control of Installation Pollutants
NAVFAC	Navy Facilities Engineering Command
NFA	No Further Action
NPL	National Priorities List
OM&M	Operation, maintenance, and monitoring
OU	Operable Unit
PA	Preliminary Assessment
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PFAS	Per- and polyfluoroalkyl substances
PFBS	Perfluorobutanesulfonic acid
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic action
PNS	Portsmouth Naval Shipyard

Acronyms and Abbreviations (continued)

RA	Remedial Action
RAB	Restoration Advisory Board
RACR	Remedial Action Completion Report
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RF	Receptor Factor
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RIP	Remedy in Place
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SECNAV	Secretary of the Navy
SI	Site Investigation
SMP	Site Management Plan
SSA	Site Screening Area
SSI	Site Screening Investigation
SSP	Site Screening Process
SWMU	Solid Waste Management Unit
SVOC	Semi-volatile organic compound
USEPA	United States Environmental Protection Agency
VOC	Volatile organic compound
WDA	Waste disposal area

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1.0 Introduction

This document is the Amended Site Management Plan (SMP) for Fiscal Year (FY) 2020 for Portsmouth Naval Shipyard (PNS) and meets the requirements of Section XI (Subsections 11.4 and 11.5) of the Federal Facility Agreement (FFA) for PNS. Tetra Tech prepare this report for the Naval Facilities Engineering Command (NAVFAC), Mid-Atlantic, under Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract Number N6247016D9008, Contract Task Order (CTO) WE01.

The purpose of the SMP is to provide a management tool to be used by the Department of the Navy (DON), United States Environmental Protection Agency (USEPA), and Maine Department of Environmental Protection (MEDEP) in planning, reviewing, and setting priorities for all environmental investigative and remedial response activities planned at the facility under the DON Environmental Restoration Program (ERP). The primary components of the SMP include:

- Summary of site location, mission, history, and environmental activities
- Overview of ERP activities since the previous SMP
- Changes in site conditions or risk exposures since the previous SMP
- Estimated schedule of upcoming activities and completion

The SMP is updated annually to revise schedules, deadlines, and milestones for the next FY based on funding controls established by DON, changes in scope of investigation and remediation activities, changes in site conditions, and/or other unanticipated events.

This SMP includes a review of the enforceable FY 2019 milestones and proposed milestones for the budget year (FY 2020) and the planning year (FY 2021). The proposed milestones for FY 2020 reflect DON's FY 2020 budget request submitted to Congress by the President in February 2019. The proposed milestones for FY 2021 reflect the current DON fiscal controls. The FY 2020 proposed milestones become enforceable after the FY 2020 Congressional appropriation and will be adjusted to reflect any Congressional reductions or program directions.

2.0 Setting and Environmental History

The following section summarizes the location, mission, history, and environmental activities at PNS. Figure 1 illustrates the location of the Installation. Figures 2 and 3 present plan and aerial views of the shipyard delineating the Operable Units (OUs) and active ERP Sites. Figure 4 presents a bird's eye view of PNS.

2.1 Facility Mission and History

PNS is a military facility with restricted access on Seavey Island located in the Piscataqua River at the mouth of Portsmouth Harbor between Kittery, ME and Portsmouth, NH (Figure 1). The primary mission of PNS is the conversion, overhaul, and repair of submarines for the Navy. Shipbuilding in Portsmouth Harbor dates back to 1690, and PNS was established as a government facility in 1800. The first government-built submarine was designed and constructed at PNS during World War I, and a large number of submarines have been designed, constructed, and repaired at this facility since 1917. Present military activities are concentrated in the western portion of the facility in the Controlled Industrial Area (CIA). This area includes dry docks, submarine berths, and numerous buildings that house trade shops related to maintenance activities. Access to the area is tightly controlled and limited to individuals having appropriate clearances. Uses of other portions of PNS include administration offices, officers' residences, equipment storage, parking, and recreational facilities.

Areas within PNS are included on the National Register of Historic Places including the area between the two bridges connecting PNS to Kittery, Maine, the majority of the CIA, and the Portsmouth Naval Hospital and Portsmouth Naval Prison Historic Districts.

Water for operations and drinking at the Shipyard are supplied by the Kittery Water District. Kittery's water supply originates from surface reservoirs located in the vicinity of York, Maine. Groundwater at PNS is not used for drinking, irrigation, industrial processes, firefighting, or any other purposes.

The DON ERP Program at the Shipyard has been dedicated to environmental stewardship in performing activities to assess and clean up hazardous substances. PNS was honored with the Chief of Naval Operations (CNO) award for Environmental Restoration (Large Installation category) four times for its environmental restoration efforts for FY 2011, FY 2013, FY 2014, and FY 2015. PNS was also awarded the Secretary of the Navy (SECNAV) award for the Environmental Restoration, DON's top environmental award, three times for FY 2011, FY 2014, and FY 2015.

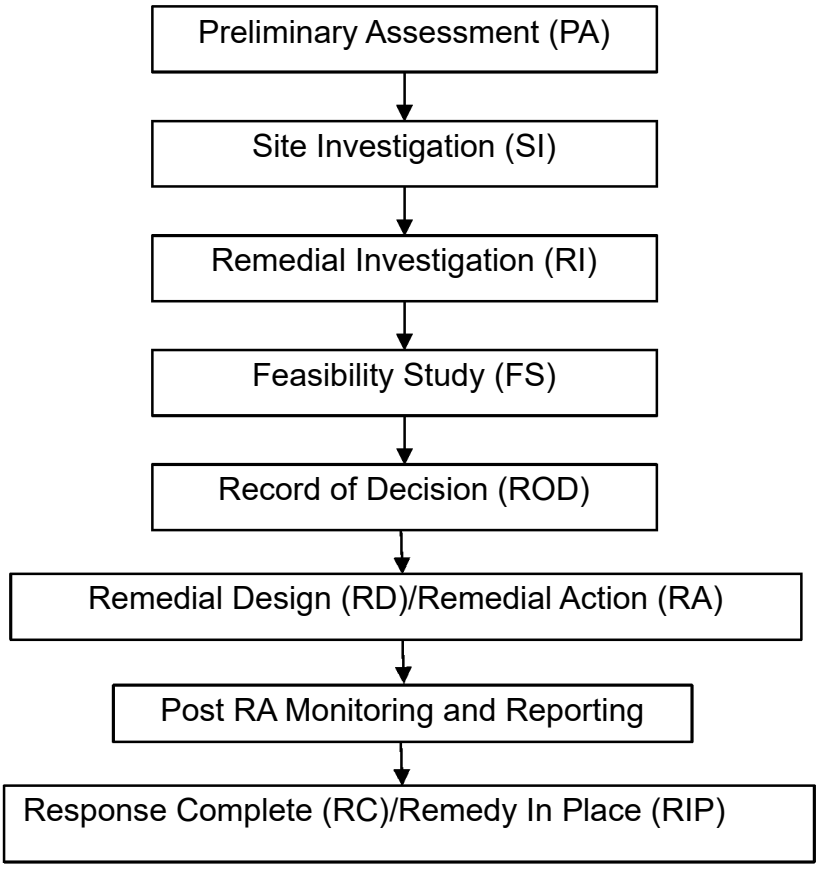
2.2 Understanding of the Environmental Conditions

Shipbuilding and submarine repair work at PNS resulted in hazardous substances being released into the soil, groundwater, surface water, and sediment on and around Seavey Island. Investigation and remediation activities have been performed under the ERP to reduce potential risks to human health and the environment by identifying, assessing, characterizing, and cleaning up or controlling releases of hazardous substances. Investigations of hazardous substance releases at PNS began in 1983 when the Navy completed an Initial Assessment Study (IAS) (Weston, June 1983) that identified and assessed sites posing a potential threat to human health and the environment. The final phase of this study was completed in 1986 with the issuance of a Final Confirmation Study (FCS), (LEA, June 1986), which evaluated the sites identified in the IAS to confirm the presence of contamination. Investigations of PNS hazardous waste sites prior to 1986 were conducted under the Navy Assessment and Control of Installation Pollutants (NACIP) Program, and since 1986, investigations at PNS have been conducted under the ERP.

USEPA became involved with PNS in 1985 when the agency requested information on PNS's hazardous wastes and conducted a visual site inspection under Resource Conservation and Recovery Act (RCRA) authority. MEDEP has also provided oversight of investigation and remediation at PNS since 1988. USEPA issued a Corrective Action Permit in March 1989 under the RCRA Hazardous and Solid Waste Amendments (HSWA) of 1984 (USEPA, March 1989) requiring PNS to investigate 13 Solid Waste Management Units (SWMUs) and take appropriate corrective action. Most environmental activities at PNS were initiated under RCRA in accordance with the HSWA Permit. Following inclusion on the NPL in May 1994, environmental activities at the Shipyard are now governed by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) as described in the FFA.

In 1993, the PNS sites were evaluated by USEPA under CERCLA's Hazard Ranking System (HRS) to determine the relative threats posed to the public health and environment by sites contaminated with hazardous substances (TRC Companies, May 1993). The HRS scores sites based on the potential for hazardous substances to spread from the site through air, surface water, and groundwater and consider additional ranking factors including population, waste characterization, and potential damage to natural resources. Based on the HRS evaluation, PNS was proposed for inclusion on the USEPA's National Priorities List (NPL) in June 1993, and was included on the NPL on May 31, 1994. After this date, all subsequent environmental investigations and cleanup activities have been conducted under the authority of CERCLA. CERCLA includes a process with sequential phases to evaluate the nature

and extent of contamination at a site; determine the need for a remedy; and if necessary identify, develop, and implement appropriate remedial actions in order to protect human health and the environment. The major phases of the CERCLA process, for which the ERP parallels, are shown in the graphic below and are described in greater detail in Table 1.



Not all phases of the CERCLA process are required for every site.

The onshore and offshore components of work required by the HSWA Permit were directed to be separated by USEPA in 1994 such that activities within the onshore portion of the facility would not be further delayed by the more complex offshore investigations. However, potential impacts from onshore sites to offshore areas were evaluated as part of the onshore studies, as discussed further in the site- or OU-specific discussions in Section 3.0.

The FFA for PNS was signed by DON and USEPA in September 1999, became effective February 2000, and superseded the HSWA Permit. The State of Maine elected not to be a party to the FFA. However, the state is afforded a participatory role in the site remediation process by virtue of CERCLA. The FFA establishes the roles

and responsibilities of DON, USEPA, and, MEDEP under CERCLA, establishes deadlines/schedules, outlines work to be performed, and provides a dispute resolution process for primary documents. This annual amendment to the SMP meets one of the requirements of the FFA (Section 11.4).

2.3 Community Participation

PNS has established a Restoration Advisory Board (RAB) comprised of members of the community, local environment group members, and federal and state officials, who meet as needed to keep the community and stakeholders informed on environmental issues at PNS. An index of the documents prepared for the program is maintained in the administrative record for review by the public at repositories at the Portsmouth Public Library in Portsmouth, New Hampshire and the Rice Public Library in Kittery, Maine. Additionally, DON hosts a public website for the Shipyard that includes site description and background information, community outreach information, and access to the Administrative Record File (ARF), which allows the community to download any of the final pre-decision documents for the Shipyard. The weblink to the public website is http://go.usa.gov/DyRH.

All documents from the administrative record are available through the Public Affairs Officer for PNS at:

Public Affairs Office, Code 100PAO
Portsmouth Naval Shipyard
Portsmouth, NH 03804-5000
Phone: (207) 438-1140
PORT_PTNH_ASK_PAO@navy.mil

A Community Involvement Plan (CIP) was prepared and finalized in June 2012 (CH2MHill, June 2012). The 2012 CIP was an update of the previous CIP that was updated in 1996 (Brown and Root Environmental, October 1996).

3.0 Description of Environmental Sites

There are currently seven sites that are in RC/RIP. The initial investigations of PNS identified 28 potential sites (referred to as SWMUs at that time under RCRA) located onshore and offshore of PNS. After the 28 potential sites were examined in detail, 15 were eliminated from further investigation, leaving 13 sites that required additional investigation and appropriate corrective action (Kearney & Baker/TSA, July 1986). These 13 sites were listed in the HSWA Permit. Following the HSWA Permit, four were identified as No Further Action (NFA) sites, a portion of Site 6 was separated and given a separate number (Site 29), and four sites were newly identified. The 1999 FFA included 14 sites and the offshore area. Since that time, six additional sites and the Jamaica Island Landfill (JILF) Impact Area (within Site 8) and Defense Reutilization Marketing Office (DRMO) Impact Area (within Site 6) have been removed from the ERP, including Site 30 through an NFA Decision Document in 2014, Sites 9 and 11 through the OU3 Remedial Action Completion Report (RACR) in February 2015, and Site 5 and Offshore Areas of Concern (AOCs) through the OU4 RACR in September 2016. Site 33 (fuel oil contamination at tank farm) is not considered a study area in the FFA and is not included in the HSWA Permit for PNS. The above ground storage tanks along with all associated pipe and equipment in the tank farm were decommissioned and decontaminated between June 1998 and February 1999. Contaminated soil from the tank farm was excavated and disposed of off-site during decommissioning. The remaining sites (referred to as the ERP Sites) are in RC/RIP and listed below.

Current PNS ERP Sites	PNS Sites Removed from the ERP
6, 8, 10, 29, 31, 32, 34	1, 2, 3, 4, 5, 7, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 30, 33, DRMO Impact Area, JILF Impact Area, Offshore AOCs

DON organized the ERP Sites into OUs based on similar kinds of contamination and geographic proximity as an alternative to addressing all of the PNS sites as one large study area and cleanup action. The sites listed in the FFA were grouped into five OUs (OU1 through OU5). OU6 was identified in 2000 to address management of migration from the JILF; however, OU6 was recombined with OU3 through an Explanation of Significant Difference (ESD) for the OU3 ROD signed in October 2005, with management of migration of groundwater from the JILF addressed as part of the OU3 remedy. Further investigations resulted in designation of OU7 (Site 32), OU8 (Site 31), and OU9 (Site 34). In addition, OU5 (Site 27) was removed from the CERCLA list in 2001, and OU4 (including Site 5, Site 26, and Offshore Areas) was removed from the CERCLA list in 2016. Both OU4 and OU5 are discussed in Tables 3 and 4. OU6 is not discussed further separately from OU3.

A Preliminary Close Out Report was prepared and finalized by USEPA in September 2019 to document construction completion at PNS. The document provided information to support that physical construction of all cleanup actions is complete, including actions to address all immediate threats and to bring all long-term threats under control, and identified the administrative steps needed to achieve site completion and final closure.

The locations of the OUs and ERP Sites in RC/RIP are shown on Figures 2 and 3, and a summary of the status of active sites is provided in Table 2. A summary of the sites removed from the ERP is provided in Table 3. Additional information on site- or OU-specific investigations is provided in the discussion related to the specific OU.

3.1 Operable Unit 1 (OU1)

Site Description

OU1 consists of

- Site 10 – Former Battery Acid Tank No. 24

Site 10 occupies a small peninsula located in the CIA near the southern shore of PNS (Figure 2), and is located within an area of current and historical industrial activities. Site 10 is located on fill material that was placed prior to the 1920s and includes Building 238 that was built in 1955 and was used for battery recharging operations that previously resulted in releases of contaminated wastewater. Currently, Building 238 is primarily used for office space. The soils within Site 10 are currently covered by Building 238 and asphalt. A crawl space with an earthen floor exists beneath a portion of Building 238 and the loading dock. The ground elevation of the earthen floor is approximately 5 to 6 feet below the ground elevation outside the building and loading dock.

Site 10 is bounded by buildings to the west and north and by the Piscataqua River on the east, south, and southwest. The Site 10 shoreline along the Piscataqua River from the west to the southeast is bounded by a quay wall of granite blocks. Barges are commonly docked at these berths located south and east of Building 238 (Berths 4 and 5).

The offshore area of Site 10 is part of the Dry Dock AOC which was investigated separately as part of the Estuarine Ecological Risk Assessment (EERA) (NCCOSC, May 2000; Johnston, et. al., December 1994). Sampling locations within monitoring station MS-12 in the Interim Offshore Monitoring Program were located adjacent to

OU1. Remedial actions at MS-12 were conducted from September 2014 to October 2015 as part of OU4.

Nature and Extent of Potential Contamination

Large lead-acid storage batteries were drained inside Building 238 as part of the lead-acid recharging operations, and prior to 1974 the waste acids drained directly to the offshore through an industrial waste outfall (Site 5) (TtNUS, June 2006; Weston, June 1983). In 1974, waste acids were directed into a lead-acid drain pipeline to an underground storage tank. The drain line exited the building in the crawl space and then dropped vertically into the earthen floor of the crawl space. The acidic discharge flowed through the drain line through the floor of the building to a steel underground storage tank (Battery Acid Tank No. 24) of 9,680-gallon capacity. Use of the piping and tank was discontinued in 1984 when a leak was discovered in the tank. Tank closure was conducted in 1986, when the tank and surrounding contaminated soil were removed (TtNUS, June 2006). Testing of the soil during tank excavation indicated no exceedances of hazardous waste criteria.

Numerous soil and groundwater investigations were completed at Site 10 after the tank removal, between 1991 and 2006 (McLaren/Hart, July 1992; TtNUS, March 2000; TtNUS, March 2003; TtNUS, June 2006). The RI Report, completed in 2007, indicated that lead was the primary chemical of concern in soil in the area of the tank leak and soil in the crawl space by the drain line (TtNUS, July 2007). Groundwater sampling results indicated that groundwater was not a medium of concern for human health exposure or migration of groundwater for offshore impact (site groundwater concentrations were less than action levels).

The investigations showed fill material at the site was rocky and ranged in thickness from 10 feet to 40 feet, and was generally thickest nearer to the shoreline. Gravel, bricks, and other building materials were also found in the fill material. Groundwater at the site is tidally influenced and is saline or brackish. Past release(s) from site operations to the offshore area were addressed as part of MS-12 within OU4. A list of important Site 10 historical events and environmental investigations with relevant dates is shown below.

