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**FINAL FIVE YEAR SITE MANAGEMENT PLAN FISCAL YEARS 2022 THROUGH  
2026 NORFOLK NAVAL SHIPYARD PORTSMOUTH VA**

09/01/2021  
CH2M HILL

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Navy Facilities Engineering Systems Command Mid-Atlantic  
Norfolk, Virginia

**Final**

**Five-Year Site Management Plan  
Fiscal Year 2022 through 2026**

Norfolk Naval Shipyard  
Portsmouth, Virginia

September 2021



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Portsmouth, Virginia

September 2021

Prepared for NAVFAC Mid-Atlantic  
by CH2M HILL, Inc.  
Virginia Beach, Virginia  
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# Acronyms and Abbreviations

µg/L	micrograms per liter
ABM	abrasive blast material
BTEX	benzene, toluene, ethylbenzene, and xylene
CCR	Construction Completion Report
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CIP	Community Involvement Plan
DNAPL	dense non-aqueous phase liquid
EE/CA	Engineering Evaluation and Cost Analysis
EPIC	Environmental Photographic Interpretation Center
ER	Environmental Restoration
ERP	Environmental Restoration Program
ERA	Ecological Risk Assessment
FFA	Federal Facilities Agreement
FFS	Focused Feasibility Study
FS	Feasibility Study
FY	fiscal year
GSI	groundwater-to-surface-water interface
HHRA	Human Health Risk Assessment
IAS	Initial Assessment Study
IC	institutional control
ID	identification
LUC	land use control
MCL	maximum contaminant level
NAVFAC	Naval Facilities Engineering Command
Navy	Department of the Navy
NFA	no further action
NNSY	Norfolk Naval Shipyard
NTCRA	Non-time-critical Removal Action
OU	Operable Unit
PA	Preliminary Assessment
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PFAS	polyfluoroalkyl substances
PMT	Project Management Team
PP	Proposed Plan
RA	remedial action
RAB	Restoration Advisory Board
RD	remedial design
RFA	Resource Conservation and Recovery Act Facility Assessment
RFA-S	Supplemental Resource Conservation and Recovery Act Facility Assessment

RI	Remedial Investigation
RIP	remedy-in-place
ROD	Record of Decision
RSL	regional screening level
SI	Site Investigation
SMP	Site Management Plan
SSP	site screening process
SVOC	semi volatile organic compound
SWMU	solid waste management unit
TCDD	tetrachlorodibenzodioxin
TEQ	toxicity equivalent
TM	Technical Memorandum
UFP-SAP	Uniform Federal Policy Sampling and Analysis Plan
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VDEQ	Virginia Department of Environmental Quality
VOC	volatile organic compound

# Introduction

This document presents the Site Management Plan (SMP) for Norfolk Naval Shipyard (NNSY) for fiscal years (FYs) 2022 through 2026. Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic Division, Region 3 of the United States Environmental Protection Agency (USEPA), and the Virginia Department of Environmental Quality (VDEQ) have finalized a Federal Facilities Agreement (FFA) that addresses environmental contamination at applicable NNSY sites. This SMP meets the requirements of the FFA under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The SMP is being submitted for use by the NNSY Environmental Restoration (ER) Project Management Team (PMT) and its respective organizations (NAVFAC, NNSY, USEPA Region 3, and VDEQ). The SMP is a primary document under the FFA and is intended to outline all response activities and associated documentation to be undertaken at NNSY.

## 1.1 Purpose

The purpose of this SMP is to provide a management tool for NAVFAC Mid-Atlantic, NNSY, VDEQ, and USEPA personnel to use in planning and scheduling the environmental remedial response activities to be conducted at NNSY under CERCLA. This SMP establishes schedules, conceptual approaches, and scopes of work that USEPA, VDEQ, and the Department of the Navy (Navy) have agreed to. The schedules and work descriptions consist of:

- Detailed schedules, near-term milestones, and descriptions of proposed activities for FY 2022
- Conceptual schedules and general work approaches for activities planned for the 5-year period FY 2022 through FY 2026
- The prioritization of activities and the proposed schedules were developed by the NNSY PMT and are based on the following factors:
  - The PMT’s relative ranking of the sites with regard to the potential risks that they may pose to human health and the environment (address high-risk sites first)
  - NAVFAC Mid-Atlantic’s internal funding goal of having remedies-in-place (RIPs) at all “high” priority sites
  - The PMT’s goals set to meet requirements of USEPA, VDEQ, NAVFAC Mid-Atlantic, and the public

This SMP is updated yearly to maintain an up-to-date documentation and summary of environmental actions at NNSY.