Event	Date
Filling of area was conducted and area apparently used for berthing and/or launching boats	Before 1826 to 1860s and 1900s to 1915
Other industrial uses of area	1910s to 1920s
Building 238 built and lead-acid battery recharging operations began within the building	1955

Event	Date
Lead-battery acid wastes discharged directly to the river (through an industrial waste outfall that is part of Site 5)	1955 to 1974
Lead-battery acid wastes discharged to underground storage tank (Battery Acid Tank No. 24) south of Building 238	1974 to 1984
Leak in underground tank discovered and use of tank discontinued	1984
Tank closure conducted with underground tank and surrounding contaminated soil removed	1986
Sampling of soil and groundwater to determine nature and extent of contamination	1991, 1998, 2001, and 2006
Remedial Action	October 2011 to March 2012
LUC inspections	June 2013, May 2014, June 2015, June 2016, May 2017, May 2018, May 2019

CERCLA Remedial Summary

During the development of the RI/FS, several human health risks were identified that required remedial action, primarily associated with lead in surface and subsurface soils. In response to these risks, the selected remedy for OU1 in the ROD included excavation and off-yard disposal of contaminated soil with lead concentrations greater than acceptable levels for construction workers, recreational users, and occupational workers from around the drain lines within the crawl space under Building 238, as well as implementation of Land Use Controls (LUCs) to prevent future residential site use of the site (DON, September 2010). The Remedial Action was completed between October 2011 and March 2012. Major reports prepared for OU1 under CERCLA are presented below. The final RACR for OU1 was signed by DON in December 2014. Major activities and reports prepared for OU1 under CERCLA are presented below.

Document	Author/Date	Administrative Record Number
Final OU1 RI Report	TtNUS, July 2007	001606
Final OU1 FS Report	TtNUS, June 2010	001754
Final OU1 Proposed Plan	DON, June 2010	001759
Final OU1 ROD	DON, September 2010	002495
Final OU1 RAWP	Shaw, October 2011	002627
Final OU1 Land Use Control Remedial Design (LUCRD)	DON, January 2012	002643
Final OU1 Sampling and Analysis Plan (SAP) for Post-Remediation Groundwater Monitoring	Tetra Tech, January 2012	002648
Final OU1 Post-Remediation Groundwater Monitoring Report	Tetra Tech, July 2013	002864
Final OU1 Construction Completion Report (CCR)	CB&I, September 2013	002945

Document	Author/Date	Administrative Record Number
Final OU1 LUCRD Revision 1	DON, September 2014	003045
Final OU1 RACR	DON, December 2014	003090
Final Annual Inspection Report for OUs 1, 2, 3, 7, 8, and 9 (2018)	Resolution Consultants, September 2018	003580

Activities Completed in FY 2019

The annual LUC inspection that is part of the remedy was performed in May 2019 and an Annual Inspection Report for OUs 1, 2, 3, 7, 8, and 9 is under preparation. The next LUC inspection is scheduled for May 2020.

CERCLA Path Forward

The CERCLA path forward for OU1 is as follows:

- Near Term Milestones
    - No primary documents
- Out Year Milestones
    - Five-year reviews

The schedule for upcoming activities and milestones for OU1 is included in Attachment B.

3.2 Operable Unit 2 (OU2)

Site Description

OU2 consists of:

- Site 6 – DRMO Storage Yard
- Site 29 – Former Teepee Incinerator Site

OU2 is located in the south-central portion of PNS (Figure 2) along the Piscataqua River. The OU2 shoreline is steeply sloped and has shoreline erosion controls (riprap and a seawall) placed along portions of the shoreline to provide erosion protection. Since the area was filled, the area within Sites 6 and 29 has been used for industrial and commercial purposes. Within Site 6, the DRMO was responsible for the reuse,

transfer, donation, sale, or disposal of excess and surplus Department of Defense (DoD) property in New England. Until operations moved out in 2010, DRMO operations were conducted in the paved portion of the fenced area. There are no permanent buildings located at the DRMO (Site 6). Prior to the OU2 Remedial Action, an area that was capped in 1993 was covered with grass and barricaded from use for any activities. Site 6 is used for equipment storage and contractor trailers. At Site 29, Building 298 is used for office space, and Building 310 is the hose handling facility. There are no longer any hazardous waste-related activities at OU2, and hazardous chemicals are not used as part of any of the current operations.

There is a small intertidal sediment area adjacent to OU2 to the east, which was part of the DRMO Storage Yard AOC investigated as part of the EERA. A sampling location within monitoring station MS-11 in the Interim Offshore Monitoring Program was located in a depositional area east of the seawall at Site 29 (TtNUS, November 2010). NFA was required for MS-11 as documented in the OU4 ROD (DON, August 2013).

Nature and Extent of Potential Contamination

The area around Site 6 was used for DRMO operations and included storage of lead- and nickel-cadmium battery elements, motors, typewriters, paper products, and scrap metal. The major hazardous materials of concern were the battery cells and plates that were stockpiled on uncovered pallets. Open storage of batteries and other materials that could cause contaminants to released were terminated in approximately 1983.

The main activities that occurred in the Site 29 area included open burning, waste disposal, and industrial incineration. A portion of Site 29, referred to as the Waste Disposal Area (WDA), was apparently filled with paper, wood, rubbish, and ash, reportedly from open burning of trash conducted from approximately 1918 until 1965. A teepee incinerator (former Building 290) operated from 1965 to 1975 for disposal of wood, paper, rubbish, and occasional burning of cans of paint and solvents, and ash from the teepee incinerator was also disposed of in the WDA until 1971. Materials identified in soil borings located in the WDA are generally consistent with the background information and include ash, cinders, wire, glass, wood, and metal pieces. Asbestos was also found during the excavation of the Building 310 foundation, which is located over the WDA. Building 298 was built in 1975 and was used as an industrial waste treatment facility until the 1980s. Spill prevention and control methods were in place during operation of the facility, and there were no reported releases impacting soil or water outside the building.

Initial environmental sampling at OU2 began in 1984. Investigations have shown that Site 6 and much of Site 29 (in the area filled in the early 1900s as part of Henderson's

Point excavation) consist of angular rock fragments overlain by general fill material composed of sand and gravel with minor amounts of wood and metal debris and cinders. Remaining filled areas of OU2 consist of sand, gravel, and silt overlying waste fill that includes cinders, ash, plastic, glass, and wire. Fill thicknesses generally range from approximately 6 feet to 23 feet; however, the maximum fill thickness is approximately 40 feet (along the shoreline in the WDA). The groundwater at OU2 is tidally influenced and is generally brackish or saline.

The Supplemental RI Report, finalized in March 2010, concluded that that the main contaminants in soil at Sites 6 and 29 include metals (particularly lead), polycyclic aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs), and the main contaminants in groundwater are metals (TtNUS, March 2010). Contaminant fate and transport modeling and groundwater sampling conducted for OU2 indicated that migration of groundwater was not anticipated to adversely impact the offshore. OU4 sampling activities that included collection of samples of soil eroding along the top of the Site 29 shoreline showed that the erosion was likely the cause of elevated metals (copper, lead, nickel) concentrations detected in offshore sediments (TtNUS, August 2005; TtNUS, February 2006). In 2002, a utility trench was excavated to place new utilities to service the Building 298 offices. The excavated soil was disposed of off yard, the trench was backfilled with clean fill material, and the trench is considered a clean area within the OU2 boundary.

A list of important OU2 historical events and environmental investigations with relevant dates in site chronology is shown below.

Event	Date
OU2 area filled with material excavated from Henderson's Point	1902 to 1905
DRMO activities began (stone crusher and scrap metal yard)	1920
Additional filling and disposal at OU2 (WDA)	1920 to 1975-1979
Onsite disposal ended with trash being taken off yard for disposal	1975 to present
Seawall constructed	1940s
Coal and coke storage facility located at Site 6 (Building 172)	1942 to 1957
Sandblast grit (unused) storage located at Site 6 (Building 172)	1957 to 1960
Teepee Incinerator (Building 290) operated and was demolished when operation ended	1965 to 1975
Building 298 used as industrial waste treatment facility	1975 to 1980s
Hose handling facility located at Site 29 (Building 310)	1980 to present
Pesticide handling conducted at Building 314	1982 to 1995
Open storage of batteries at DRMO discontinued	1983
Environmental sampling began at OU2 (as part of FCS)	1984

Event	Date
RCRA Facility Investigation (RFI) and RFI Data Gap investigation conducted at Site 6 (including what is now Site 29)	1989 to 1992 and 1995
DRMO capped as an interim corrective measure	1993
Clean closure under RCRA of industrial waste treatment facility (Building 298)	1997
Portion of Site 6 separated into a new site (Site 29) and field investigation at Site 29 conducted	1998
Emergency Removal Action (shoreline stabilization) at Site 6	1999
Excavation for utility trench at Building 298 conducted	2002
Soil washing treatability study conducted	2005
Emergency Removal Action, including placement of shoreline controls, conducted at Site 29. Shoreline repairs completed in 2008.	2005 to 2006 2008
Surficial debris (including metal pieces and wires) removed from eastern portion of Site 29 with the area covered with gravel	2006
Additional investigation at OU2 conducted to refine remedial options	2007 to 2008
Removal action conducted	2010
Pre-design investigation to complete delineation of contamination.	2011
OU2 pre-design soil sampling conducted	April 2011
Remedial Action (DRMO Area and WDA)	July 2013 to August 2014
LUC inspections	June 2013 October 2014 October 2015, December 2016 May 2017, May 2018, May 2019
Post-remediation groundwater monitoring	Quarterly: July 2017, October 2017, January 2018, April 2018 Annually: May 2019

CERCLA Remedial Summary

Based on the results of the Supplemental RI Report, human health risks were identified that require remedial action. The September 2011 ROD for OU2 selected excavation and off-yard disposal of soil associated with potentially unacceptable risks to construction workers for the DRMO area, surface soil excavation cover placement for the WDA, along with LUCs to restrict residential land use, minimize erosion, and prevent exposure to soil beneath buildings within the LUC boundary for all receptors. Remedial action construction was completed between Summer 2013 and Summer 2014. The final RACR for OU2 was signed by DON in September 2016. Major activities and reports prepared for OU2 under CERCLA are presented below.

Document	Author/Date	Administrative Record Number
Final OU2 Supplemental RI Report	TtNUS, March 2010	001743
Final OU2 SAP for PDI	TtNUS, November 2010	002513
Final OU2 FS Report	TtNUS, April 2011	002554
Final OU2 Proposed Plan	DON, July 2011	001689
Final OU2 ROD	DON, September 2011	002620
Final OU2 LUCRD	DON, March 2012	002673
Final OU2 RD	Tetra Tech, November 2012	002775
Final RAWP (DRMO Area)	CB&I, July 2013	002946
Final RAWP (WDA)	AGVIQ, August 2013	003011
Final CCR (DRMO Area)	CB&I, March 2015	003195
Final CCR (WDA)	AGVIQ, May 2015	003192
Final OU2 Long-Term Management (LTMgt) Plan	Tetra Tech, March 2016	003233
Final OU2 RACR	DON, August 2016	003290
Final SAP for Post-Remediation Groundwater Monitoring	Resolution Consultants, October 2016	003335
Final Annual Inspection Report for OUs 1, 2, 3, 7, 8, and 9 (2018)	Resolution Consultants, September 2018	003580
Final Round 1 Annual Groundwater Report, OU2	Resolution Consultants, October 2018	003594
Final Sampling and Analysis Plan for Post-Remediation Groundwater Monitoring Program, Round 2, OU2	Tetra Tech, April 2019	003623
Final Work Plan for Groundwater Monitoring Well Abandonment for OU2	Tetra Tech, June 2019	003629
Final Post-Remediation Groundwater Monitoring Report, Round 2, OU2	Tetra Tech, October 2019	003652
Final Letter Report for Groundwater Monitoring Well Abandonment Activities for OU2	Tetra Tech, October 2019	003651

Activities Completed in FY 2019

The second round of post-remediation groundwater sampling (first annual round) in the WDA was completed in May 2019 and the Round 2 Post-Remediation Groundwater Monitoring Report for OU2 is under preparation. No groundwater sampling was necessary for the DRMO area, as monitoring in the DRMO area was discontinued after the first round of quarterly post-remediation groundwater sampling in accordance with the Round 1 Post-Remediation Groundwater Monitoring Report for OU2 that was

finalized in October 2018. Monitoring wells that are no longer sampled in the DRMO area will be abandoned. Annual monitoring in the WDA will continue until the next five year review sampling.

The annual LUC inspection that is part of the remedy was performed in May 2019 and the 2019 Annual Inspection Report for OUs 1, 2, 3, 7, 8, and 9 is under preparation. The next LUC inspection is scheduled for May 2020.

CERCLA Path Forward

The CERCLA path forward for OU2 is as follows:

- Near Term Milestones
    - No primary documents
- Out Year Milestones
    - Five-year reviews

The schedule for upcoming activities and milestones for OU2 is included in Attachment B.

3.3 Operable Unit 3 (OU3)

Site Description

OU3 consists of:

- Site 8 – Jamaica Island Landfill (JILF)

OU3 is located in the eastern portion of PNS (Figure 2) and consists of 22 acres currently used for parking, occupational uses, and recreational uses. Wetlands are located by Jamaica Cove to the north of OU3. The hazardous waste storage facility (Building 357) is located to the northeast of OU3, and the boundary of OU3 does include a portion of the paved area west of the building. To the east of OU3 is Clark Cove, and the solid waste storage facility (Building 337) is located to the south. The Automotive Hobby Shop (Building 320) and medical clinic (H1) are located to the west. The current features reflect post-remedial construction conditions (remedial construction detailed below).

The offshore area of OU3 was part of the Jamaica Cove and Clark Cove AOCs which were investigated as part of the EERA. Sampling locations in monitoring stations MS-5 through MS-9 in the Interim Offshore Monitoring Program were located within the

intertidal and subtidal areas of Jamaica and Clark Coves. NFA was required for MS-5 through MS-09 as documented in the OU4 ROD (DON, August 2013).

Nature and Extent of Potential Contamination

Site 8 is the landfill (JILF). The Navy used the JILF, which previously consisted of tidal mudflats, as a disposal area from 1945 to 1978 for general refuse, trash, construction rubble, dredged sediment, and various industrial wastes. The boundary of the landfill defines the boundary of OU3.

Environmental sampling began at OU3 in 1984, and over time has included various investigations of soil, groundwater, seeps, sediment sampling in the intertidal area, geophysical surveying, and test pitting. The ROD characterized OU3 as containing a large volume of low-level hazardous materials (DON, August 2001). A variety of organic and inorganic constituents were detected in soil and groundwater and include volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), PCBs, pesticides, metals, and petroleum hydrocarbons. Soil and groundwater data for OU3 show similar chemical contamination throughout the area of the landfill.

A list of important OU3 historical events and environmental investigations with relevant dates is shown below.

Event	Date
Use of underground storage tanks at Site 11 to store waste oil before offsite disposal began	1943
Landfilling of tidal flats east of Seavey Island and west – southwest of Jamaica Island began	1945
Poured concrete blocks and precast concrete pipes containing mercury-contaminated wastes buried in two locations (Site 9 MBI and MBII) at the JILF	Between 1973 and 1975
Dredged sediment from the Dry Dock area disposed of at the JILF, and landfilling of the area discontinued	1978
IAS identifies the JILF and MBI and MBII as sites	1983
Environmental investigations began at OU3 (as part of the FCS)	1984
Use of tanks at Site 11 discontinued, and tanks and surrounding soil removed	1989
RFI and RFI Data Gap investigations conducted	1989-1992 and 1994
Pipe and blocks (three) removed from MBI and disposed of off site	1994 and 1997
Geophysical survey of OU3 conducted	1998
Blocks (eight) removed from MBII and disposed of off site	2000
Test pitting investigation conducted based on results of geophysical survey; 40 drums containing non-hazardous material located and removed	2000
Significant construction of remedy started	2002

Event	Date
Remedy construction completed	2004
OU3 Rounds 1 and 2 post-remedial operation, maintenance, and monitoring (OM&M) conducted	2006
OU3 Rounds 3 and 4 post-remedial OM&M conducted	2007
OU3 Rounds 5 and 6 post-remedial OM&M conducted	2008
OU3 Rounds 7 and 8 post-remedial OM&M conducted	2009
OU3 Round 9 post-remedial OM&M conducted	April to June 2010
OU3 Round 10 post-remedial OM&M conducted	April 2011
OU3 Round 11 post-remedial OM&M conducted	May 2012
LUC Inspection	May 2013, June 2014, May 2015, July 2016, May 2017, May 2018, May 2019

CERCLA Remedial Summary

During the development of the RI/FS, several human health risks were identified that required remedial action, primarily from metals and PAHs. In response to these risks, the selected remedy in the ROD for OU3 included installation of a RCRA Class C landfill cover and implementation of institutional controls, erosion controls, and monitoring (DON, August 2001). In addition, a 2003 ESD for the ROD described the addition of excavation and consolidation of material within the limits of the JILF before placement of the RCRA Class C landfill cover (DON, September 2003). Wetlands were constructed within the excavated area in 2003, and construction of the cap was completed in September 2004. Management of groundwater migration (formerly OU6, see Section 1.4) was combined into the OU3 remedy through a second ESD (DON, October 2005). The OM&M program for OU3 was initiated in July 2006. The final RACR for OU3 was signed by DON in February 2015. Major activities and reports prepared for OU3 under CERCLA are presented below.

Document	Author/Date	Administrative Record Number
OU3 Revised Risk Assessment	TtNUS, 2000	000922
Final OU3 FS	TtNUS, November 2000	000922
Final OU3 Proposed Plan	DON, January 2001	000945
Final OU3 ROD	DON, August 2001	001018
Final Phase I remedial design, evaluation of consolidation for MBII area and Jamaica Cove area, and Phase II remedial design	US Army, June and November 2002	001139, 001143, 001149, and 001195
Final OU3 ESDs	DON, September 2003 and October 2005	001293 and 001493

Document	Author/Date	Administrative Record Number
Final OU3 CCR	TtEC, May 2006	001561
Final OU3 Post-Remedial OM&M plan (without LUCRD)	TtNUS, June 2006	001566 and 001567
Final OU3 Rounds 1 through 4 evaluation report	TtNUS, July 2009	000910
Final OU3 Rounds 1 through 9 evaluation report	TtNUS, April 2011	002563
Final OU3 LUCRD	DON, August 2011	002574
Final OU3 Post Remedial OM&M Plan (Revision 1, Vol. 1 & 2)	TtNUS, December 2011	002638 and 002639
Final OU3 Data Package for OM&M Program – Round 11	Tetra Tech, September 2012	002752
Technical Memorandum For Discontinuing Annual Groundwater Monitoring at OU3	Tetra Tech, August 2013	002930
Final OU3 Gas Monitoring Probe Abandonment Plan	SDC Group, June 2014	002993
Final OU3 Data Package for OM&M Program – Round 12	SDC Group, June 2014	002996
Final OU3 Inspection and Maintenance Summary Report – Round 13	SDC Group, January 2015	003058
Final OU3 RACR	DON, February 2015	003157
Final OU3 Gas Monitoring Probe Abandonment Report	SDC Group, Feb. 2015	003056
Final Inspection and Maintenance Summary Report – Round 14	SDC Group, December 2015	003219
Final OU3 SAP	Resolution Consultants, May 2016	003286
Final OU3 Landfill Maintenance and Repair Design Report	Resolution Consultants, November 2016	003331
Final Inspection and Groundwater Report – Round 15	Resolution Consultants, April 2017	003356
Final Inspection and Maintenance Summary Report – Round 16	Resolution Consultants, September 2017	003489
Final Inspection and Groundwater Report Addendum – Round 15	Resolution Consultants, November 2017	003471
Final Landfill Maintenance and Repair Report	TTL-EQM, August 2018	003565
Final Annual Inspection Report for OUs 1, 2, 3, 7, 8, and 9 (2018)	Resolution Consultants, September 2018	003580

Activities Completed in FY 2019

The annual LUC inspection that is part of the remedy was performed in May 2019 and the 2019 Annual Inspection Report for OUs 1, 2, 3, 7, 8, and 9 is under preparation. The next LUC inspection is scheduled for May 2020.

CERCLA Path Forward

The CERCLA path forward for OU3 is as follows:

- Near Term Milestones
    - No primary documents
- Out Year Milestones
    - Five-year reviews

The schedule for upcoming activities and milestones for OU3 is included in Attachment B.

3.4 Operable Unit 7 (OU7)

Site Description

OU7 consists of:

- Site 32 – Topeka Pier Site

Site 32 encompasses approximately 17 acres of filled land on the northern shore of PNS, along the Back Channel of the Piscataqua River, from just west of Building 162 to east of former Building H29 and from the Back Channel south to Building 129 (Figure 2). The land is currently used for office parking (about 35 percent of the site area), equipment storage, vehicle maintenance, transducer repair, boat launch, temporary housing for Navy personnel (H23), and medical clinic (H1). The pier and offshore areas of OU7 are used for docking of boats.

The offshore area of OU7 was part of the Back Channel AOC which was investigated as part of the EERA. Sampling locations within monitoring stations MS-03 and MS-04 were located in the intertidal and subtidal area along the OU7 shoreline (TtNUS, November 2004, February 2010, November 2010). Remedial actions at MS-03 and MS-04 were conducted from September 2014 to October 2015 as part of OU4.

Nature and Extent of Potential Contamination

Topeka Pier was constructed in the Back Channel of the Piscataqua River to dock the prison ship USS Topeka. Storing and milling of lumber in the area began by 1910, and a timber basin was established at the southeastern corner of the site. The area west of the timber basin was used to store coal, wood, and scrap iron. Combustibles including paints and oils were stored in Building 98. VOCs, SVOCs, pesticides, PCBs, dioxins,

furans, and inorganics were detected in surface and subsurface soil samples. Inorganics and SVOCs in a small number of samples were detected in groundwater.

A list of important OU7 historical events and environmental investigations with relevant dates is shown below.

Event	Date
Filling of area conducted, including connecting Dennett's and Seavey Islands	1900 to 1945
Lumber storage and milling began (in southeastern corner of Site 32)	1910
Various buildings constructed to accommodate the increased demand for lumber during World War I, including a sawmill (Building 129), a lumber storehouse with timber racks (Building 132), and an additional lumber storehouse (Building 149)	Prior to 1920
Many current buildings built	1941 to 1945
Wastes from buildings discharged to river; discontinued when sanitary sewer system installed	1940s to 1970s
Building 306 constructed as a transducer repair facility	1980
Excavation work along Goodrich Avenue and near Building H23 uncovered debris in area including large dry-cell batteries, graphite electrodes, brick, wood, metal pipe and wire, glass, asbestos cloth, and crucibles used in foundry operations. Site 32 identified as Site Screening Area (SSA)	1994 to 1995
Site Screening Investigation (SSI) and geophysical survey conducted	1998
SSI recommended RI	2000
Phase I RI field work conducted	2003
Parking area repaved	2003/2004
Emergency removal action (shoreline stabilization) conducted	June 2006
Phase II RI field work conducted	2008
Remedial Action	May to September 2015
LUC inspection	October 2014, October 2015, June 2016, May 2017, May 2018, May 2019

CERCLA Remedial Summary

The RI identified several human health risks. In response to these risks, the selected remedy for OU7 as described in the 2013 ROD included removing contaminated soil from two areas within the Former Timber Basin and LUCs to prevent residential land use and to inspect and maintain shoreline controls. The final LUCRD was submitted in September 2014. The Remedial Action activities were completed between May and September 2015. The final RACR for OU7 was signed by DON in September 2016. Major activities and reports prepared for OU7 under CERCLA are presented below.

Document	Author/Date	Administrative Record Number
Final SSI Report for Site 32	TtNUS, May 2000	000812
Final OU7 RI Report	TtNUS, July 2011	002634
Final OU7 FS Report	Tetra Tech, June 2013	002842
Final OU7 Proposed Plan	DON, July 2013	002851
Final OU7 ROD	DON, September 2013	002925
Final OU7 LUCRD	DON, September 2014	003047
Final OU7 RAWP	AQVIQ, April 2015	003184
Final OU7 LTMgt Plan	Tetra Tech, March 2016	003228
Final OU7 CCR	AGVIQ, April 2016	003442
Final OU7 RACR	DON, April 2016	003292
Final OU7 LTMgt Report (2016)	Resolution Consultants, January 2017	003329
Final OU7 LTMgt Report (2017)	Resolution Consultants, September 2017	003490
Final Annual Inspection Report for OUs 1, 2, 3, 7, 8, and 9 (2018)	Resolution Consultants, September 2018	003580

Activities Completed in FY 2019

The annual LUC inspection that is part of the remedy was performed in May 2019 and the 2019 Annual Inspection Report for OUs 1, 2, 3, 7, 8, and 9 is under preparation. The next LUC inspection is scheduled for May 2020.

CERCLA Path Forward

The CERCLA path forward for OU7 is as follows:

- Near Term Milestones
    - No primary documents.
- Out Year Milestones
    - Five-year reviews

The schedule for upcoming activities and milestones for OU7 is included in Attachment B.

3.5 Operable Unit 8 (OU8)

Site Description

OU8 consists of:

- Site 31 – Former West Timber Basin.

OU8 is a paved area located in the CIA, in the northwestern portion of PNS (Figure 2). OU8 is an industrial area surrounded by buildings or dry docks. The main site features were associated with the former plate yard, which was a fenced area with railroad spurs. Building 92 located east of the former plate yard is the Structural Shop. The former plate yard office (Building 157) was demolished in 2006.

The offshore area near OU8 was part of the Dry Dock AOC which was investigated as part of the EERA. Sampling locations within monitoring stations MS-13 and MS-14 in the Interim Offshore Monitoring Program were located adjacent to Dry Dock No. 1 to the east and east of Dry Dock No. 3, respectively. NFA was required for MS-13 and MS-14 as documented in the OU4 ROD (DON, August 2013).

Nature and Extent of Potential Contamination

The site is an area that was previously filled with various materials and is bounded on the east, west, and south by historical quay walls that bounded the former timber basin. During the early 1900s, wood for shipbuilding was stored and seasoned in the West Timber Basin (Site 31). A metal washing plant (Building 110) for the recovery of metals from the ash and skimmings of the brass foundries on the Shipyard was erected on the northern side of Site 31, and by-products from the plant were reportedly discarded into the timber basin. In addition, by-products from smelting and pigging (the process of pouring melted iron from a form into a mold) operations at the Shipyard were deposited into the timber basin. In 1940, a new plate yard was constructed near the quay wall and was active until 1960, serving as the primary steel storage yard and pickling location at the Shipyard.

Environmental sampling at OU8 was conducted as part of the Site Screening Investigation (SSI) in 1998 (TtNUS, May 2000) to determine the presence or absence of contamination and to determine whether further investigation under CERCLA was needed for the site. The investigation showed that fill material varies in thickness from 8.5 to 17.5 feet across the site and consists mostly of sand, silt, and rock fragments, with trace amounts of brick and other debris. In addition, a wedge of coal, cinders, and ash (approximately 8 feet thick, starting around 2 to 4 feet below ground surface) exists in the northern part of the site, tapering to the south to less than one foot thick.

Groundwater at OU8 appears to be tidally influenced and ranges from saline/brackish along the perimeter of the site to fresh/mildly brackish further inland. Chemicals detected in site soils were PAHs and metals. Significant military construction (MILCON) activities have been ongoing within OU8, particularly for Building 174, and excavation and off-site disposal of contaminated soil has been conducted as part of these activities. A list of important OU8 historical events and environmental investigations with relevant dates is shown below.

Event	Date
Wood storage and seasoning for shipbuilding conducted in West Timber Basin	Early 1900s to 1913
Filling of West Timber Basin began	1916
Quay wall installed to enclose the basin	1917
Metal washing plant (Building 110) constructed	1920s
Filling of basin enclosed by quay wall with rock, soil, cinders, and other waste and scrap material.	1920 to 1940
Buildings 110, 51 (acetylene plant and former pitch plant), and 83 (latrine) razed, pickling tanks adjacent to Building 110 removed, and train tracks constructed	1940
Building 92 extended over a portion of timber basin	1940
Plate yard with pickling tanks and washing aprons active	1940 to 1960
Pickling tanks removed after use of plate yard discontinued	Unknown (after 1960)
SSI conducted	1998
Removal of surface features and initial construction activities associated with expansion of Building 174	September to December 2006
RI	2015
LUC Inspection	May 2018, May 2019

CERCLA Remedial Summary

Based on the results of the 2000 SSI report, the site was recommended for further investigation. The SSI identified several contaminants of concern that exceed residential and/or industrial risk-based screening levels. RI field sampling activities were completed in June 2015. The Final RI/FS report for OU8 was submitted in July 2016. As documented in the RI/FS, the OU8 boundary was modified based on actual locations of quay walls on east, south, and west sides of timber basin and building/historical shoreline on northern side using boring logs from the Shipyard, historic maps and site investigation activities. Major activities and reports prepared for OU8 under CERCLA are presented below.

Document	Author/Date	Administrative Record Number
Final OU8 SSI Report for Site 31	TtNUS, May 2000	00812
Final OU8 RI SAP	Tetra Tech, May 2015	003190
Final OU8 RI/FS Report	Tetra Tech, July 2016	003269
Final OU8 Proposed Plan	DON, November 2016	003306
Final OU8 ROD	DON, September 2017	003444
Final OU8 LUCRD	DON, February 2018	003520
Final OU8 RACR	DON, April 2018	003557
Final Annual Inspection Report for OUs 1, 2, 3, 7, 8, and 9 (2018)	Resolution Consultants, September 2018	003580

Activities Completed in FY 2019

The annual LUC inspection that is part of the remedy was performed in May 2019 and the 2019 Annual Inspection Report for OUs 1, 2, 3, 7, 8, and 9 is under preparation. The next LUC inspection is scheduled for May 2020.

CERCLA Path Forward

The CERCLA path forward for OU8 is as follows:

- Near Term Milestones
    - No primary documents
- Out Year Milestones
    - Five-year reviews

The schedule for upcoming activities and milestones for OU8 is included in Attachment B.

3.6 Operable Unit 9 (OU9)

Site Description

OU9 consists of:

- Site 34 – Former Oil Gasification Plant, Building 62

OU9 is located in the central portion of PNS (Figure 2). The buildings at and in the vicinity of OU9 are used for industrial and commercial uses. Paved areas within OU9 are used for parking. Building 62 and its annex currently are used by the Shipyard's

Public Works Department as a mini-bulldozer shop and for storage. OU9 is in a historic district at PNS, and buildings at and near the site (Buildings 40, 43, 60, and 62) are considered contributing elements to the National Registry District (Louis Berger Group, April 2003). There is a small, relatively flat grassy area within OU9. To the north of Building 62 Annex and northeast of Building 62, the area generally slopes gently north towards the roadway and then slopes steeply (i.e., forms ledges) to the water's edge at the shoreline adjoining the Back Channel of the Piscataqua River. Access to the shoreline from the site is difficult because of the rapid changes in terrain at the ledges.

Nature and Extent of Potential Contamination

Combustion of coal and conversion of kerosene to illuminating gas were performed at the Former Oil Gasification Plant (Building 62) from the 1870s to early 1900s. Ash was generated from the oil gasification process and blacksmith shop which operated from 1915 to 1930. Ash was deposited primarily north of Building 62 and resulted in an ash pile that was removed in 2007. Pesticide storage activities were also conducted in Building 62.

High concentrations of PAHs and metals are associated with the presence of ash in site samples. Concentrations of PAHs and metals are typically low in samples without ash. The visual presence of ash was used to define the approximate extent of contamination as part of the 2004 investigation. The depth to the bottom of the deepest ash layer was five feet below grade, and typically significant reductions in concentrations were observed with depth beneath the deepest ash layer. Based on data from temporary wells (installed and subsequently abandoned), no overburden groundwater is present at the site. The depth to bedrock varies from five to 12 feet. A list of important OU9 historical events and environmental investigations with relevant dates is shown below.

Event	Date
Ash was generated during coal (fuel) combustion as part of oil gasification process	1870s to early 1900s
Ash was generated during coal (fuel) combustion as part of blacksmithing operation	1915 to 1930
Building 62 reportedly gutted by fire	1919
NAVFAC Mid-Atlant Public Works Department uses Building 62 for storage	1930 to Present
Pesticides stored at Building 62	1960s to 1985
Site identified as SSA, and six drums of ash removed from pile (less than 2 cubic yards) removed from pile north of Building 62	1998 and 1999
Soil and sediment sampling	1998 and 2003
SSI conducted and extent of ash investigated	2004
Removal action conducted	2007
RI sampling conducted	2009 and 2010

Event	Date
Remedial Action Construction for OU4	2015
LUC Inspection	October 2014, June 2015, June 2016, May 2017, May 2018, May 2019

CERCLA Remedial Summary

Based on the results of the SSI, several human health risks were identified from exposure to ash material at the site (TtNUS, August 2004). In response to these risks, an EE/CA was completed in 2005 that recommended excavation and offsite disposal of the ash pile and ash exposed at shoreline ledge areas (TtNUS, September 2005), and non-time-critical removal action was completed in 2007. The 2007 ash removal action addressed nearly all unacceptable risks at the site since the majority of contamination at the site appeared to be associated with ash material. The RI evaluated residual site-related risks after removal of the ash. The ROD for OU9 was signed in September 2013, with the selected remedy of LUCs to prevent residential land use for the area north of Building 62, prevent residential land use of Building 62 Annex, and prevent unrestricted exposure for current industrial users to the subsurface beneath the floor of Building 62 Annex. The LUCRD for OU9 was finalized in September 2014. The draft RACR was submitted in August 2014. Regulatory comment resolution was completed for the RACR in January 2015. It was agreed that residual petroleum hydrocarbon impacts observed during shoreline excavation performed as part of OU4 remediation be addressed as part of OU9, and that the potential impact of the excavation on shoreline slope and residual contamination migration to surface water be evaluated through inspections to be conducted under OU9. Based on assessment of residual contamination at the OU9 shoreline at area MS-01, DON, USEPA, and MEDEP agreed in May 2016 to expand the LUC boundary and monitoring/inspection of the OU9 shoreline. An ESD was signed in September 2017 to document the modification to the remedy for OU9, the LUCRD was updated (Revision 1), and an LTMgt Plan was prepared. The final RACR was submitted in December 2017. Major activities and reports prepared for OU9 under CERCLA are presented below.

Document	Author/Date	Administrative Record Number
Final EE/CA for Site 34	TtNUS, September 2005	001495
Final Action memorandum for removal action	DON, February 2007	001532
Final Removal action design	June 2007	001604
Removal action construction report	Shaw, July 2008	002471

Document	Author/Date	Administrative Record Number
Final OU9 RI Work Plan	TtNUS, July 2009	001744
Final OU9 RI Report	Tetra Tech, June 2012	002700
Final OU9 FS Report	Tetra Tech, May 2013	002840
Final OU9 Proposed Plan	DON, July 2013	002863
Final OU9 ROD	DON, September 2013	002926
Final OU9 LUCRD	DON, September 2014	003049
Final OU9 ESD	DON, September 2017	003443
Final OU9 LTMgt Plan	Tetra Tech, October 2017	003475
Final OU9 LUCRD, Revision 1	DON, October 2017	003452
Final OU9 RACR	DON, December 2017	003504
Final Annual Inspection Report for OUs 1, 2, 3, 7, 8, and 9 (2018)	Resolution Consultants, September 2018	003580
Final SAP for Soil Gas Study for OU9	Tetra Tech, December 2018	003605
Final Building 62 Annex Soil Gas Study for OU9	Tetra Tech, June 2019	003633

Activities Completed in FY 2019

Based on the third five-year review, soil gas sampling beneath Building 62 Annex was necessary to reaffirm the protectiveness of the remedy associated with vapor intrusion from ash material that was presumed to be beneath Building 62 Annex. The soil gas study was conducted in December 2018 and January 2019, which included the collection of sub-slab soil gas samples and differential pressure readings in the Building 62 Annex to ensure that naphthalene was not present in sub-slab soil gas under Building 62 Annex at concentrations that could pose potentially unacceptable risk to workers because of vapor intrusion, should vapor intrusion occur. Naphthalene was not detected in the sub-slab soil gas samples collected at Building 62 Annex, and the differential pressure measurements collected as part of the investigation indicated that vapor intrusion is not occurring. Based on the results, vapor intrusion is not a concern for OU9. A Soil Gas Study Report is under preparation that documents the results of the investigation.

The annual LUC inspection that is part of the remedy was performed in May 2019 and an Annual Inspection Report for OUs 1, 2, 3, 7, 8, and 9 is under preparation. The next LUC inspection is scheduled for May 2020.

CERCLA Path Forward

The CERCLA path forward for OU9 is as follows:

- Near Term Milestones
    - No primary documents
- Out Year Milestones
    - Five-year reviews

The schedule for upcoming activities and milestones for OU9 is included in Attachment B.