## 1.2 Site Management Plan Report Organization

This SMP consists of six sections. This section (**Section 1**) establishes the purpose of the SMP. **Section 2** presents a brief history of environmental activities at NNSY and describes each of the sites at NNSY that are currently included, or are being addressed under CERCLA, as identified in the FFA. **Section 3** presents the proposed scope of work at each site for FY 2022. **Section 4** presents 5-year schedules for environmental investigation and remediation activities at those sites where activities are currently planned. **Section 5** specifically discusses previous and potential remedial and removal actions. **Section 6** presents the references used in this management plan.



# Site Background

NNSY is located in Portsmouth, Virginia, on the Southern Branch of the Elizabeth River, approximately 15 miles from the mouth of the Chesapeake Bay (**Figure 2-1**). NNSY is the oldest continuously operated shipyard in the United States, with origins dating back to 1767 when it was a merchant shipyard under British rule and was called the Gosport Shipyard. With the outbreak of the American Revolution in 1775, the Shipyard was confiscated by the Commonwealth of Virginia. In 1801, the Shipyard was purchased by the federal government.

Until the beginning of the Civil War, shipbuilding and repair facilities at the Shipyard were gradually expanded. Federal authorities burned the Shipyard when war was imminent in 1861. It was taken over by the Confederacy and burned twice more during the Civil War. Following the Civil War, the Shipyard was rebuilt and activities of repair service and construction of ships continued. During the First and Second World Wars, the Shipyard was greatly expanded and modernized.

After World War II, NNSY became primarily an overhaul and repair facility, and has remained such to this day. NNSY's primary mission is to repair, overhaul, dry-dock, convert, modernize, and inactivate ships, and to provide logistics services in support of the fleet.

The official mission assigned to this shipyard by the Secretary of the Navy is:

- Provide logistic support for assigned ships and service craft
- Perform authorized work in connection with construction, conversion, overhaul, repair, alteration, dry-docking, and outfitting of ships and craft, as assigned
- Perform manufacturing, research, development, and test work, as assigned
- Provide services and material to other activities and units, as directed by competent authority

The present NNSY and the nearby Navy-owned noncontiguous areas (**Figure 2-1**) comprise the following elements:

- **Main Shipyard** – 533 acres of waterfront ship repair facilities (dry docks, wet slips, berths, and so forth), a Controlled Industrial Area, public works, administration and supply facilities, housing, medical facilities, and personnel and community support services
- **Southgate Annex** – 63 acres used primarily for storage
- **Scott Center Annex** – a 63-acre recreational complex for NNSY personnel; the former Scott Center Landfill was remediated in 2005 with the removal of waste and the creation of sustainable tidal wetlands
- **Paradise Creek Disposal Area** – a 97-acre hydraulic fill area formerly used for landfilling, solid waste disposal, and petroleum reclamation (storage of petroleum products and the maintenance and storage of waste-handling vehicles and equipment)
- **New Gosport** – a 57-acre former military housing area for married enlisted personnel; an area immediately to the north is the former New Gosport Landfill, which was remediated in 2001 with the removal of waste and the creation of sustainable tidal wetlands

## 2.1 Environmental History

The following subsections summarize basewide and site-specific investigations conducted to identify sites potentially posing risk to human health and/or the environment.

## 2.1.1 CERCLA Process

The objectives of the CERCLA process are to evaluate the nature and extent of contamination at a site, and to identify, develop, and implement appropriate remedial actions (RAs) that protect human health and the environment. The major elements of the CERCLA process are:

- Preliminary Assessment (PA)
- Site Investigation (SI)
- Remedial Investigation (RI) and Feasibility Study (FS)
- Engineering Evaluation and Cost Analysis (EE/CA) and Removal Action (may be implemented at any time in the CERCLA process)
- Proposed Plan (PP) and Record of Decision (ROD)
- Remedial Design (RD) and RA
- Post-RA monitoring and reporting
- Community participation

### 2.1.1.1 Preliminary Assessment

A PA phase begins with the initiation of the concerns about a site, area, or potential contaminant source. The PA is a limited-scope assessment designed to distinguish between sites that clearly pose little or no threat to human health or the environment and sites that may pose a threat and require further investigation. Environmental samples are rarely collected during a PA. The PA also identifies sites requiring assessment for possible response actions. If the PA results in a recommendation for further investigation, an SI or site inspection is conducted.