4.0 PFAS Site Screening Process

DON conducted a basewide investigation to evaluate the presence of per- and polyfluoroalkyl substances (PFASs) because of potential for PFAS contamination from fire-suppression systems containing aqueous film-forming foam (AFFF) or AFFF storage and use at PNS. Soil and/or groundwater were collected from five areas to determine whether these media were impacted by PFAS. This investigation was conducted per the Site Screening Process (SSP) Plan for the Shipyard (Brown and Root Environmental, March 1998) and the final Tier I SAP for PFAS submitted in November 2018. SSP field events were conducted in December 2018 and January 2019 and March 2019, during which a total of 27 groundwater samples and 14 soil samples were collected. Figure 5 show the PFAS screening areas investigated during the SSI. An SSP Report is under preparation.

One or more PFAS were detected in all groundwater samples collected and in all except one of the soil samples. The concentrations of perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS), and perfluorobutanesulfonic acid (PFBS) were compared to project screening levels based on potential industrial exposure to soil and potential use of groundwater for drinking. Soil concentrations of PFOA, PFOS, and PFBS were less than project screening levels. Concentrations of PFOA and PFOS in groundwater exceeded the drinking water project screening levels (USEPA's 2016 Lifetime Health Advisories for PFOA and PFOS) in four of the five areas investigated. PFBS concentrations did not exceed the drinking water project screening level in any groundwater sample collected. There is no current human exposure to PFAS in groundwater because PNS is served by a public water supply. Groundwater quality in the investigated areas varies from potentially useable to no potable based on salinity. The PFAS in groundwater discharging to surface water is not anticipated to pose an ecological risk because PNS is located on an island where the PFAS is immediately diluted by the river and estuary system surrounding the island. A complete potential exposure pathway does exist for the construction worker who may contact groundwater during excavation activities; therefore, construction worker groundwater screening levels were developed and compared to site data. There were no exceedances of the construction worker groundwater screening levels.

Because concentrations of PFOA and PFOS exceeded USEPA's 2016 Lifetime Health Advisories for PFOA and PFOS in four of the investigated areas, the Navy, USEPA, and MEDEP agree that a LUC may be needed in the areas not already having LUCs to include PFOA/PFOS to prevent future potential use of groundwater for drinking.

A schedule for the PFAS SSI is provided in Attachment B.

5.0 Site Ranking

A relative risk ranking was conducted from 1995 to 1999 prior to the signing of the FFA to assist in prioritizing site cleanups. Using the DoD developed Relative Risk Site Evaluation framework, sites are categorized into High, Medium, and Low relative risk groups based on an evaluation of contaminants, pathways, and human and ecological receptors. Each of these environmental media were evaluated using three factors: the contaminant hazard factor (CHF), the migration pathway factor (MPF), and the receptor factor (RF). Upon determination of the CHF, MPF, and RF a decision matrix was utilized to determine the category of relative risk for each media as High, Medium, or Low. The relative risk category for a site is determined from the highest rating resulting from the evaluation of the three media. Table 4 presents a summary of relative risk ranking results determined prior to the FFA and that all ranked sites require no further remediation. Site that were determined to be NFA prior to the signing of the FFA were not included in the risk ranking.

6.0 Schedules

In accordance with the FFA (Section 12), as part of the annual SMP update, schedules are developed for each site at PNS showing proposed activities for the FY 2020 and FY 2021 (FY+1). In addition, activities completed or scheduled in FY 2019 are also presented. Schedules are developed using the current status of activity anticipated and projected funding availability. Line item durations were developed using durations for specific process activities provided in the FFA. Schedules for OU1, OU2, OU3, OU7, OU8, and OU9 are attached as Attachment B. A summary of schedule revisions for each OU from the schedules within the FY 2019 SMP, based on the status of projects on December 11, 2019, is provided within Attachment C. The path forward for PFAS screening areas has not yet been developed.

All FFA “deliverables” required during the cleanup process are included. Primary documents are prepared by DON and include draft and draft final submission and review by USEPA and MEDEP, as necessary. Responses to comments on the draft document are prepared by DON. If comments are not received on the draft final version, it becomes the final document. If comments are received on the draft final document, DON will make the necessary modifications and issue the final Primary Document. Secondary documents, as listed in the FFA, also undergo review; however, a draft final version is not provided. The FFA (Section 10.0) defines review, response and revision time frames for Primary and Secondary documents.

7.0 Land Use Planning

As an active DON facility, PNS is subject to ongoing operations, maintenance, and improvements. Based on anticipated site use and receptors, LUCs have been implemented at some ERP Sites to be protective where contamination has been left in place. In order to maintain protectiveness of human health, the environment, and the implemented remedy, it is crucial to identify and communicate which areas at PNS are subject to LUCs. The sites with LUCs in place are:

- Site 10 – Former Battery Acid Tank No. 24 (OU1)
- Site 6 – DRMO Storage Yard (OU2)
- Site 29 – Former Teepee Incinerator Site (OU2)
- Site 8 – Jamaica Island Landfill (OU3)
- Site 32 –Topeka Pier Site (OU7)
- Site 31 – West Timber Basin (OU8)
- Site 34 – Former Oil Gasification Plant, Building 62 (OU9)

This information is made available on the Naval Installation Restoration Information Solution (NIRIS) to address environmental considerations during planning and decision making. Contact information is listed below:

Naval Facilities Engineering Command, Mid-Atlantic
9324 Virginia Avenue
Norfolk, VA 23511-3095

8.0 References

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TtNUS, May 2000. Site Screening Report, Site 30 (Building 184), Site 31 (West Timber Basin), and Site 32 (Topeka Pier), Portsmouth Naval Shipyard, Kittery, Maine. TtNUS, King of Prussia, Pennsylvania. [Revision pages to March 2000 draft final version were provided in May 2000 to finalize the report.]

TtNUS, March 2003. Site 10 Additional Investigation Report for Portsmouth Naval Shipyard, Kittery, Maine. TtNUS, King of Prussia, Pennsylvania.

TtNUS, August 2004. Site Screening Investigation Report for Site 34 for Portsmouth Naval Shipyard, Kittery, Maine. TtNUS, King of Prussia, Pennsylvania. (Includes Site 34 Site Investigation Data Package for Portsmouth Naval Shipyard, Kittery, Maine, TtNUS, King of Prussia, Pennsylvania, December 2003, as Appendix A.)

TtNUS, November 2004. Rounds 1 through 7 Interim Offshore Monitoring Program Report, Portsmouth Naval Shipyard, Kittery, Maine. TtNUS, King of Prussia, Pennsylvania. [Letter dated January 13, 2005 indicates that November 2004 draft final (Rev 0) is the final document.]

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TABLES

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Table 1: Major Phases of the CERCLA Process

Phase	Description
Preliminary Assessment (PA) / Site Investigation (SI)	The PA is a limited assessment designed to differentiate between sites that may pose a threat to human health or the environment and require further investigation and sites that pose little or no threat. At Federal Facilities, the lead agency (the Navy) collects the data for the PA, and USEPA evaluates the PA data. The PA relies heavily on existing information, and environmental samples are rarely collected. If the PA results in a recommendation for further investigation, an SI is conducted. The SI generally includes collection of environmental and waste samples to determine if activities at the site have impacted environmental media and if a site should be included in the CERCLA RI/FS process. As outlined in the FFA, the Site Screening Process (SSP) is an alternative to the PA/SI process.
Remedial Investigation (RI)	The RI collects environmental samples to determine the nature and extent of contamination, potential migration pathways, toxicity and persistence of contaminants, and potential (risk) for adverse impacts to human health or the environment.
Feasibility Study (FS)	The FS develops remedial objectives, identifies ARARs (Applicable or Relevant and Appropriate Requirements), identifies and screens remedial technologies, develops and analyzes remedial alternatives, and compares the alternatives against the CERCLA criteria (protection of human health and the environment, compliance with ARARs, reduction of toxicity, mobility, or volume through treatment, short-term effectiveness, long-term effectiveness, implementability, cost, state acceptance, community acceptance) in support of selecting a remedy.
Proposed Plan (PP) / Proposed Remedial Action Plan (PRAP)	The PP or PRAP presents the remedial alternatives developed in the FS and describes the preferred remedial alternative recommended for implementation. The public has an opportunity to comment during a formal public comment period.
Treatability Study	Treatability studies are performed to assist in the evaluation of a potentially promising remedial technology. The primary objectives of treatability testing are to provide sufficient data to allow treatment alternatives to be fully developed and evaluated during the FS and support the remedial design of a selected alternative. The need for a treatability study is generally identified during the FS, but treatability studies may be conducted at any time during the CERCLA process. Treatability studies can be bench-scale (laboratory study) and/or pilot-scale (field studies).
Engineering Evaluation/Cost Analysis (EE/CA) and Removal Action	Removal actions are implemented to clean up or remove hazardous substances from the environment to mitigate the spread of contamination. Removal actions may be implemented at any time during the CERCLA process. Actions taken immediately to mitigate an imminent threat to human health or the environment, such as the removal of corroded or leaking drums, are classified as time-critical removal actions. Removal actions that may be delayed for 6 months or more without significant additional harm to human health or the environment are classified as non-time-critical removal actions. The EE/CA identifies the objectives of the removal action and analyzes the effectiveness, implementability, and cost of various alternatives.
Record of Decision (ROD)	The ROD is issued to explain the selected remedial action. Public comments received during the PP are addressed as part of the Responsiveness Summary in the ROD. A notice to the public is issued when the ROD is signed by Navy and USEPA following State concurrence.
Remedial Design (RD) and Remedial Action (RA)	The RD phase develops technical specifications for cleanup remedies and technologies to be designed, and if necessary includes generating the Land Use Control Remedial Design. The RA is the actual construction or implementation phase of the cleanup process.
Five Year Review	Five-year reviews generally are required when hazardous substances remain on site above levels that do not permit unlimited use and unrestricted exposure. Five-year reviews provide an opportunity to evaluate the implementation and performance of a remedy to determine whether it remains protective of human health and the environment.
Response Complete (RC)/Remedy In Place (RIP)	The RIP milestone signifies the completion of the remedial action construction phase and that the remedy has been implemented and has been demonstrated to be functioning as designed. RC is the point at which the remedy has achieved the required reduction in risk to human health and the environment (cleanup goals have been met). RC is followed by site closeout. Once all RCs and RIPs have been documented for every site at the facility and the terms of the FFA have been met, site closeout and NPL deletion is completed.

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Table 2: Summary of Environmental Restoration Program Sites

Site	Other ID[1]			Operable Unit[2]	Site Name[2]	Site Description	Current CERCLA Status	Comments/Notes
	IAS (1983)	RFI (1992)	FFA (1999)					
10	Not Identified	SWMU 10	SWMU 10	OU1	Former Battery Acid Tank No. 24	Past release of acidic discharges from piping and former underground storage tank associated with lead-acid battery recharging operations in Building 238 at the site resulted in soil contamination on site and sediment contamination off shore (in a portion of the Dry Dock AOC). The Navy removed the tank and surrounding soil in 1986 as part of tank closure. Soil excavation and site restoration as part of the remedial action was conducted from November 2011 to June 2012. Two rounds of post-remediation groundwater monitoring were conducted in February and November 2012 to confirm the lack of groundwater impacts from soil remediation activities. The site is under LTMgt, which includes implementation of LUCs. Annual LUC inspections are being conducted.	RC / RIP (LTMgt)	The OU1 ROD was signed in September 2010 (N00102.AR.002495). The OU1 LUCRD (January 2012, N00102.AR.002643) and OU1 LUCRD Revision 1 (September 2014, N00102.AR.003045) were filed with the appropriate municipal land use offices in Kittery, ME and Portsmouth, NH. The OU1 RACR was signed in December 2014 (N00102.SF.003090). The USEPA memorandum documenting RC is dated September 24, 2012, and MEDEP concurrence with RC is dated January 6, 2015.
6	Not Identified	SWMU 6	SWMU 6	OU2	Defense Reutilization and Marketing Office (DRMO) Storage Yard	Site 6 and the majority of Site 29 were used for DRMO operations from approximately 1920 until 2010. Materials stored included lead and nickel-cadmium battery elements, motors, typewriters, paper products, and scrap metal. The Navy discontinued open storage of batteries at the site in 1983, and capped or paved portions of the site in 1993 as part of interim corrective measures. In 1999, 2005, 2006, and 2008, shoreline stabilization activities were conducted for different portions of the OU2 shoreline. Soil excavation and site restoration as part of the remedial action for the DRMO area (Site 6 and the western portion of Site 29) was conducted from August 2013 to August 2014. The site is under LTMgt, which includes conducting groundwater and sediment accumulation monitoring and implementation of LUCs. Annual sediment accumulation monitoring and LUC inspections are being conducted. Quarterly groundwater monitoring for the first year of monitoring was conducted in 2017/2018 and it was determined that groundwater monitoring can be discontinued. Monitoring wells in the DRMO area were abandoned in July 2019.	RC / RIP (LTMgt)	The OU2 ROD was signed in September 2011 (N00102.AR.002620). The OU2 LUCRD was filed with the appropriate municipal land use offices in Kittery, ME and Portsmouth, NH in March 2012 (N00102.AR.002673). The OU2 RACR was signed in August 2016 (N00102.PF.003290). The USEPA memorandum documenting RC is dated August 10, 2016, and MEDEP concurrence with RC is dated September 28, 2016.
29	Not Identified	Part of SWMU 6	Teepee Incinerator		Former Teepee Incinerator Site	This site was originally included in Site 6 and was an area formerly used for DRMO operations (see Site 6), waste disposal, open burning, and industrial incineration. The portion not used for DRMO operations (waste disposal area) was filled with various debris and trash from the 1920s until the late 1970s. Open burning of trash was conducted in the waste disposal area from 1918 until 1965, when an incinerator was built. The incinerator was used until 1975 and was demolished soon after operations ended in 1975. Shoreline stabilization activities at Site 6 in 2005, 2006, and 2008 included a portion of the Site 29 shoreline. Soil excavation and cover placement as part of the remedial action for the waste disposal area was conducted from August 2013 to August 2014. The site is under LTMgt, which includes conducting groundwater and sediment accumulation monitoring and implementation of LUCs. Annual sediment accumulation monitoring and LUC inspections are being conducted. Quarterly groundwater monitoring for the first year of monitoring was conducted in 2017/2018 and it was determined that the frequency of monitoring can be reduced to annually in 2019.		

Table 2: Summary of Environmental Restoration Program Sites

Site	Other ID[1]			Operable Unit[2]	Site Name[2]	Site Description	Current CERCLA Status	Comments/Notes
	IAS (1983)	RFI (1992)	FFA (1999)					
8	Site 1	SWMU 8	SWMU 8	OU3	Jamaica Island Landfill (JILF)	The Navy used this site, which previously consisted of tidal mudflats, from 1945 to 1978 for disposal of general refuse, trash, construction rubble, dredge sediment, and various industrial wastes. The landfill area was 25 acres; however, as part of the remedial action, approximately 3 acres of material were removed and replaced with wetlands. The remedial action, conducted from June 2002 to September 2004, also included placement of a multiple-layer landfill cap and shoreline erosion controls. The site is under LTMgt, which includes groundwater monitoring, landfill inspections and maintenance, and LUC inspections. Annual landfill and LUC inspections, groundwater monitoring every five years, and landfill maintenance as needed are currently being conducted as part of LTMgt.	RC / RIP (LTMgt)	The OU3 ROD was signed in August 2001 (N00102.AR.001018), and Explanation of Significant Difference (ESD) documents were signed in September 2003 (N00102.AR.001293) and October 2005 (N00102.AR.001493). The OU3 LUCRD was filed with the appropriate municipal land use offices in Kittery, ME and Portsmouth, NH in August 2011 (N00102.AR.002574). The OU3 RACR was signed in February 2015 (N00102.PF.003157). The USEPA memorandum documenting RC is dated July 31, 2006, and MEDEP concurrence with RC is dated March 20, 2015.
32	Not Identified	Not Identified	Topeka Pier Site (SSA)	OU7	Topeka Pier Site	This site is a tidal area that was filled from approximately 1900 to 1945 to allow use for various industrial activities in support of PNS operations. A portion of the site was used as a timber basin. Materials used to fill the area consisted mostly of rock and soil mixed with some debris, and there are a few intermittent pockets of debris with little soil. In June 2006, the Navy conducted an emergency removal action along the shoreline of the site to address erosion north of Building 306. Based on the presence of eroding debris, including foundry slag, the Navy removed surface debris and placed a shoreline erosion control (revetment) structure along the entire OU7 shoreline to prevent further erosion. Soil excavation and site restoration as part of the remedial action for OU7 was conducted from August to September 2015. The site is under LTMgt, which includes implementation of LUCs that provide land use restrictions and requirements for long-term management of existing shoreline erosion controls and management of any excavated subsurface soil. Annual shoreline erosion control and LUC inspections are being conducted as part of LTMgt activities.	RC / RIP (LTMgt)	The OU7 ROD was signed in September 2013 (N00102.AR.002925). The OU7 LUCRD was filed with the appropriate municipal land use offices in Kittery, ME and Portsmouth, NH in September 2014 (N00102.AR.003045). The OU7 RACR was signed in August 2016 (N00102.PF.003292). The USEPA memorandum documenting RC is dated September 15, 2016, and MEDEP concurrence with RC is dated September 20, 2016.
31	Not Identified	Not Identified	West Timber Basin (SSA)	OU8	Former West Timber Basin	The site is a former timber basin that was filled from approximately 1917 to 1940 to allow use for various industrial activities in support of Shipyard operations. Past industrial activities included a metal washing plant (1917 to 1920), cleaning of steel plates (1920 to 1940), and a metal plate yard (1940s to late 1990s). Subsequently the site was used for equipment storage and temporary facilities. A site investifation was completed in June 2015. The site is under LTMgt, which includes implementation of LUCs that provide land use restrictions and requirements for management of any excavated subsurface soil. Annual LUC inspections are being conducted as part of LTMgt activities.	RC / RIP (LTMgt)	The OU8 ROD was signed in September 2017 (N00102.AR.003444). The OU8 LUCRD was filed with the appropriate municipal land use offices in Kittery, ME and Portsmouth, NH in February 2018 (N00102.AR.003520). The OU8 RACR was signed in April 2018 (N00102.AR.003557). A USEPA memorandum documenting RC and is dated May 30, 2018, and MEDEP concurrence with RC is dated May 10, 2018.

Table 2: Summary of Environmental Restoration Program Sites

Site	Other ID[1]			Operable Unit[2]	Site Name[2]	Site Description	Current CERCLA Status	Comments/Notes
	IAS (1983)	RFI (1992)	FFA (1999)					
34	Not Identified	Not Identified	Oil Gasification Plant, Building 62 (SSA)	OU9	Former Oil Gasification Plant, Building 62	The site was used as an oil gasification plant from the 1870s to the early 1900s and as a blacksmith shop from 1915 to 1930. Burning of coal as part of site operations resulted in ash/burnt material in soil around Building 62. In 2007, the Navy removed the majority of contaminated soil and stabilized a portion of the shoreline. Site investigation after the removal action showed residual ash/burnt material in the subsurface in some portions of the site north of Building 62. Ash/burnt material is presumed to be present beneath Building 62 Annex, built adjacent to Building 62 after site operations had ended. During 2015 sediment dredging as part of OU4 remedial activities in the offshore area of OU9, petroleum-contaminated material was found along the shore and extending under shoreline erosion controls on the slope north of OU9. The majority of contamination extending into the slope was removed; however, remaining petroleum-contaminated subsurface soil is beneath the shoreline erosion controls that were reconstructed along the disturbed portion of the slope. The site is under LTMgt, which includes implementation of LUCs that provide land use restrictions and requirements for long-term management of existing shoreline erosion controls and management of any excavated subsurface soil. Annual shoreline erosion control and LUC inspections are being conducted as part of LTMgt activities.	RC / RIP (LTMgt)	The OU9 ROD was signed in September 2013 (N00102.AR.002926), and an ESD document was signed in September 2017 (N00102.AR.003443). The OU9 LUCRD was filed in September 2014 (N00102.AR.003049). A revised OU9 LUCRD based on the ESD was filed with the appropriate municipal land use offices in Kittery, ME and Portsmouth, NH in October 2017 (N00102.AR.003452). The OU9 RACR was signed in December 2017 (N00102.PF.003504). The USEPA memorandum documenting RC is dated January 30, 2018, and MEDEP concurrence with RC is dated January 12, 2018. Updates in vapor intrusion assessment methodology necessitated the collection of soil gas data beneath Building 62 Annex to determine protectiveness of the remedy to potential human receptors. The soil gas study was conducted in December 2018/January 2019 and confirmed that vapor intrusion was not a potential pathway of concern; therefore, the remedy continues to be protective of potential human receptors.

Notes:

1. Other site identification nomenclature from previous documents.

   IAS = Initial Assessment Study, June 1983, Administrative Record Number 000002

   RFI = RCRA Facility Investigation Report (draft), July 1992, Administrative Record Number 000117+A9

   FFA = Federal Facility Agreement, September 1999, Administrative Record Number 000726. Site designation in FFA as provided in Appendices B (List of Areas of Concern) and C (List of Site Screening Areas) of the FFA.

2. Operable unit designation and Site Name are based on the Site Management Plan (SMP) provided in Appendix D of the FFA and subsequent annual amendments of the SMP.

Table 3: Sites Removed from Environmental Restoration Program

Site	Other ID[1]			Operable Unit	Site Name	Site Description	Current CERCLA Status	Comments/Notes[2]
	RFA (1986)	RFI (1992)	FFA (1999)					
1	SWMU 1	NA	NA	NA	Hazardous Waste Storage Facility	Site 1 was an active container storage area with a RCRA Permit. No additional action was required because it was a licensed RCRA facility with frequent inspections and no history of releases.	NFA	Eliminated from further investigation in the RFA.
2	SWMU 2	NA	NA	NA	Freon Recovery Operation	Site 2 was a still located in Building 174 and holding tank located outside of Building 174 that were used for reclaiming Freon solvent used in various operations. No additional action was required because Site 2 was certified closed in accordance with a State approved closure plan.	NFA	Eliminated from further investigation in the RFA.
3	SWMU 3	NA	NA	NA	Industrial Waste Treatment Plant	Site 3 included the treatment plant located in Building 298. No additional action was required because there was no history of releases and the plant was in the process of obtaining a RCRA Permit.	NFA	Eliminated from further investigation in the RFA.
4	SWMU 4	NA	NA	NA	Interim Storage Facilities	Site 4 consisted of four temporary waste holding areas that were used before transfer of wastes to the Hazardous Waste Storage Facility (SWMU 1). No additional action was required because Site 4 was certified closed in accordance with a State approved closure plan.	NFA	Eliminated from further investigation in the RFA.
5	Site 2	SWMU 5	SWMU 5	OU4	Former Industrial Waste Outfalls	Site 5 included numerous point source discharge points around the dry docks that were used from approximately 1945 to 1975 to discharge liquid industrial waste to the offshore. Contamination from this site was addressed as part of the Dry Dock AOC (see Offshore AOCs). With the completion of the remedial actions for OU4, NFA was required for Site 5.	NFA	OU4 RACR signed September 2016 (N00102.PF.003297). The USEPA memorandum documenting RC is dated September 15, 2016, and MEDEP concurrence with RC is dated September 19, 2016.
7	SWMU 7	NA	NA	NA	Interim Storage Areas	Site 7 consisted of four waste storage areas that were used for the storage of drummed facility wastes. No additional action was required because Site 7 was certified closed in accordance with a State approved closure plan.	NFA	Eliminated from further investigation in the RFA.
9	Sites 3 and 4	SWMU 9	SWMU 9	OU3	Former Mercury Burial Sites (MBI and MBII)	Site 9 included two areas where concrete blocks and pipes (vaults) containing mercury-contaminated wastes were buried within the JILF (Site 8). The vaults were removed in the 1990s/early 2000s. No residual contamination from Site 9 was found. The source areas at this site were removed prior to the ROD for OU3; therefore, NFA was required for Site 9.	NFA	The OU3 RACR was signed in February 2015 (N00102.PF.003157). The USEPA memorandum documenting RC is dated July 31, 2006, and MEDEP concurrence with RC is dated March 20, 2015.
11	Not Identified	SWMU 11	SWMU 11	OU3	Former Waste Oil Tanks Nos. 6 & 7	Site 11 included underground tanks that were used from 1943 to 1989 to store waste oils prior to offsite disposal. In 1989, the Navy removed the tanks, which were intact, along with surrounding soil. Soil contamination remaining in the vicinity of Site 11 were part of the JILF (Site 8). The source area at this site was removed prior to the ROD for OU3; therefore, NFA was required for Site 11.	NFA	The OU3 RACR was signed in February 2015 (N00102.PF.003157). The USEPA memorandum documenting RC is dated July 31, 2006, and MEDEP concurrence with RC is dated March 20, 2015.
12	SWMU 12	SWMU 12	NA	NA	Boiler Blowdown Tank, Building 72 (Tank No. 25)	Site 12 was a 3,800-gallon underground steel tank for boiler blowdown. The tank was removed as part of the RFI. There were no releases from Site 12; therefore, NFA was required for Site 12.	NFA	NFA Decision Document signed July 1997 (N00102.AR.000447).
13	SWMU 13	SWMU 13	NA	NA	Rinse Water Tank, Building 76 (Tank No. 27)	Site 13 was a 700-gallon underground steel tank for rinse waters from Building 76. The tank was removed as part of the RFI. There were no releases from Site 13; therefore, NFA was required for Site 13.	NFA	NFA Decision Document signed July 1997 (N00102.AR.000447).
14	SWMU 14	NA	NA	NA	Waste Oil Tank No. 31	Site 14 was a 750-gallon underground steel tank that was used to hold used oil from Building 72.	NFA	Eliminated from further investigation in the RFA.
15	SWMU 15	NA	NA	NA	Oil/Water Separator No. 32	Site 15 was a 5,400-gallon fiberglass tank used for oily wastewaters from Building 72.	NFA	Eliminated from further investigation in the RFA.
16	SWMU 16	SWMU 16	NA	NA	Rinse Water Tank, Building 174 (Tank No. 34)	Site 16 was a 750-gallon underground steel tank that was used to hold rinse waters from Building 174. The tank was removed as part of the RFI. There were no releases from Site 16; therefore, NFA was required for Site 16.	NFA	NFA Decision Document signed July 1997 (N0012.AR.000447).
17	SWMU 17	NA	NA	NA	Floor Drain Tank No. 26	It was determined that Site 17 did not exist.	NFA	Eliminated from further investigation in the RFA.
18	SWMU 18	NA	NA	NA	Waste Lube Tank No. 35	Site 18 was a 4,500-gallon aboveground steel tank used for used lubrication oil storage. NFA was determined because it was a new tank (installed in 1982).	NFA	Eliminated from further investigation in the RFA.

Table 3: Sites Removed from Environmental Restoration Program

Site	Other ID[1]			Operable Unit	Site Name	Site Description	Current CERCLA Status	Comments/Notes[2]
	RFA (1986)	RFI (1992)	FFA (1999)					
19	SWMU 19	NA	NA	NA	Waste Oil Tank No. 37	Site 19 was a 500-gallon underground steel tank that held used oil. NFA was determined because it was a new tank (installed in 1985).	NFA	Eliminated from further investigation in the RFA.
20	SWMU 20	NA	NA	NA	Oil/Water Separator No. 38	Site 20 was a partially buried oil/water separator. NFA was determined because it was a new tank (installed in 1985).	NFA	Eliminated from further investigation in the RFA.
21	SWMU 21	SWMU 21	SWMU 21	OU1	Acid/Alkaline Drain Tank No. 28	Site 21 included a 695-gallon underground tank that was used to store spent acid/alkaline cleaning solutions. The tank was removed in 1991. Soil and groundwater sampling was conducted to confirm that a release from the tank did not result in unacceptable risks; therefore, NFA was required for this site.	NFA	NFA Decision Document signed February 2008 (N00102.AR.001647).
22	SWMU 22	NA	NA	NA	Chemical Cleaning Facility Tank, Building 155	Site 22 was a 4,000 gallon aboveground tank for collecting spills and wastes from metal surface cleaning operations. NFA was determined because there was low potential for release.	NFA	Eliminated from further investigation in the RFA.
23	SWMU 23	SWMU 23	NA	NA	Chemical Cleaning Facility Tank, Building 174	Site 23 was a 2,270-gallon underground tank used to hold rinse waters from Building 174. The tank was removed as part of the RFI. There were no releases from Site 23; therefore, NFA was required.	NFA	NFA Decision Document signed July 1997 (N00101.AR.000447).
24	SWMU 24	NA	NA	NA	Asbestos Collection Dumpster	Site 24 was a central collection dumpster for asbestos waste that was located adjacent to the Hazardous Waste Storage Facility (SWMU 1). NFA was determined because there was low potential for release.	NFA	Eliminated from further investigation in the RFA.
25	SWMU 25	NA	NA	NA	Burnable Dumpsters	Site 25 consisted of dumpsters to collect burnable wastes consisting mostly of paper. NFA was determined because there was no evidence of a release of hazardous wastes or constituents.	NFA	Eliminated from further investigation in the RFA.
26	SWMU 26	SWMU 26	SWMU 26	OU4	Portable Oil Water Dumpsters	Site 26 consisted of dumpsters at the submarine berths used for oil/water wastes from cleanout of submarine bilges and various tanks. NFA was required for this site because it consisted of portable tanks that were used for petroleum wastes only, which are exempt under CERCLA.	NFA	NFA Decision Document signed August 2001 (N00102.AR.001019).
27	SWMU 27	SWMU 27	SWMU 27	OU5	Berth 6 Industrial Area/Fuel Oil Spill Area	Site 27 included a ruptured underground pipeline that resulted in a release of No. 6 fuel oil near Berth 6. The broken pipeline and surrounding contaminated soil were excavated. Other fuel oil lines that ran through Berth 6 that failed hydrostatic testing in 1981 were capped and abandoned in place. NFA was required for this site because petroleum product was the only contaminant of concern, which is exempt under CERCLA.	NFA	NFA Decision Document signed August 2001 (N00102.AR.001020).
28	SWMU 28	NA	NA	NA	Silver Recovery System	Site 28 consisted of silver recovery operations for wastes with high silver content that was conducted in several areas within buildings. Non-recoverable wastes were drummed and stored at the Hazardous Waste Storage Facility (SWMU 1). NFA was determined because there was low potential for release.	NFA	Eliminated from further investigation in the RFA.
30	NA	NA	Galvanizing Plant, Building 184 (SSA)	SSA	Former Galvanizing Plant, Building 184	This site consisted of a concrete tank vault within Building 184 that contained pickling tanks used as part of galvanizing operations and later for metal parts assembly. In the 1960s, the tanks were removed, and the tank vault was filled and covered with a concrete slab. The contents of the tank vault, investigated after a crystalline growth was found on the wall adjacent to the tanks vault, was found to have a high acid content (i.e., low pH). The fill material was thought to have been causing the crystalline growth, and in 2006 and 2007, the Navy removed the crystalline material and redirected storm water away from the building. The Navy removed the contents of the tank vault in 2011 to remove potential contamination associated with Site 30. Subsequently the Navy determined that the tank vault was not the source and that the crystalline formation is caused by efflorescence; therefore, NFA was required for this site.	NFA	NFA Decision Document signed March 2014 (N00102.AR.002987).
33	NA	NA	NA	NA	Fuel Oil Contamination at Tank Farm	Site 33 consisted of five aboveground storage tanks (ASTs) with associated piping and equipment. The tanks were decommissioned and decontaminated during the period of June 12, 1998 through February 5, 1999; therefore, NFA was required.	NFA	Closeout Report for the Fuel System Decontamination and Decommissioning Project, April 1999 (N00102.AR.000660).

Table 3: Sites Removed from Environmental Restoration Program

Site	Other ID[1]			Operable Unit	Site Name	Site Description	Current CERCLA Status	Comments/Notes[2]
	RFA (1986)	RFI (1992)	FFA (1999)					
DRMO Impact Area	NA	Portion of SWMU 6	DRMO Salvage Yard Impact Area	OU2	DRMO Impact Area (Quarters S, N, & 68)	A portion of the DRMO Impact Area, located north of Site 6, included military residences (Quarters S, N, and 68) where lead and copper were present in the backyards. A removal action was conducted in 2010 to remove contaminated soil; therefore, NFA was required for this portion of the DRMO Impact Area.	NFA	NFA documented in the OU2 ROD signed September 2011 (N00102.AR.002620).
JILF Impact Area	NA	Portion of SWMU 8	JILF Impact Area	OU3	JILF Impact Area (Former CDC)	When a Child Development Center (CDC) was located west of the JILF, soil sampling in this area was conducted to ensure that the children at the CDC were not being exposed to soil contaminated by wind dispersal of JILF contamination. When the CDC was moved to a different location, the area was referred to as the Former CDC. The building and playground equipment were removed, and the area is currently used as an open-green space, with grass and trees covering the area. Sampling in the area indicated that it had not been impacted by the JILF; therefore, NFA was required for this area.	NFA	NFA Decision Document signed in February 2008 (N00102.AR.001648).
Offshore AOCs	Not Identified	Not Identified	Offshore Areas	OU4	Offshore Areas Potentially Impacted by PNS Onshore IRP Sites	Based on the EERA (2000), six AOCs (i.e. Back Channel, Jamaica Cove, Clark Cove, Sullivan Point, DRMO Storage Yard, and Dry Dock) were identified as nearshore habitats adjacent to the PNS that may have been affected by onshore ERP sites. Due to the offshore nature of contamination at the six AOCs, these areas were evaluated using 14 separate monitoring stations (labeled MS-01 through MS-14). These monitoring stations were identified as part of an interim remedy for OU4, selected in 1999, to provide coverage of the offshore AOCs for interim monitoring purposes. The Navy identified remedial actions at individual monitoring stations to address contamination. These remedial actions included dredging at MS-01, MS-03, MS-04, and MS-12 and no further action for the other ten monitoring stations. The remedial actions were conducted from September 2014 to October 2015. With the completion of the remedial actions for OU4, NFA was required for the Offshore AOCs.	NFA	The OU4 RACR signed September 2016 (N00102.PF.003297). The USEPA memorandum documenting RC is dated September 15, 2016, and MEDEP concurrence with RC is dated September 19, 2016.

Notes:

1. Other site identification nomenclature from previous documents.

IAS = Initial Assessment Study, June 1983, Administrative Record Number 000002

RFA = RCRA Facility Assessment (RFA), July 1986, Administrative Record Number 0000014 (including Addendum to RFA)

RFI = RCRA Facility Investigation Report (draft), July 1992, Administrative Record Number 000117

FFA = Federal Facilities Agreement, September 1999, Administrative Record Number 000726. Site designation in FFA as provided in Appendices B (List of Areas of Concern) and C (List of Site Screening Areas) of the FFA.

AR = Administrative Record

SSA = Site Screening Area

2. SWMUs removed in the RFA were not included in the 1989 HSWA Permit, Administrative Record Number 000019, and no further action was conducted at these SWMUs.

NA - Not applicable because site was not identified in document or not included in an operable unit.

Table 4: Summary of Relative Risk Ranking and Remediation Activities Performed

OU	Site	Site Name	Rank	Remediation Performed
1	Site 10	Former Battery Acid Tank No. 24	High	Remediation completed consisting of soil excavation and disposal. Post-remediation groundwater monitoring confirmed the lack of groundwater impacts from soil remediation activities. The site is under LTMgt with LUCs in place.
	Site 21	Former Acid/Alkaline Drain Tank	Low	Tank removed. NFA documented.
2	Site 6	DRMO Storage Yard and Impact Area	High	Remediation completed consisting of shoreline stabilization, and soil excavation and disposal. The site is under LTMgt, which LUCs in place. Quarterly groundwater monitoring for the first year of monitoring was conducted and it was determined that groundwater monitoring could be discontinued.
	Site 29	Former Teepee Incinerator Site	High	Remediation completed consisting of shoreline stabilization, and soil excavation and disposal. The site is under LTMgt with LUCs in place. Quarterly groundwater monitoring for the first year of monitoring was conducted, and it was determined that the frequency of monitoring could be reduced to annually.
3	Site 8	JILF and Impact Area	High	Remediation completed consisting of capping 22 acres and removal of 3 acres for replacement with wetlands. The site is under LTMgt with LUCs in place. Groundwater monitoring is performed on a five year basis, and landfill maintenance is conducted as part of LTMgt.
	Site 9	Former Mercury Burial Sites (MBI and MBII)	Low	Vaults removed. Site 9 covered by Site 8 Remedial Action.
	Site 11	Former Waste Oil Tanks Nos. 6 & 7	High	Tanks removed. Site 11 covered by Site 8 Remedial Action.
4	Site 5	Former Industrial Waste Outfalls	High	Remedial Action completed; consisting of removal and off-site disposal of sediment. NFA documented.
	Site 26	Portable Oil/Water Tanks	Low	NFA documented.
	--	Offshore Areas	High	Remedial Action completed; consisting of removal and off-site disposal of sediment. NFA documented.
5	Site 27	Berth 6 Industrial Area	High	NFA documented
NA	Site 30	Former Galvanizing Plant, Building 184	High	Removal Action completed; including removal of the concrete floor slab and the vault fill material. NFA documented.
8	Site 31	Former West Timber Basin	Low	The ROD was signed in September 2017 and the selected remedy includes LUCs. The site is under LTMgt with LUCs in place.
7	Site 32	Topeka Pier Site	High	Remediation completed consisting of shoreline erosion control, and soil excavation and disposal. The site is under LTMgt with LUCs in place.
9	Site 34	Former Oil Gasification Plant, Building 62	High	Remediation completed consisting of shoreline erosion control, and soil excavation and disposal. The site is under LTMgt with LUCs in place.