### 2.1.1.2 Site Investigation

Some sites warrant preliminary or interim investigations, studies, or removal actions and RAs. If it is unclear as to whether a site should be included in the CERCLA RI/FS process, an SI is sometimes conducted to make a general determination of whether activities at the site have affected environmental media. SI investigations typically include the collection of environmental and waste samples to identify any hazardous substances present at a site and to determine whether these substances have been released to the environment.

### 2.1.1.3 Remedial Investigation and Feasibility Study

The RI serves as the mechanism for collecting data to characterize site conditions, identify the nature of the waste, assess risk to human health and the environment, and, if necessary, conduct treatability testing to evaluate the potential performance and cost of the treatment technologies that are being considered.

The FS is the mechanism for the development, screening, and detailed evaluation of alternative RAs. The RI and FS can be conducted concurrently; data collected in the RI influence the development of remedial alternatives in the FS, which in turn affect the data needs and scope of treatability studies and additional field investigations. This phased approach encourages the continual scoping of the site characterization effort, which minimizes the collection of unnecessary data and maximizes data quality.

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
- Support the RD of a selected alternative

Treatability studies may be conducted at any time during the process. The need for a treatability study generally is identified during the FS.

Treatability studies may be classified as either bench-scale (laboratory studies) or pilot-scale (field studies). For well-developed and tested technologies, bench-scale studies are often sufficient to evaluate performance. For innovative technologies, pilot tests may be required to obtain the desired information. Pilot tests simulate the physical and chemical parameters of the full-scale process and are designed to bridge the gap between bench-scale and full-scale operations.

#### 2.1.1.4 Engineering Evaluation and Cost Analysis and Removal Actions

Removal actions are implemented to cleanup or remove hazardous substances from the environment at a specific site in order to mitigate the spread of contamination. They may be implemented at any time during the CERCLA process. Removal actions are classified as either time-critical or non-time-critical. 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 (NTCRAs).

For an NTCRA, an EE/CA is prepared rather than the more extensive FS. An EE/CA focuses on the media and substances to be addressed by the action and not necessarily on all contaminated media and substances at the site. It is possible for a removal action to become the final RA if the risk assessment results indicate that no further action (NFA) is required in order to protect human health and the environment.

#### 2.1.1.5 Proposed Plan and Record of Decision

A PP presents the remedial alternatives developed in the FS and recommends a preferred remedial method. The public has an opportunity to comment on the PP during an announced formal public comment period. Site information is compiled in an Administrative Record and placed in the general ER Program Information Repositories at NAVFAC for public review. The public comments are reviewed, and the responses are recorded in a document called a Responsiveness Summary. Subsequent to the public comment period, RD and RA activities are initiated.

At the end of the public comment period, an appropriate remedial alternative is chosen to protect human health and the environment. The ROD document is issued to explain the selected RA.

#### 2.1.1.6 Remedial Design and Remedial Action

The final stage in the process is the RD and RA. In the RD phase, the technical specifications for cleanup remedies and technologies are designed. The RA is the actual construction or implementation phase of the cleanup process.

Interim RAs are implemented to temporarily mitigate human health risks or to mitigate the spread of contamination in the environment. Similar to removal actions, they may be implemented at any time during the process. Examples of interim RAs include installing a pump-and-treat system for product recovery from the groundwater or installing a fence to prevent direct contact with hazardous materials.

For interim RAs, a Focused Feasibility Study (FFS) is prepared rather than the more extensive FS. Similar to a removal action, an interim RA may become the final RA if the results of the risk assessment indicate that no further RA is required to protect human health and the environment.

Following implementation and construction of the RD, the RIP is considered complete. A Construction Completion Report (CCR) provides documentation of the implementation and construction activities for the RIP. Information in the CCR provides the supporting documentation for an RA Completion Report that memorializes the completion of the RA. If the RIP is the final remedy, then "Response Complete" is established for the site.

#### 2.1.1.7 Post-Remedial Action Monitoring and Reporting

Five-year Reviews are generally required by CERCLA or program policy when hazardous substances remain on a site above levels that permit unrestricted use and unlimited exposure. These reviews provide an opportunity to evaluate the implementation and performance of a remedy to assess whether it continues to protect human health and the environment. Generally, reviews are performed 5 years following the initiation of a CERCLA

response action and are repeated every succeeding 5 years so long as future uses remain restricted. Five-year Reviews can be performed by USEPA or the lead agency for a site, but USEPA retains responsibility for evaluating the protectiveness of the remedy.

#### 2.1.1.8 Community Participation

The various documents prepared for the ER Program are maintained in information repositories for review by the public. NAVFAC is the public repository for the NNSY Administrative Record; a list of publicly available documents can be found on the public website. Some documentation may also be available in the City of Portsmouth Main Branch Library. NNSY developed a Community Involvement Plan (CIP) update in which the need of the currently inactive Restoration Advisory Board (RAB) was evaluated and reestablishing the RAB was recommended (CH2M, 2019a). Reestablishing the RAB was postponed in FY 2021 due to COVID-19 and will be reestablished in FY 2022. A RAB is composed of members of the community, local environment group members, and state and federal officials who meet occasionally and as needed to inform the community on environmental issues at NNSY. Additionally, to facilitate public outreach, NNSY has been incorporating elements of *Mission Cleanup* into community communications by posting public notices on social media. Plans for FY 2022 include updating the public website with consistent *Mission Cleanup* messaging and preparing fact sheets for distribution at public meetings.

### 2.1.2 Facility-wide Investigations

Various facility-wide studies and investigations, including preliminary studies and detailed SIs, have been completed at NNSY since 1983 in response to the Navy's ER Program. PAs conducted to identify and assess sites posing a potential threat to human health or the environment resulting from past or current operations or waste management activities have included:

- Initial Assessment Study (IAS)
- Phase I Interim Resource Conservation and Recovery Act Facility Assessment (RFA)
- Supplement to Interim Final RFA (Supplemental Resource Conservation and Recovery Act Facility Assessment [RFA-S])
- Aerial Photographic Site Analysis (EPIC, 1994)

A total of 218 potentially contaminated sites, areas, or solid waste management units (SWMUs) at NNSY were identified for evaluation in the IAS, RFA, RFA-S, Environmental Photographic Interpretation Center (EPIC) Study, and/or other NNSY assessments. Due to the inconsistent numbering and nomenclature of the 218 units in these reports, the PMT developed a correlation to group these units into distinct and individual areas of potential contamination that were actually identified for evaluation. This correlation showed that there are a total of 163 potentially contaminated areas at NNSY. **Tables 2-1** and **2-2** provide the correlated listing of NNSY sites, SWMUs, and areas of concern. **Table 2-1** lists all ER program sites that were managed or are currently being managed under CERCLA. **Table 2-2** lists all other sites, including SWMUs and areas of concern, that were not selected for further investigation under CERCLA and the justification for site closeout or exclusion. Active ERP Sites are listed in **Table 2-3** along with the dates of completion for each phase of the CERCLA process to date.

Some of the SIs included multiple sites and were not focused on a specific site assessment. These major investigations included:

- Interim RI
- Site Screening Assessment
- Basewide Background Investigation
- Paradise Creek Ecological Risk Assessment (ERA)

A list of the previous investigations conducted, by individual ER site, along with the current site status, is provided in **Section 2.2**.

## 2.2 Descriptions of Sites

A comprehensive list of all NNSY sites identified during all previous assessments and investigations is provided in **Tables 2-1** and **2-2**. The tables also identify the basis for site action determination from the NNSY FFA. The location of each site is shown on **Figure 2-2**. The following sections correspond to the classification of sites used in the table. Each site name includes the USEPA Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) Identification (ID) reference number, as applicable.

### 2.2.1 Miscellaneous Sites

The following operable unit (OU) is currently managed and tracked in CERCLIS but is currently not in any specific phase of CERCLA.

#### 2.2.1.1 OU8—NNSY Basewide

OU8 is composed of the entire NNSY (and former annexes). All previous investigations conducted at NNSY are available for the public in the Administrative Record.

Following a review of all site documents and decisions, a PP and ROD may need to be completed to document construction completion for NNSY; however, the need for these documents is currently under discussion with the Tier I NNSY PMT and may not be necessary. The Preliminary Closeout Report for NNSY will be prepared to document construction completion for NNSY, which is currently anticipated in 2028. Five-Year Reviews and remedy operations and maintenance activities are expected to continue in accordance with individual site ROD's until conditions allow for unlimited use and unrestricted exposure. The FY 2021 Five-Year Review was finalized in August 2021.