Color Key

No further remediation required	Removal Action performed and/or Remedial Action pending	No remediation performed to date

Notes: Relative risk ranking was conducted from 1995 to 1999 prior to the signing of the Federal Facility Agreement.

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FIGURES

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NAVFAC

VICINITY MAP
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

CTO	WE 01
DRAWN BY	K. MOORE
DATE	03/10/17
CHECKED BY	M. VED
DATE	04/10/17
FIGURE NUMBER	1

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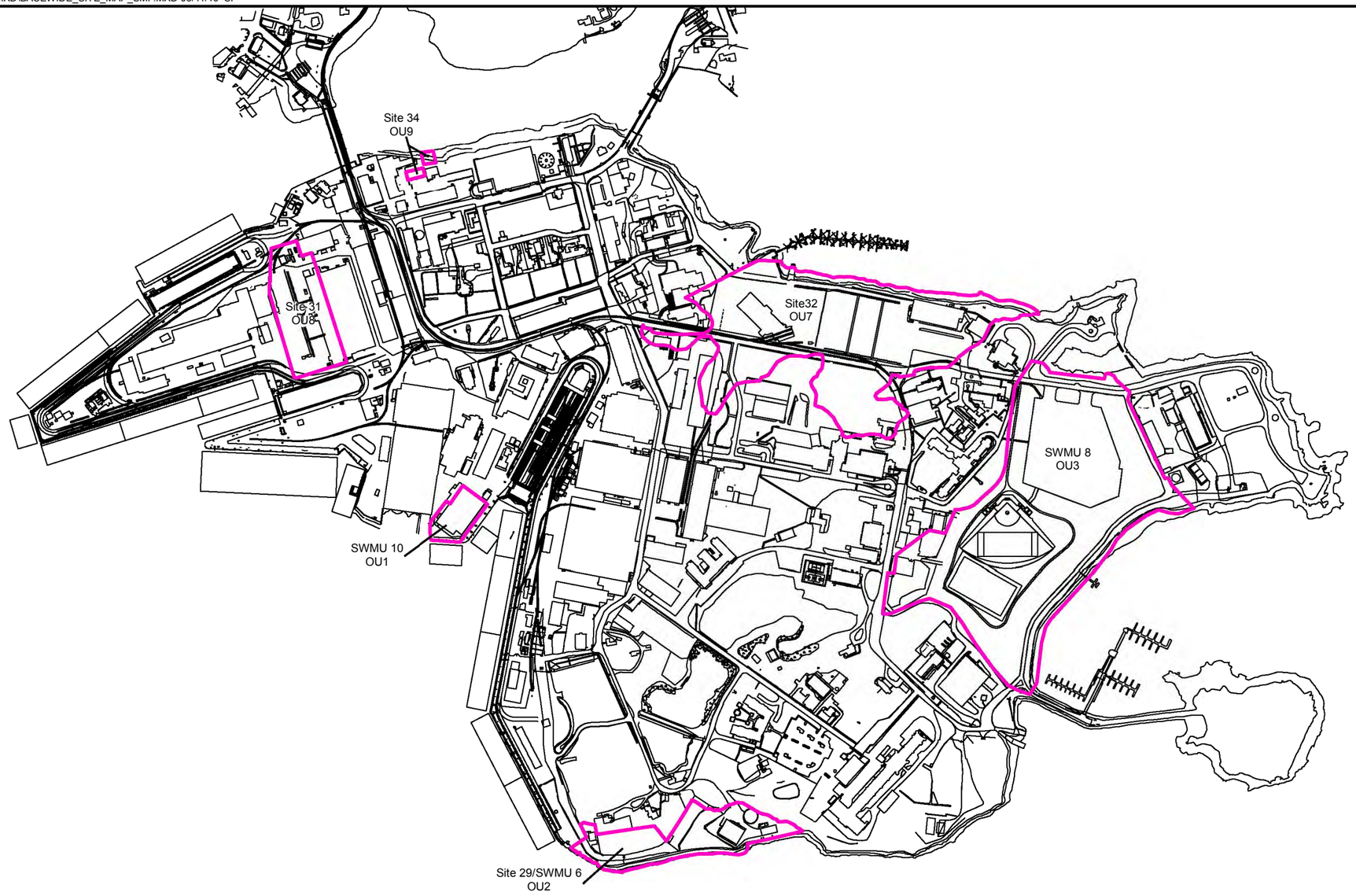

Legend

Remedy in Place Site Boundary

Operable Unit 1:	Site 10/SWMU 10 - Former Battery Acid Tank No. 24
Operable Unit 2	Site 6/SWMU 6 - Defense Reutilization and Marketing Office (DRMO) Storage Yard Site 29 - Former Teepee Incinerator Site
Operable Unit 3	Site 8/SWMU 8 - Jamaica Island Landfill (JILF)
Operable Unit 7	Site 32 - Topeka Pier Site
Operable Unit 8	Site 31 - Former West Timber Basin
Operable Unit 9	Site 34 - Former Oil Gasification Plant, Building 62

600 0 600 Feet

NAVFAC

FACILITY PLAN VIEW
ENVIRONMENTAL RESTORATION
PROGRAM SITES
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

CTO	WE01
DRAWN BY	S. PAXTON
DATE	06/10/19
CHECKED BY	M. VED
DATE	06/11/19
FIGURE NUMBER	2

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Operable Unit 1:	Site 10/SWMU 10 - Former Battery Acid Tank No. 24
Operable Unit 2	Site 6/SWMU 6 - Defense Reutilization and Marketing Office (DRMO) Storage Yard Site 29 - Former Teepee Incinerator Site
Operable Unit 3	Site 8/SWMU 8 - Jamaica Island Landfill (JILF)
Operable Unit 7	Site 32 - Topeka Pier Site
Operable Unit 8	Site 31 - Former West Timber Basin
Operable Unit 9	Site 34 - Former Oil Gasification Plant, Building 62

NAVFAC

FACILITY AERIAL VIEW
ENVIRONMENTAL RESTORATION PROGRAM SITES
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

CTO	WE01
DRAWN BY	S. PAXTON
DATE	06/10/19
CHECKED BY	M. VED
DATE	06/11/19
FIGURE NUMBER	3

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NAVFAC

FACILITY BIRD'S EYE VIEW
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

CTO	
WE01	
DRAWN BY	DATE
S. PAXTON	05/23/19
CHECKED BY	DATE
M. VED	05/23/19
FIGURE NUMBER	
4	

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NAVFAC

PFAS SCREENING AREAS
PORTMOUTH NAVAL SHIPYARD
KITTERY, MAINE

CTO	WE01
DRAWN BY	K. MOORE
DATE	11/08/19
CHECKED BY	M. VED
DATE	11/27/19
FIGURE NUMBER	5

ATTACHMENT A
LIST OF ERP DOCUMENTS FOR THE PORTSMOUTH NAVAL SHIPYARD

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ATTACHMENT A

LIST OF ERP DOCUMENTS FOR THE PORTSMOUTH NAVAL SHIPYARD

DOCUMENTS COMPLETED BEFORE SIGNATURE OF FFA

The following documents were completed prior to the FFA being signed in September 1999:

Document	Date	Administrative Record Number
Initial Assessment Study	June 1983	000002
Final Confirmation Study Report on Hazardous Waste Sites	May 1986	000012/000013
RCRA Facility Assessment	July 1986	000014
RCRA Facility Investigation (RFI) Proposal	August 1989	000023
Addendum to RCRA Facility Investigation Proposal	February 1991	000044
Interim Human Health Risk Assessment for Quarters S, N, and 68	April 1991	000052
RCRA Facility Investigation Work Plan	August 1991	000070
Work/Quality Assurance Project Plan for the Case Study for Estuarine Ecological Risk Assessment	September 1991	000072
Interim Human Health Risk Assessment for the Day Care Center	October 1991	000076
Revised Ambient Air Quality Monitoring Report (Section 11 of the RFI)	April 1992	000117
Draft RCRA Facility Investigation Report	July 1992	000117 to 000122
Onshore Ecological Risk Assessment	August 1992	000125
Interim Corrective Measures at the Defense Reutilization and Marketing Office	April 1993	000154
Final Hazard Ranking System Package	May 1993	000162
Addendum to RCRA Facility Investigation Report	June 1993	000169
Background Soil Sampling Work Plan	August 1993	000180
Work/Quality Assurance Plan for Phase II of Estuarine Ecological Risk Assessment Case Study	February 1994	000206
Public Health and Environmental Risk Evaluation Part A: Human Health Risk Assessment Report	March 1994	000211
Final Media Protection Standards Proposal for Onshore Media (Chapter 1)	April 1994	000216
Final Human Health Risk Assessment Report for Offshore Media	May 1994	000229
Media Protection Standards for Offshore Media: Sediment and Surface Water (Chapter 3)	June 1994	000237
RFI Data Gap Work Plan	June 1994	000234
Work Plan for Phase II Ambient Air Quality and Meteorological Monitoring Program	July 1994	000238
Draft Revised Corrective Measures Study Proposal	July 1994	000239

Document	Date	Administrative Record Number
Draft Applicable or Relevant and Appropriate Requirements (ARARs) Report	September 1994	000250
Estuarine Ecological Risk Assessment Phase I: Problem Formulation	December 1994	000261
Draft Onshore Feasibility Study (FS) Report	March 1995	000275
Draft Final Estuarine Ecological Risk Assessment (included in FFA, finalized May 2000)	July 1995	000428
RCRA Facility Investigation (RFI) Data Gap Report	November 1995	000328
Media Protection Standards for Offshore Media Based on Human Health Risks (Chapter 2)	April 1996	000344
Phase II Ambient Air Quality and Meteorological Monitoring Report	June 1996	000356
Community Relations Plan	October 1996	000384
Consensus Document, No Further Action for Soils, SWMU 21	October 1996	000383
Technical Memorandum on Seep Sampling	November 1996	000396
Groundwater Investigation and Monitoring Plan (formerly titled Interim Groundwater Monitoring Plan)	November 1996	000395
Onshore/Offshore Contaminant Fate and Transport Modeling Phase I Work Plan	December 1996	000403
Draft Onshore/Offshore Contaminant Fate and Transport Modeling Phase I Report	February 1997	000419
Technical Memorandum on Risk Evaluation of Surface Soils from Jamaica Island Landfill (JILF) Site	May 1997	000432
Engineering Evaluation/Cost Analysis (EE/CA) for Mercury Burial Site I	June 1997	000441
Decision Document, No Further Action, SWMUs 12, 13, 16, and 23	July 1997	000447
Final Action Memorandum for Mercury Burial Site I	September 1997	000471
MEDEP Evaluation of Heavy Metal Migration at Portsmouth Naval Shipyard with Geochemical Modeling	December 1997	000508
Onshore/Offshore Contaminant Fate and Transport Modeling Phase I Report Addendum	December 1997	000497
Work Plan, Teepee Incinerator (Site 29) and Building 238 (Site 10)	March 1998	000532
Site Screening Process Plan	March 1998	000531
Site Screening Work Plan, Building 184 (Site 30), West Timber Basin (Site 31), and Topeka Pier (Site 32)	April 1998	000546
Final Work Plan for MTADS Geophysical Mapping	September 1998	000598
Onshore/Offshore Contaminant Fate and Transport Modeling Phase II Work Plan	August 1998	000574
Phase I/Phase II Offshore Data Comparative Analysis Report	October 1998	000606
Proposed Plan for Interim Action at OU4	October 1998	000603
Interim Record of Decision for OU4	May 1999	000676

Document	Date	Administrative Record Number
Technical Memorandum Lead Contamination at DRMO Impact Area (finalized February 2000)	July 1999	000699
Groundwater Monitoring Summary Report	August 1999	000714
Proposal for Evaluation of Seep/Sediment Data	September 1999	000884

DOCUMENTS COMPLETED AFTER SIGNATURE OF FFA

The following documents were completed from October 1999 (after the FFA was signed) through December 11, 2019:

Document	Date	Administrative Record Number
Interim Offshore Monitoring Plan for OU4	October 1999	000750
Removal Action Work Plan for DRMO Shoreline Stabilization	October 1999	000749
Onshore/Offshore Contaminant Fate and Transport Phase II Modeling Report	December 1999	000760
Technical Memorandum for Recommended Human Health Risk Assessment Protocol for OU2	December 1999	000924
Technical Memorandum, Lead Contamination at DRMO Impact Area	February 2000	000795
Final Work Plan for Mercury Burial Vault II and Drum Investigation	February 2000	000797
Field Investigation Report, Site 10 (Building 238) and Site 29 (Teepee Incinerator)	March 2000	000811
Site Screening Report, Site 30 (Building 184), Site 31 (West Timber Basin), and Site 32 (Topeka Pier)	May 2000	000812
Facility Background Development	May 2000	000836
Revised OU3 Risk Assessment	May 2000	000835
Final Estuarine Ecological Risk Assessment	May 2000	000838
Seep/Sediment Summary Report for Data Collected Between December 1996 and November 1997	August 2000	000884
Test Pitting Investigation Report, Jamaica Island Landfill	October 2000	000909
Revised OU2 Risk Assessment	November 2000	000923/000924
Feasibility Study Report for OU3	November 2000	000922
Proposed Remedial Action Plan for OU3	January 2001	000945
Work Plan for Building 184 Subfloor Investigation	February 2001	000968
Final Action Memorandum for Site 6, Defense reutilization and Marketing Office (DRMO) Shoreline Stabilization	June 2001	000995
Final Drum Removal Report for Drum Investigation	June 2001	000999
Final Closeout Report for Mercury Burial Vault Site I	June 2001	001002
Final Removal Action Report for Mercury Burial Vault Site II	June 2001	001003
OU3 Pre-Design Investigation Quality Assurance Project Plan	August 2001	001016
Record of Decision for OU3	August 2001	001018

Document	Date	Administrative Record Number
Decision Document for Site 26	August 2001	001019
Decision Document for Site 27	August 2001	001020
Site 10 Additional Investigation Quality Assurance Project Plan	October 2001	001048
Preliminary Remediation Goals for OU4	November 2001	001062
Final MTADS Geophysical Survey (of JILF and Topeka Pier)	December 2001	001074
Test Pitting Investigation Report, Building 184, Site 30	May 2002	001128
OU3 Phase I Remedial Design (specifications and plans)	June 2002	001139
Technical Memorandum, OU3, Evaluation of MBII Waste Consolidation and Jamaica Cove Options	June 2002	001143
Remedial Design Work Plan, Jamaica Island Landfill Phase I Waste Consolidation	June 2002	001149
Baseline Interim Offshore Monitoring Report for OU4	July 2002	001150
Phase II, OU3 Remedial Design Analysis Report (including drawings and specifications)	November 2002	001195
Engineering Evaluation/Cost Analysis (EE/CA), Site 30 (Building 184)	December 2002	001208
Final Remedial Design Work Plan for Jamaica Island Landfill Phase II Cap Construction	January 2003	001226
Site 10 Additional Investigation Report	March 2003	001243
Site 32 Remedial Investigation Quality Assurance Project Plan	March 2003	001239
Site 34 Site Investigation Quality Assurance Project Plan	March 2003	001238
Addendum to Site 32 Remedial Investigation Quality Assurance Project Plan	August 2003	001252
Explanation of Significant Difference for the Record of Decision for OU3	September 2003	001293
Former CDC Area Investigation Report	April 2004	001350
Technical Memorandum, Recommendation regarding Phase II of the Remedial Investigation for Site 32	June 2004	001376
Site Screening Investigation Report for Site 34	August 2004	001389
OU2 Soil Sampling and Treatability Study Work Plan	November 2004	001414
Rounds 1 through 7 Interim Offshore Monitoring Report for OU4	November 2004	001416/001417
Additional Scrutiny Quality Assurance Project Plan for OU4	August 2005	001484
Engineering Evaluation/Cost Analysis (EE/CA) for Site 30 (Building 184) (Revision 1)	August 2005	001485
Engineering Evaluation/Cost Analysis (EE/CA) for Site 34	September 2005	001495
Explanation of Significant Difference for the Record of Decision for OU3	October 2005	001493
Time Critical Removal Action Work Plan for DRMO (Site 29) Shoreline Stabilization	October 2005	001506
OU2 Screening-Level Soil Washing Treatability Study Report	January 2006	001524
Action Memorandum for Non-Time-Critical Removal Action for Site 30	January 2006	001522
Action Memorandum for Non-Time-Critical Removal Action for Site 34	February 2006	001532

Document	Date	Administrative Record Number
Work Plan for Site 29 Removal of Waste Debris and Site 32 Shoreline Stabilization	April 2006	001553
OU3 Remedial Action Report (for the Jamaica Island Landfill Phase I Waste Consolidation and Phase II Cap Construction)	May 2006	001561
Site 10 Data Gap Investigation Quality Assurance Project Plan	June 2006	001564
Post-Remedial Operation, Maintenance and Monitoring Plan for OU3	June 2006	001566/001567
Five-Year Review Report for Portsmouth Naval Shipyard	June 2007	001601
Remedial Investigation Report for OU1	July 2007	001606
Additional Scrutiny Report for OU4	August 2007	001612
Phase II Additional Scrutiny Quality Assurance Project Plan	September 2007	001619
OU2 Additional Investigation Quality Assurance Project Plan	October 2007	001626
No Further Action Decision Document for Site 21 – Former Acid/Alkaline Drain Tank	February 2008	001647
No Further Action Decision Document for the Jamaica Island Landfill Impact Area	February 2008	001648
Closeout Report for Site 29 Removal of Waste Debris and Site 32 Shoreline Stabilization	June 2008	001665
Closeout Report for Site 29 Removal Action Stabilization	July 2008	001670
Contractor Closeout Report and As-built Drawings for Site 34 Shoreline Stabilization and Removal Action	July 2008	001670
Site 32 Remedial Investigation Quality Assurance Project Plan, Revision 1	November 2008	001690
Rounds 1 through 4 Data Evaluation Report for OU3 Post-Remedial Operation, Maintenance, and Monitoring Program	July 2009	000910
Sampling and Analysis Plan for OU9 RI	July 2009	001744
Action Memorandum for Non-Time-Critical Removal Action for OU2 DRMO Impact Area	November 2009	001351
Rounds 1 through 10 Interim Offshore Monitoring Report for OU4	February 2010	001716
Supplemental Remedial Investigation Report for OU2	March 2010	001743
Letter and the Final Culvert End Section Replacement Work Plan for OU3	April 2010	003040
Work Plan for Interim Removal Action for OU2 DRMO Impact Area	May 2010	001746
Feasibility Study Report for OU1	June 2010	001754
Proposed Plan for OU1	June 2010	001759
Culvert Number 4 Concrete End Section Replacement Maintenance Action Completion Report for OU3	July 2010	002482
Record of Decision for OU1	September 2010	002495
Round 9 Data Package for Post-Remedial Operation, Maintenance and Monitoring Program OU3	October 2010	002504
Engineering Evaluation/Cost Analysis for Site 30, Revision 2	October 2010	002503
Sampling and Analysis Plan for OU2 Pre-Design Investigation	November 2010	002513

Document	Date	Administrative Record Number
Interim Offshore Monitoring Plan for OU4, Revision 1	November 2010	002514
Action Memorandum for Non-Time Critical Removal Action for Site 30, Revision 2	December 2010	002518
Remedial Investigation Supplemental Data Package for Operable Unit 9 (OU9)	January 2011	002556
Final Feasibility Study Report for Operable Unit 2 (OU2)	April 2011	002554
Rounds 1 Through 9 Data Evaluation Report for Operable Unit 3 (OU3) Post-Remedial Operation, Maintenance and Monitoring Program	April 2011	002563
Pre-Design Investigation Data Package for Operable Unit 2 (OU2)	July 2011	002557
Final Remedial Investigation Report Operable Unit (OU) 7	July 2011	002634
Round Ten Data Package for Post-Remedial Operations, Maintenance and Monitoring Program Operable Unit (OU) 3	July 2011	002637
Final Removal Action Work Plan for Interim Removal Action at Site 30 Former Galvanizing Tank Vault	July 2011	002559
Final Proposed Plan for Operable Unit 2 (OU2)	July 2011	001689
Land Use Control Remedial Design for Operable Unit 3 (OU3)	August 2011	002574
Record of Decision Operable Unit (OU) 2 Site 6, 29, and DRMO Impact Area	September 2011	002620
Interim Offshore Monitoring Program Round 11 Data Package for Operable Unit 4 (OU4)	September 2011	002576
Post-Remedial Operation and Maintenance Activity French Drain Placement Work Plan for OU3	October 2011	003095
Final Remedial Action Work Plan for Lead Contaminated Soil Removal Operable Unit (OU) 1 Site 10 Building 238	October 2011	002627
Land Use Control Remedial Design Operable Unit (OU) 1	November 2011	002623
Post-Remedial Operation, Maintenance, and Monitoring Plan Operable Unit (OU) 3 Volume 1	December 2011	002638
Post-Remedial Operation, Maintenance, and Monitoring Plan Operable Unit (OU) 3 Volume 2	December 2011	002639
Sampling and Analysis Plan for Post-Remediation Groundwater Monitoring Operable Unit 1 (OU1)	January 2012	002648
Final Remedial Design for Land Use Controls Operable Unit 1 (OU1)	January 2012	002658
Remedial Action Design (30% Submission) for Operable Unit 2 (OU2)	January 2012	002645
Land Use Control Remedial Design for Operable Unit 1 (OU1)	January 2012	002643
Final Land Use Control Remedial Design Operable Unit 2 (OU2)	March 2012	002673
Second Five-Year Review Report for Portsmouth Naval Shipyard	May 2012	002697
Final Remedial Investigation Report for Operable Unit 9 (OU9)	June 2012	002700

Document	Date	Administrative Record Number
Final Community Involvement Plan Update	June 2012	002714
Final Round 1 Package for Post-Remediation Groundwater Monitoring Operable Unit 1 (OU1)	August 2012	002764
Final Round 11 Data Package for Post-Remedial OM&M Program for Operable Unit 3 (OU3)	September 2012	002752
Final Feasibility Study Report for Operable Unit 4 (OU4)	September 2012	002749
Final Remedial Design for Operable Unit 2 (OU2)	November 2012	002775
Final Construction Completion Report for DRMO Impact Area	December 2012	Not Yet Assigned
Final Proposed Plan for Operable Unit 4 (OU4)	February 2013	002791
Final Feasibility Study Report for Operable Unit 9 (OU9)	May 2013	002840
Final Feasibility Study Report for Operable Unit 7 (OU7)	June 2013	002842
Proposed Plan for Operable Unit 7 (OU7)	July 2013	002851
Proposed Plan for Operable Unit 9 (OU9)	July 2013	002863
Final Post-Remediation Groundwater Monitoring Report for Operable Unit 1 (OU1)	July 2013	002864
Final Memorandum for Operable Unit 4 (OU4) Solid Waste Management Unit 5 (SWMU 5) Results for Confirmation Soil Sampling Within Building 178 Intertidal Area	July 2013	002884
Final Remedial Action Work Plan, Defense Reutilization and Marketing Office Area of Operable Unit 2 (OU2)	July 2013	002946
Final Remedial Action Work Plan, Waste Disposal Area of Operable Unit 2 (OU2)	August 2013	003011
Final Record of Decision for Operable Unit 4 (OU4) Site 5 and Offshore Areas Potentially Impacted by PNS Onshore Installation Restoration Program Sites	August 2013	002897
Technical Memorandum for Discontinuing Annual Groundwater Monitoring at Operable Unit 3 (OU3) Post-Remedial Operation, Maintenance and Monitoring Program	August 2013	002930
Final Sampling and Analysis Plan for Pre-Removal Sediment Confirmation Sampling for Operable Unit 4 (OU4)	September 2013	002924
Record of Decision for Operable Unit 7 (OU7) Site 32 Topeka Pier Site	September 2013	002925
Record of Decision for Operable Unit 9 (OU9) Site 34 Former Oil Gasification Plant Building 62	September 2013	002926
Final Construction Completion Report for Remedial Action at Operable Unit 1 (OU1) Site 10 Building 238	September 2013	002945
Final Technical Memorandum for 2013 Land Use Control Inspection for Operable Unit 1 (OU1) Solid Waste Management Unit 10 (SWMU 10)	October 2013	002932
Final Technical Memorandum for 2013 Land Use Control Inspection for Operable Unit 2 (OU2) Solid Waste Management Unit 6 (SWMU 6) and Site 29	October 2013	002933

Document	Date	Administrative Record Number
Final Construction Completion Report for Site 30 Former Galvanizing Tank Vault	November 2013	002939
Final No Further Action Decision Document for Site 30	March 2014	002987
Memorandum Regarding the Re-Evaluation of Facility Background Report	April 2014	002972
Final Work Plan for Groundwater Monitoring Well Abandonment Activities	April 2014	002990
Final Remedial Action Work Plan, Waste Disposal Area of Operable Unit 2 (OU2)	June 2014	003011
Final Well Abandonment Plan Landfill Gas Probe Abandonment Operable Unit 3 (OU3)	June 2014	002993
Final Data Package Report Annual Landfill Inspection Round 12 and Corrective Actions Operable Unit 3 (OU3)	June 2014	002996
Draft Remedial Action Completion Report for Operable Unit 9 (OU9)	August 2014	Draft Document
Final Land Use Control Remedial Design for Operable Unit 7 (OU7)	September 2014	003047
Final Land Use Control Remedial Design Operable Unit 9 (OU9)	September 2014	003049
Final Land Use Control Remedial Design Revision 1 for Operable Unit 1 (OU1)	September 2014	003045
Final Pre-Removal Sediment Confirmation Sampling Data Package Report for Operable Unit 4 (OU4)	October 2014	003092
Final Remedial Action Work Plan for Operable Unit 4 (OU4)	December 2014	003169
Final Remedial Action Completion Report for Operable Unit 1 (OU1)	December 2014	003090
Final Technical Memorandum Functions and Values Assessment at MS-12A at OU4	January 2015	003114
Final Round 13 Inspection and Maintenance Summary Report Annual Landfill Inspection Operable Unit 3 (OU3)	January 2015	003058
Final Well Abandonment Closure Report Landfill Gas Probe Abandonment Operable Unit 3 (OU3)	February 2015	003056
Final Remedial Action Completion Report Operable Unit 3 (OU3)	February 2015	003157
Final Technical Memorandum - Additional Sediment Sampling at MS-01 and MS-03 to Support Sediment Removal Action	March 2015	003154
Final Construction Completion Report Operable Unit 2 (OU2), Defense Reutilization and Marking Office Area	March 2015	003195
Final Technical Memorandum: Perfluorinated Compound Use Assessment, Portsmouth Naval Shipyard	April 2015	003170
Final Remedial Action Work Plan for Operable Unit 7 (OU7)	April 2015	003184
Final Construction Completion Report Operable Unit 2 (OU2), Waste Disposal Area	May 2015	003192

Document	Date	Administrative Record Number
Final RI Sampling and Analysis Plan for Operable Unit 8 (OU8)	May 2015	003190
Round 14 Inspection and Maintenance Summary Report	December 2015	003219
Final Long-Term Management Plan for Operable Unit 2 (OU2)	March 2016	003233
Final Long-Term Management Plan for Operable Unit 7 (OU7)	March 2016	003228
Final Construction Completion Report for Operable Unit 7 (OU7)	April 2016	003442
Final Work Plan for Groundwater Monitoring Well Abandonment (Multiple OUs)	April 2016	003276
Final Sampling and Analysis Plan for Operable Unit 3 (OU3)	May 2016	003286
Final Remedial Investigation/Feasibility Study for Operable Unit 8 (OU8)	July 2016	003269
Final Eelgrass Survey/Function and Value Assessment Plan for MS-12A (OU4)	July 2016	003272
Final Remedial Action Completion Report Operable Unit 2 (OU2)	August 2016	003290
Final Remedial Action Completion Report Operable Unit 7 (OU7)	August 2016	003292
Final Construction Completion Report (OU4)	September 2016	003297
Final Remedial Action Completion Report Operable Unit 4 (OU4)	September 2016	003297
Final Sampling and Analysis Plan for Post-Remediation Groundwater Monitoring Program Operable Unit 2 (OU2)	October 2016	003335
Final Proposed Plan Operable Unit 8 (OU8)	November 2016	003306
Final Landfill Maintenance and Repair Design Report Operable Unit 3 (OU3)	November 2016	003331
Final Long-Term Management Report (2016) Operable Unit 7 (OU7)	January 2017	003329
Final Round 15 Inspection and Groundwater Report Operable Unit 3 (OU3)	April 2017	003356
Final Eelgrass Survey/Function and Value Assessment Report for MS-12A	July 2017	003477
Final Explanation of Significant Differences Decision Document Operable Unit 9 (OU9)	September 2017	003443
Final Third Five-Year Review Report for Operable Units 1, 2, 3, 7, and 9	September 2017	003488
Final Record of Decision Operable Unit 8 (OU8)	September 2017	003444
Final Technical Memorandum Regarding Summary of 2016 Well Abandonment Activities	September 2017	003482
Final Long-Term Management Report (2017) Operable Unit 7 (OU7)	September 2017	003490
Final Round 16 Inspection Report Operable Unit 3 (OU3)	September 2017	003489

Document	Date	Administrative Record Number
Final Long-Term Management Plan Operable Unit 9 (OU9)	October 2017	003475
Final Land Use Control Remedial Design for Operable Unit 9 (OU9)	October 2017	003452
Round 15 Inspection and Groundwater Report Addendum Operable Unit 3 (OU3)	November 2017	003471
Final Remedial Action Completion Report Operable Unit 9 (OU9)	December 2017	003504
Final Round 1 First Quarter Data Package for Operable Unit 2 (OU2)	December 2017	003514
Final Technical Memorandum Regarding Updated Site Conclusions Based on Current Benzo(a)pyrene Toxicity Criteria, Operable Units 2, 3, 7, 9 (OU2, OU3, OU7, OU9)	January 2018	003543
Final Land Use Control Remedial Design for Operable Unit 8 (OU8)	February 2018	003520
Final Round 1 Second Quarter Data Package for Operable Unit 2 (OU2)	March 2018	003530
Final Remedial Action Completion Report for Operable Unit 8 (OU8)	April 2018	003557
Final Round 1 Third Quarter Data Package for Operable Unit 2 (OU2)	June 2018	003582
Long-Term Monitoring at Various Sites - Final Landfill Maintenance and Repair Report for Operable Unit 3 (OU3)	August 2018	003565
Final Long-Term Management 2018 Annual Inspection Report for Operable Units 1, 2, 3, 7, 8, and 9 (OU1, OU2, OU3, OU7, OU8, OU9)	September 2018	003580
Final Round 1 Annual Groundwater Report for Operable Unit 2 (OU2)	October 2018	003594
Final Sampling and Analysis Plan for Per and Polyfluoroalkyl Substances Investigation	November 2018	003603
Final Sampling and Analysis Plan for Soil Gas Study Operable Unit 9 (OU9)	December 2018	003605
Final Sampling and Analysis Plan for Post-Remediation Groundwater Monitoring Program Operable Unit 2 (OU2), Round 2	April 2019	003623
Final Work Plan for Groundwater Monitoring Well Abandonment for Operable Unit 2 (OU2)	June 2019	003629
Final Building 62 Annex Soil Gas Study for Operable Unit 9 (OU9), Site 34	June 2019	003633
Final Preliminary Close Out Report for Portsmouth Naval Shipyard	September 2019	003638
Final Post-Remediation Groundwater Monitoring Report, Round 2, Operable Unit 2 (OU2)	October 2019	003652
Final Letter Report for Groundwater Monitoring Well Abandonment Activities for Operable Unit 2 (OU2)	October 2019	003651

ATTACHMENT B
SCHEDULES

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Portsmouth Naval Shipyard
FY 2020 Site Management Plan Schedule