A PA and SI specific to known or suspected releases of per- and polyfluoroalkyl substances (PFAS) to the environment will be conducted for NNSY, including the main installation and annexes (excluding St. Julien's Creek Annex, which will have a separate PFAS PA/SI). The objective of the PA is to identify potential PFAS areas of concern, and the objective of the SI is to verify the presence or absence of potential PFAS impacts exceeding U.S. Environmental Protection Agency (U.S. EPA), state, or local regulatory-vetted screening levels. The PA was finalized in FY 2021 and the SI is planned for FY 2022.

FY 2022 activities planned for OU8 are discussed in **Section 3.2.5**.

### 2.2.2 Federal Facilities Agreement Findings of Fact Sites in the CERCLA Remedial Investigation and Feasibility Study Process

The following sites are currently in the RI/FS process under CERCLA. The ultimate closure of each RI/FS site will require a ROD.

#### 2.2.2.1 OU7 (ER Sites 3, 4, 5, and 6)—Paradise Creek Disposal Area (Groundwater)

This OU is the groundwater component of what is referred to as OU2 in subsequent sections of this document (**Figure 2-3**). The Paradise Creek Disposal Area lies adjacent to Paradise Creek, south of the Main Shipyard. This OU is composed of four NNSY ER sites and contains:

- **Site 3, Sanitary Landfill**, was the Shipyard's landfill from 1954 through 1983. The types of waste disposed of at the site included salvage waste, abrasive blast material (ABM), boiler fly and bottom ash, residential trash, and industrial wastewater treatment plant sludge. The Site 3 Landfill consists of the Eastern Landfill and Western Landfill.
- **Site 4, Chemical Holding Pits**, is an area of five chemical waste pits that received waste from 1963 to 1977.

- **Site 5, Oil Reclamation Area**, is an underground storage tank (UST) site where the soils and groundwater have been contaminated by petroleum products related to site releases associated with the USTs, which were removed in 1982.
- **Site 6, East Dump**, was used for disposal of solvents when the Site 4 pits were full. The area was used from the mid-1960s to 1977.

A summary of documents that contain site-specific information is provided in **Table 2-4**.

### **Dense Non-Aqueous Phase Liquid Delineation (Baker, 2001)**

The dense non-aqueous phase liquid (DNAPL) investigation completed in 2001 consisted of a geophysical survey, free product measurements at existing site wells, groundwater level gauging, direct-push technology soil and groundwater sample collection, test pitting and monitoring well installation, and cone penetrometer testing. The conclusions of the DNAPL investigation indicated chlorinated volatile organic compounds (VOCs) and benzene, toluene, ethylbenzene, and xylene (BTEX) constituents were detected in generally the same areas in the shallow Columbia aquifer; however, chlorinated solvent contamination was detected at high concentrations over a broader area than BTEX constituents. The soil borings installed in the lower portion of the Columbia aquifer exhibited low levels of VOCs and semivolatile organic compounds (SVOCs). No specific evidence of DNAPL contamination was identified in the soil borings installed in the lower portion of the Columbia aquifer; however, the conclusions of the report documented DNAPL was removed from RW11 (RW11 is no longer present at the site) during the Oil Reclamation Area system construction. Recommendations of the DNAPL investigation consisted of periodic extraction of DNAPL from RW11.

### **Phase II RI Report (CH2M, 2002)**

A Baseline Human Health Risk Assessment (HHRA) was conducted and indicated potential unacceptable risk was present due to exposure of shallow and deep groundwater at the site. The risk drivers (future construction worker) identified for the Columbia aquifer were antimony, iron, manganese, vanadium, 4-methylphenol, pentachlorophenol, dibenzofuran, and trichloroethene. The risk drivers (future residential potable use) identified for the Yorktown aquifer were vinyl chloride, arsenic, iron, and manganese.

### **Additional Groundwater Investigation**

Supplemental groundwater investigations were conducted in 2007 and 2008 and included a water level survey, free product survey, and groundwater sampling. This information was intended to provide an updated set of groundwater data to compare to the RI data that had been collected in the middle to late 1990s. Groundwater gauging confirmed general groundwater flow directions consistent with previous investigations. The results of the product gauging indicated that the product does not appear to be migrating over time (based on comparison with the 1998 free product delineation). The results of the groundwater sampling event indicated VOCs (benzene, vinyl chloride, cis-1,2-dichloroethene, and 1,2-dichloroethane), one SVOC (bis[2-ethylhexyl]phthalate), and metals (antimony, arsenic, cadmium, and lead) exceeded their established maximum contaminant level (MCL) or action level in at least one monitoring location in shallow groundwater. Chlorinated VOCs were generally detected in the central portion of the western landfill, in the vicinity of where they were detected in soil during the DNAPL survey. A total of one VOC (vinyl chloride) and two metals (arsenic and lead) exceeded their established MCL or action level in deep groundwater of the Yorktown aquifer at three monitoring wells. The chlorinated VOC exceedance in the Yorktown aquifer was within the Site 6 area, downgradient of the VOCs encountered during the DNAPL study.

The 2011 additional groundwater investigation consisted of a water level survey, monitoring well installation, free product survey and investigation, groundwater sampling, and subsurface soil sampling (based upon the results of the 2001 DNAPL study) in order to evaluate alternatives for the FS for OU7. The purpose of the investigation was to identify potential source areas and further characterize the groundwater contamination. A Laser-Induced Fluorescence investigation was also conducted to determine the extent of free product in the subsurface.

The 2011 groundwater data were also screened against Biological Technical Assistance Group surface water screening values to assess the potential ecological risk exposure pathways for aquatic biota at the groundwater-

to-surface-water interface (GSI). Results of this ecological groundwater screening were presented in a Technical Memorandum (TM) (CH2M, 2011b). A second TM was prepared summarizing site-specific modeling, completed to estimate concentrations of constituents of potential concern and the potential for ecological risk both in the GSI and in the main body of Paradise Creek (CH2M, 2012). Based on the results of the second TM, the NNSY PMT decided to place the groundwater FS on hold pending a phased investigation of the pore water in order to evaluate the GSI pathway. Therefore, field activities consisting of the collection of water quality readings of pore water were completed in October 2013.

### Supplemental RI

A Supplemental RI is being conducted in a phased approach to further characterize nature and extent of the potential sources and contamination in soil and groundwater (including emerging chemicals of environmental concern), a non-aqueous phase liquid evaluation, tidal study, and data gap investigation related to Paradise Creek. Phase I was conducted in FY 2018 and results were presented in a Draft TM (CH2M, 2020). Phase II was initiated in FY 2021 and is ongoing.

FY 2022 activities planned for OU7, Paradise Creek Disposal Area Groundwater, are discussed in **Section 3.2.4**.

## 2.2.3 Federal Facilities Agreement Findings of Fact Sites in the CERCLA Remedy in Place and Remedy Complete Phase

The following sites are currently in the Remedy in Place (RIP) or Remedy Complete (RC) phase of the CERCLA process. Remedies are in place (e.g., monitored natural attenuation, and/or Land Use Controls [LUCs]) at OU2 (ER Sites, 3, 4, 5, 6, and 7), OU4 (Site 17) and OU6 (Site 10). Each site name includes the USEPA Comprehensive Environmental Response, CERCLIS ID reference number.

### 2.2.3.1 OU2 (ER Sites 3, 4, 5, 6, and 7)—Paradise Creek Disposal Area (Soil)

The Paradise Creek Disposal Area lies adjacent to Paradise Creek, south of the Main Shipyard. This OU is composed of five NNSY ER sites and contains:

- **Site 3, Sanitary Landfill**, was the Shipyard's landfill from 1954 through 1983. The types of waste disposed of at the site included salvage waste, abrasive blast material (ABM), boiler fly and bottom ash, residential trash, and industrial wastewater treatment plant sludge. The Site 3 Landfill consists of the Eastern Landfill and Western Landfill.
- **Site 4, Chemical Holding Pits**, is an area of five chemical waste pits that received waste from 1963 to 1977.
- **Site 5, Oil Reclamation Area**, is an underground storage tank (UST) site where the soils and groundwater have been contaminated by petroleum products related to site releases associated with the USTs, which were removed in 1982.
- **Site 6, East Dump**, was used for disposal of solvents when the Site 4 pits were full. The area was used from the mid-1960s to 1977.
- **Site 7, Bermed Chemical Pits**, was used from the late 1950s through the 1970s. The type and quantity of waste disposed here are unknown. However, during a test pit investigation conducted in 2003, a significant amount of calcium hydroxide was observed. Most of the calcium hydroxide formed a berm along the perimeter of the site. Site 7 was excavated and restored as a tidal wetland with an NTCRA that was completed in 2006.