ID	Task Name	Duration	Start	Finish
1	**BASEWIDE**	**1057 days**	**Wed 4/25/18**	**Thu 5/12/22**
2	**Long-Term Management Inspections (OUs 1, 2, 3, 7, 8, 9)**	**937 days**	**Thu 5/17/18**	**Thu 12/16/21**
3	**2018 Annual Inspection**	**83 days**	**Thu 5/17/18**	**Mon 9/10/18**
12	**2018 Annual Inspection Recommendations**	**854 days**	**Tue 9/11/18**	**Thu 12/16/21**
13	Restoring grass cover in OU2, OU3, and OU7	545 days	Fri 11/15/19	Thu 12/16/21
14	Installing bollards at OU2 and OU9	2 days	Fri 11/15/19	Mon 11/18/19
15	Removing wooded vegetation in OU3 and OU9	545 days	Fri 11/15/19	Thu 12/16/21
16	Implementing pest control measures in OU2 and OU3	545 days	Tue 9/11/18	Fri 10/9/20
17	**2019 Annual Inspection**	**224 days**	**Sat 5/18/19**	**Wed 3/25/20**
18	Conduct Annual Inspection	2 days	Sat 5/18/19	Mon 5/20/19
19	Prepare Draft Annual Inspection Report	111 edays	Sat 8/24/19	Fri 12/13/19
20	***Submit Draft Annual Inspection Report***	0 days	Fri 12/13/19	Fri 12/13/19
21	USEPA & MEDEP Review Draft Annual Inspection Report	31 edays	Fri 12/13/19	Mon 1/13/20
22	***USEPA & MEDEP Comments Due***	0 days	Mon 1/13/20	Mon 1/13/20
23	Prepare Response to Comments	30 edays	Mon 1/13/20	Wed 2/12/20
24	***Submit Response to Comments***	0 days	Wed 2/12/20	Wed 2/12/20
25	USEPA & MEDEP Review Response to Comments	30 edays	Wed 2/12/20	Fri 3/13/20
26	***USEPA & MEDEP Concurrence Due***	0 days	Fri 3/13/20	Fri 3/13/20
27	Prepare Final Annual Inspection Report	12 edays	Fri 3/13/20	Wed 3/25/20
28	***Submit Final Annual Inspection Report***	0 days	Wed 3/25/20	Wed 3/25/20
29	**2020 Annual Inspection**	**131 days**	**Mon 5/18/20**	**Mon 11/16/20**
30	Conduct Annual Inspection	2 days	Mon 5/18/20	Tue 5/19/20
31	Prepare Draft Annual Inspection Report	80 edays	Tue 5/19/20	Fri 8/7/20
32	***Submit Draft Annual Inspection Report***	0 days	Fri 8/7/20	Fri 8/7/20
33	USEPA & MEDEP Review Draft Annual Inspection Report	31 edays	Fri 8/7/20	Mon 9/7/20
34	***USEPA & MEDEP Comments Due***	0 days	Mon 9/7/20	Mon 9/7/20
35	Prepare Response to Comments	30 edays	Mon 9/7/20	Wed 10/7/20
36	***Submit Response to Comments***	0 days	Wed 10/7/20	Wed 10/7/20
37	USEPA & MEDEP Review Response to Comments	30 edays	Wed 10/7/20	Fri 11/6/20
38	***USEPA & MEDEP Concurrence Due***	0 days	Fri 11/6/20	Fri 11/6/20
39	Prepare Final Annual Inspection Report	10 edays	Fri 11/6/20	Mon 11/16/20
40	***Submit Final Annual Inspection Report***	0 days	Mon 11/16/20	Mon 11/16/20
41	**2021 Annual Inspection**	**131 days**	**Mon 5/17/21**	**Mon 11/15/21**
42	Conduct Annual Inspection (conduct along with 5 Year Review Inspections)	5 days	Mon 5/17/21	Fri 5/21/21
43	Prepare Draft Annual Inspection Report	80 edays	Mon 5/24/21	Thu 8/12/21
44	***Submit Draft Annual Inspection Report***	1 day	Thu 8/12/21	Thu 8/12/21
45	USEPA & MEDEP Review Draft Annual Inspection Report	29 edays	Thu 8/12/21	Fri 9/10/21
46	***USEPA & MEDEP Comments Due***	0 days	Fri 9/10/21	Fri 9/10/21
47	Prepare Response to Comments	31 edays	Fri 9/10/21	Mon 10/11/21
48	***Submit Response to Comments***	0 days	Mon 10/11/21	Mon 10/11/21
49	USEPA & MEDEP Review Response to Comments	30 edays	Mon 10/11/21	Wed 11/10/21
50	***USEPA & MEDEP Concurrence Due***	0 days	Wed 11/10/21	Wed 11/10/21
51	Prepare Final Annual Inspection Report	9 edays	Wed 11/10/21	Fri 11/19/21
52	***Submit Final Annual Inspection Report***	0 days	Mon 11/22/21	Mon 11/22/21
53	**Preliminary Close Out Report (PCOR)**	**372 days**	**Wed 4/25/18**	**Thu 9/26/19**
54	***Submit Draft Final Close Out Report (FCOR)***	1 day	Wed 4/25/18	Wed 4/25/18
55	USEPA & MEDEP Review Draft FCOR	61 edays	Wed 4/25/18	Mon 6/25/18
56	***USEPA & MEDEP Comments Received***	0 days	Mon 6/25/18	Mon 6/25/18
57	Prepare RTCs	22 edays	Tue 6/26/18	Wed 7/18/18
58	***Submit RTCs***	0 days	Wed 7/18/18	Wed 7/18/18
59	Prepare Draft PCOR (redline of Draft FCOR to make Draft PCOR)	35 edays	Thu 7/25/19	Thu 8/29/19
60	***Submit Draft PCOR***	0 days	Thu 8/29/19	Thu 8/29/19
61	USEPA revise and prepare Final PCOR	27 edays	Thu 8/29/19	Wed 9/25/19
62	***USEPA sign Final PCOR***	0 days	Thu 9/26/19	Thu 9/26/19
63	**PFAS Site Screening Investigation (SSI) SAP**	**76 days**	**Thu 8/16/18**	**Fri 11/30/18**
64	***Submit Draft SAP***	0 days	Thu 8/16/18	Thu 8/16/18
65	USEPA & MEDEP Review Draft SAP	33 edays	Thu 8/16/18	Tue 9/18/18
66	***USEPA & MEDEP Comments Received***	0 days	Tue 9/18/18	Tue 9/18/18
67	Prepare Response to Comments	24 edays	Tue 9/18/18	Fri 10/12/18
68	***Submit Response to Comments***	0 days	Fri 10/12/18	Fri 10/12/18
69	Prepare Draft Final SAP	35 edays	Fri 10/12/18	Fri 11/16/18
70	***Submit Draft Final SAP***	0 days	Fri 11/16/18	Fri 11/16/18
71	USEPA & MEDEP Review Draft Final SAP	10 edays	Fri 11/16/18	Mon 11/26/18
72	***USEPA & MEDEP Concurrence Due***	0 days	Mon 11/26/18	Mon 11/26/18
73	Prepare Final SAP	4 edays	Mon 11/26/18	Fri 11/30/18
74	***Submit Final SAP***	0 days	Fri 11/30/18	Fri 11/30/18
75	**PFAS SSI Sampling & Reporting**	**391 days**	**Mon 12/17/18**	**Sun 6/14/20**
76	PFAS SSI Sampling Event 1	15 days	Mon 12/17/18	Fri 1/4/19
77	PFAS SSI Sampling Event 2	8 days	Mon 3/11/19	Wed 3/20/19
78	Prepare Draft PFAS SSI Report	100 edays	Wed 4/3/19	Fri 7/12/19
79	***Submit Draft PFAS SSI Report***	0 days	Fri 7/12/19	Fri 7/12/19
80	USEPA & MEDEP Review Draft PFAS SSI Report	68 edays	Sat 7/13/19	Thu 9/19/19
81	***USEPA & MEDEP Comments Due***	0 days	Thu 9/19/19	Thu 9/19/19
82	Prepare Response to Comments	165 edays	Mon 10/21/19	Fri 4/3/20

Notes:
1) In the Duration column, "days" refers to business days (i.e. Monday through Friday), whereas "edays" denotes calendar days.
2) Schedule Revision Date: Thu 3/19/20

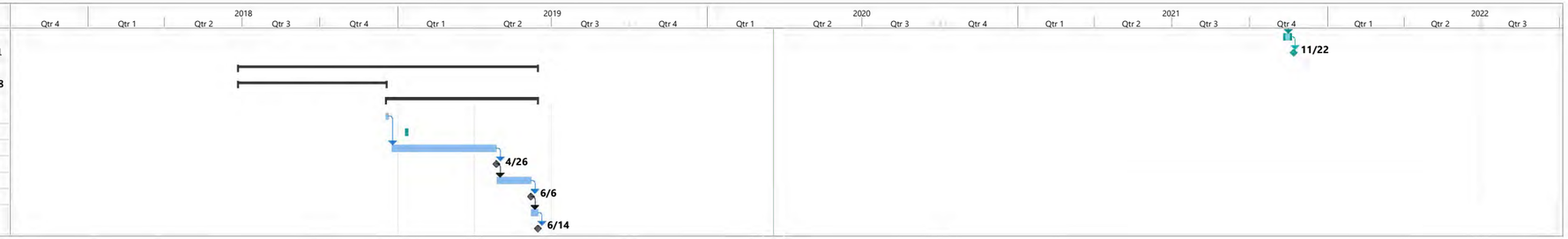
Portsmouth Naval Shipyard
FY 2020 Site Management Plan Schedule

ID	Task Name	Duration	Start	Finish
83	*Submit Response to Comments*	0 days	Fri 4/3/20	Fri 4/3/20
84	Prepare Draft Final PFAS SSI Report	30 edays	Wed 4/8/20	Fri 5/8/20
85	*Submit Draft Final PFAS SSI Report*	0 days	Fri 5/8/20	Fri 5/8/20
86	USEPA & MEDEP Review Draft Final PFAS SSI Report	30 edays	Fri 5/8/20	Sun 6/7/20
87	*USEPA & MEDEP Concurrence Due*	0 days	Sun 6/7/20	Sun 6/7/20
88	Prepare Final PFAS SSI Report	7 edays	Sun 6/7/20	Sun 6/14/20
89	*Submit Final PFAS SSI Report*	0 days	Sun 6/14/20	Sun 6/14/20
90	**Fourth Five-Year Review**	**363 days**	**Mon 12/21/20**	**Thu 5/12/22**
91	Conduct Inspection	5 days	Mon 5/17/21	Fri 5/21/21
92	*Submit Draft SAP*	0 days	Mon 12/21/20	Mon 12/21/20
93	USEPA & MEDEP Review Draft SAP	33 edays	Mon 12/21/20	Sat 1/23/21
94	*USEPA & MEDEP Comments Due*	0 days	Mon 1/25/21	Mon 1/25/21
95	Prepare Response to Comments	30 edays	Mon 1/25/21	Wed 2/24/21
96	*Submit Response to Comments*	0 days	Wed 2/24/21	Wed 2/24/21
97	Prepare Draft Final SAP	35 edays	Wed 2/24/21	Wed 3/31/21
98	*Submit Draft Final SAP*	0 days	Wed 3/31/21	Wed 3/31/21
99	USEPA & MEDEP Review Draft Final SAP	21 edays	Wed 3/31/21	Wed 4/21/21
100	*USEPA & MEDEP Concurrence Due*	0 days	Wed 4/21/21	Wed 4/21/21
101	Prepare Final SAP	7 edays	Wed 4/21/21	Wed 4/28/21
102	*Submit Final SAP*	0 days	Wed 4/28/21	Wed 4/28/21
103	Five Year Review Sampling	14 days	Wed 4/28/21	Mon 5/17/21
104	Prepare Draft Five-Year Review	119 edays	Fri 5/28/21	Fri 9/24/21
105	*Submit Draft Five-Year Review*	0 days	Fri 9/24/21	Fri 9/24/21
106	USEPA & MEDEP Review Draft Five-Year Review	45 edays	Fri 9/24/21	Mon 11/8/21
107	*USEPA & MEDEP Comments Due*	0 days	Mon 10/25/21	Mon 10/25/21
108	Prepare Response to Comments	45 edays	Mon 10/25/21	Thu 12/9/21
109	*Submit Response to Comments*	0 days	Thu 12/9/21	Thu 12/9/21
110	USEPA & MEDEP Review Response to Comments	29 edays	Thu 12/9/21	Fri 1/7/22
111	*USEPA & MEDEP Follow-on Comments Due*	0 days	Fri 1/7/22	Fri 1/7/22
112	Prepare Draft Final Five-Year Review	31 edays	Fri 1/7/22	Mon 2/7/22
113	*Submit Draft Final Five-Year Review*	0 days	Mon 2/7/22	Mon 2/7/22
114	USEPA & MEDEP Review Draft Final Five-Year Review	31 edays	Mon 2/7/22	Thu 3/10/22
115	*USEPA & MEDEP Concurrence Due*	0 days	Thu 3/10/22	Thu 3/10/22
116	Prepare Final Five-Year Review	32 edays	Thu 3/10/22	Mon 4/11/22
117	*Submit Final Five-Year Review for signature*	0 days	Mon 4/11/22	Mon 4/11/22
118	EPA Signature	10 days	Mon 4/11/22	Fri 4/22/22
119	Navy Signature	6 days	Mon 4/25/22	Mon 5/2/22
120	Prepare Final Signed Five-Year Review	7 days	Tue 5/3/22	Wed 5/11/22
121	*Submit Final Signed Five-Year Review*	0 days	Thu 5/12/22	Thu 5/12/22
122	**OPERABLE UNIT 2**	**1008 days**	**Thu 1/11/18**	**Mon 11/22/21**
123	**Round 1 Groundwater Monitoring**	**204 days**	**Thu 1/11/18**	**Tue 10/23/18**
136	**DRMO Area Well Abandonment**	**2 days**	**Wed 7/10/19**	**Thu 7/11/19**
137	Abandonment of monitoring wells in the DRMO area	2 days	Wed 7/10/19	Thu 7/11/19
138	**Round 2 Groundwater Monitoring**	**114 days**	**Mon 5/13/19**	**Wed 10/16/19**
139	Round 2 Annual Groundwater Monitoring	2 days	Mon 5/13/19	Tue 5/14/19
140	Prepare Draft Annual Groundwater Report	100 edays	Wed 5/29/19	Fri 9/6/19
141	*Submit Draft Annual Groundwater Report*	0 days	Fri 9/6/19	Fri 9/6/19
142	USEPA & MEDEP Review Draft Annual Groundwater Report	31 edays	Mon 9/9/19	Thu 10/10/19
143	*USEPA & MEDEP Comments Due*	0 days	Thu 10/10/19	Thu 10/10/19
144	*USEPA & MEDEP Concurrence (letter indicating no comments)*	8 days	Tue 10/1/19	Thu 10/10/19
145	Prepare Final Annual Groundwater Report	6 edays	Thu 10/10/19	Wed 10/16/19
146	*Submit Final Annual Groundwater Report*	0 days	Wed 10/16/19	Wed 10/16/19
147	**Round 3 Groundwater Monitoring**	**132 days**	**Wed 5/20/20**	**Thu 11/19/20**
148	Round 3 Annual Groundwater Monitoring	2 days	Wed 5/20/20	Thu 5/21/20
149	Prepare Draft Annual Groundwater Report	81 edays	Thu 5/21/20	Mon 8/10/20
150	*Submit Draft Annual Groundwater Report*	0 days	Mon 8/10/20	Mon 8/10/20
151	USEPA & MEDEP Review Draft Annual Groundwater Report	30 edays	Mon 8/10/20	Wed 9/9/20
152	*USEPA & MEDEP Comments Due*	0 days	Wed 9/9/20	Wed 9/9/20
153	Prepare Response to Comments	30 edays	Wed 9/9/20	Fri 10/9/20
154	*Submit Response to Comments*	0 days	Fri 10/9/20	Fri 10/9/20
155	USEPA & MEDEP Review Response to Comments	31 edays	Fri 10/9/20	Mon 11/9/20
156	*USEPA & MEDEP Concurrence Due*	0 days	Mon 11/9/20	Mon 11/9/20
157	Prepare Final Annual Groundwater Report	10 edays	Mon 11/9/20	Thu 11/19/20
158	*Submit Final Annual Groundwater Report*	0 days	Thu 11/19/20	Thu 11/19/20
159	**Round 4 Groundwater Monitoring (First Five-Year Review event)**	**132 days**	**Wed 5/19/21**	**Thu 11/18/21**
160	Round 4 Annual Groundwater Monitoring	2 days	Wed 5/19/21	Thu 5/20/21
161	Prepare Draft Annual Groundwater Report	81 edays	Thu 5/20/21	Mon 8/9/21
162	*Submit Draft Annual Groundwater Report*	0 days	Tue 8/10/21	Tue 8/10/21
163	USEPA & MEDEP Review Draft Annual Groundwater Report	30 edays	Tue 8/10/21	Thu 9/9/21
164	*USEPA & MEDEP Comments Due*	0 days	Thu 9/9/21	Thu 9/9/21
165	Prepare Response to Comments	30 edays	Thu 9/9/21	Sat 10/9/21
166	*Submit Response to Comments*	0 days	Mon 10/11/21	Mon 10/11/21
167	USEPA & MEDEP Review Response to Comments	31 edays	Mon 10/11/21	Thu 11/11/21
168	*USEPA & MEDEP Concurrence Due*	0 days	Thu 11/11/21	Thu 11/11/21

Notes:
1) In the Duration column, "days" refers to business days (i.e. Monday through Friday), whereas "edays" denotes calendar days.
2) Schedule Revision Date: Thu 3/19/20

Portsmouth Naval Shipyard
FY 2020 Site Management Plan Schedule

ID	Task Name	Duration	Start	Finish
169	Prepare Final Annual Groundwater Report	8 edays	Thu 11/11/21	Fri 11/19/21
170	***Submit Final Annual Groundwater Report***	0 days	Mon 11/22/21	Mon 11/22/21
171	**OPERABLE UNIT 9**	**254 days**	**Wed 6/27/18**	**Fri 6/14/19**
172	**Vapor Intrusion Study SAP**	**125 days**	**Wed 6/27/18**	**Wed 12/19/18**
184	**Vapor Intrusion Sampling & Reporting**	**130 days**	**Tue 12/18/18**	**Fri 6/14/19**
185	Soil Vapor Sampling Event 1	3 days	Tue 12/18/18	Thu 12/20/18
186	Soil Vapor Sampling Event 2	1 day	Fri 1/11/19	Fri 1/11/19
187	Prepare Draft Vapor Intrusion Report	123 edays	Mon 12/24/18	Fri 4/26/19
188	***Submit Draft Vapor Intrusion Report***	0 days	Fri 4/26/19	Fri 4/26/19
189	USEPA & MEDEP Review Draft Vapor Intrusion Report	40 edays	Sat 4/27/19	Thu 6/6/19
190	***USEPA & MEDEP Comments Received - No Comments***	0 days	Thu 6/6/19	Thu 6/6/19
191	Prepare Final Vapor Intrusion Report	8 edays	Thu 6/6/19	Fri 6/14/19
192	***Submit Final Vapor Intrusion Report***	0 days	Fri 6/14/19	Fri 6/14/19



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2) Schedule Revision Date: Thu 3/19/20

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ATTACHMENT C
SCHEDULE REVISIONS FOR FY 2020 AMENDED SITE MANAGEMENT PLAN

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Schedule Revisions For
FY 2020 Amended Site Management Plan
Environmental Restoration Program
Portsmouth Naval Shipyard, Kittery, Maine

Schedule revisions shown in Appendix B reflect schedule changes from the Final Fiscal Year 2019 (FY 2019) Amended Site Management Plan (SMP) based on the status of projects as of *December 11, 2019*.

Basewide

- The schedule for the 2019 long-term management (LTMgt) annual inspection of Land Use Controls (LUCs) for Operable Units (OUs) 1, 2, 3, 7, 8, and 9 was revised to reflect the dates of the actual inspection in May 2019. The anticipated dates of the draft and final LTMgt annual inspection reports were revised based on the actual inspection dates and current status of the report.
- An anticipated schedule for the 2021 LTMgt annual inspection of LUCs for OUs 1, 2, 3, 7, 8, and 9 was added.
- The schedule was revised to reflect the actual dates for finalizing the PFAS Site Screening Investigation (SSI) Sampling and Analysis Plan (SAP) and sampling, preparation and submittal of the Draft SSP Report, and to provide anticipated dates for completion of the reporting in FY 2020. The PFAS SSI Draft Report RTCs were delayed due to a delay in the determination of a path forward for PFAS detected in groundwater at concentrations exceeding 70ppt. A path forward was recently agreed upon by the project team which includes additional groundwater sampling and subsequent data analysis to further refine delineation of PFAS in groundwater.
- USEPA requested the Navy to modify the Draft Final Close Out Report (FCOR) to be a Draft Preliminary Close Out Report (PCOR). The schedule was updated to reflect this and the actual dates for USEPA signature of the final version of the PCOR.
- Schedule supporting the Fourth Five-Year Review, required to be signed by May 2, 2022, was added, including inspection and sampling required.

OU2

- The schedule for the second round of groundwater monitoring for OU2 was revised to reflect the dates of actual groundwater monitoring in FY 2019. The dates of the draft and final annual groundwater report were revised to reflect the actual document submittal dates. Regulator comment letters indicated no comments on the draft report; therefore, a draft final report was not required and this submittal was removed from the schedule.

- The schedule for abandonment of monitoring wells in the DRMO area was updated to reflect actual dates of the abandonment work and reporting.
- An anticipated schedule was added for the third and fourth rounds of groundwater monitoring for OU2.

OU9

- The schedule was revised to reflect the actual dates of the vapor intrusion study SAP, sampling, and reporting in FY 2019.