A map of these five sites and their relative proximity to one another and the overall composition of the Paradise Creek Disposal Area is provided as **Figure 2-3**. A summary of documents that contain site-specific information is provided in **Table 2-5**.

### **Remedial Investigation and Feasibility Study (Foster Wheeler Environmental Inc., 1995 and CH2M, 2001)**

The remedial investigations indicated the presence of elevated metals, polycyclic aromatic hydrocarbons (PAHs), phenols, and polychlorinated biphenyls (PCBs) in surface soils. The fill material and subsurface soil contained VOCs, PAHs, PCBs, and metals. The water table aquifer within and downgradient of the site contained several VOCs, SVOCs, and metals.

A Draft FS was prepared for OU2 in October 2000. The remedial alternative recommended in this report was Alternative 4 – Soil Cover with Institutional Controls (ICs). To address potential ecological concerns associated with the adjacent marsh sediments, an ERA for Paradise Creek was completed and remediation goals were established for marsh sediments. As a result of the additional ecological investigation and reporting to be completed, the Draft FS was never finalized.

### **Engineering Evaluation/Cost Analysis (CH2M 2004)**

The results of the ecological sampling identified an area of sediment along Paradise Creek adjacent to the landfill that contained contaminants above the levels of established cleanup goals. Following completion of the additional ecological evaluation, an EE/CA for an NTCRA was completed in April 2004 to develop response action alternatives to mitigate exposure to the eastern and western landfill, Site 7, and near-shore Paradise Creek marsh sediments to account for unacceptable exposure to humans and ecological receptors. The EE/CA was made available for public review and comment between March 10, 2004, and April 10, 2004. No comments were received from the public during the public comment period. An NTCRA was planned for OU2 based on the EE/CA.

### **Non-Time Critical Removal Action (AGVIQ-CH2M, 2004a, 2004b and FSSI, 2007)**

A design was completed to support the NTCRA at OU2 for a landfill soil cover and side slope stabilization. The design established a clean soil cover over the landfill, stabilized the potentially unstable side slopes of the landfill, and provided stormwater drainage features. Various alternatives were applied for stabilizing each side slope of the landfill (depending on existing conditions), including covering, re-grading, and installing riprap. Unless engineering measures were provided to increase the long-term slope stability, the general approach for side slope stabilization was to add fill to extend the toe of the slope outward and establish a 3H:1V slope. In 2005, pre-removal confirmatory sampling was conducted in the marsh sediments adjacent to the western landfill to define the boundary for the RA. The results of this sampling were incorporated into the Phase IV design.

The design was completed in four phases to accommodate construction sequencing:

- Phase I – Site Preparation and Site 7
- Phase II – Eastern Landfill Area
- Phase III – Western Landfill Area
- Phase IV – Marsh Sediment Remediation Area

Phase I construction activities were initiated in late FY 2005 and completed in December 2006. Site 7 was excavated and restored as a tidal wetland along Paradise Creek.

### **Focused Feasibility Study (CH2M, 2009)**

In 2007, an FS for OU2 was initiated, based on the draft version that had been prepared in 2000 and in consideration of the design documents that had been completed previously to support the NTCRA. Because the groundwater data for OU2 were approximately 10 years old, additional data were needed to support a future groundwater remedy. In 2008, the PMT agreed to address soil and groundwater separately. The USEPA CERCLIS ID for Paradise Creek Disposal Area Groundwater is OU7.

The FFS for soil was finalized in March 2009 and recommended the alternatives for soil and sediment to implement construction activities associated with Phases II, III, and IV.



### **Proposed Plan and Record of Decision (CH2M, 2009b and 2010a)**

The PP presenting the preferred alternative was made available for public review and comment from March 16, 2009, through May 1, 2009. A public meeting was held on March 31, 2009. There were no comments received during the public comment period and there were no attendees at the public meeting. The draft ROD outlining the selected remedy for soil (soil cover with ICs) was submitted in May 2009 and signed as Final in May 2010. Additionally, the NFA determination for Site 7 was included in the PP and ROD. The marsh sediment area “Phase IV – Marsh Sediment Remediation Area” was included in the Proposed Plan; however, based upon comments received from USEPA counsel during review of the OU2 ROD, the sediment component was removed prior to the document being finalized.

### **Remedial Design Land Use Controls (Navy, 2011)**

LUCs to prevent unacceptable exposure and control changes in site use are being maintained in accordance with the LUC RD (Navy, 2011). LUC maintenance will continue as long as waste is left in place. LUC objectives are provided in **Table 2-6**. Maintenance includes LUC site inspections, reporting, and corrective actions (as described herein).

As outlined in **Section 3.2.1**, additional sediment sampling is planned for FY 2021 to address impacts to sediment at OU2.

Annual mowing for vegetation control of the landfill cover was also completed.

FY 2022 activities planned at OU2 are discussed in **Section 3.2.1**.

#### 2.2.3.2 OU4 (Site 17)—Building 195 and Vicinity

Building 195 was the main plating shop at NNSY from the early-1970s through the mid-1980s. The ground surface surrounding Building 195 has been completely paved in asphalt. The formerly unpaved area north of Building 195 was used for coal storage from the 1920s until approximately 1966. The site is currently paved, the land use is industrial, and the surficial aquifer is not used as a potable water source. A site map is provided as **Figure 2-4**. A summary of documents that contain site-specific information is provided in **Table 2-7**.

### **Remedial Investigation and Feasibility Study (Baker, 1999 and 2006 and CH2M, 2003a)**

Field activities included monitoring well installation and soil and groundwater around Building 195. Results from these analyses indicated that metals were present in soil and groundwater. The HHRA was conducted in 1999 to demonstrate that the contaminants at the site do not pose an unacceptable risk to current onsite workers or future construction workers. However, this HHRA did not assess risk to future residential receptors. Because risk to these receptors has not been evaluated, there is an assumed risk to the future residential receptors. With this assumption of risk, ICs regarding future land use were recommended in the FFS to prohibit residential development of the site.

When NNSY announced plans to demolish Building 195, additional sampling was conducted to assess the condition of soils and groundwater under the footprint of the building. Human health risk was reevaluated based on the inclusion of the new data from the additional investigations with the original HHRA data set, and it was confirmed that there are acceptable risks to current and future onsite workers and future onsite construction workers. A preliminary evaluation of the future residential exposure scenario indicated there would be unacceptable adverse health hazards for the residential child potentially exposed to surface soil. Additionally, these data supported the conclusion that groundwater at Site 17 presents no unacceptable risk to human health. A revised FFS was completed in January 2006.

### **Proposed Plan and Record of Decision (CH2M, 2006 and Navy, 2006)**

The PP was completed in FY 2006, with no public comments received during a public comment period from March 5, 2006, through April 5, 2006. A public meeting was held on March 23, 2006. There were no public participants at the meeting. The ROD for Site 17 was signed in August 2006.

### **Remedial Design Land Use Controls (Navy, 2010b)**

Following signature of the ROD, NAVFAC prepared an RD for the LUC measures that will continue at Site 17 to prevent residential development and prohibit unrestricted exposure to contaminated soil. LUC maintenance will continue as long as contamination is left in place. LUC objectives are provided in **Table 2-6**. Maintenance includes LUC site inspections, reporting, and corrective actions (as necessary).

### **2016 Five Year Review Recommendations Investigation (CH2M, 2021a)**

Based on historical use of the site as a plating facility, a PFAS investigation was conducted to determine the presence or absence of PFAS in site groundwater. PFOA and PFOS were present in groundwater at concentrations greater than screening levels. A human health risk screening was conducted and identified potentially unacceptable risk to hypothetical future residential receptors from exposure to PFOA and PFOS in Columbia aquifer groundwater if used as a potable water supply. A PFAS RI was recommended to determine nature and extent of PFAS constituents in soil and groundwater at the site.

At the request of the USEPA, an evaluation of the groundwater to surface water discharge pathway was completed through an assessment of available groundwater data and refinement of the CSM. Water-level elevation data indicated little to no groundwater-surface water interaction in response to tidal changes in the surface water. The lack of a groundwater response to tidal changes could be due to the presence of the quay walls and/or bulkheads along the riverfront of the Site or from the presence of the fine-grained silty clay and sandy clay soil at the Site. However, based on the limited tidal study data, a conclusion could not be made to indicate whether or not a complete groundwater transport pathway to the river sediment and surface water exists. As part of the PFAS RI, potential contaminant transport pathways will be evaluated.

FY 2022 activities planned at Site 17 are discussed in **Section 3.2.2**.

#### **2.2.3.3 OU6 (Site 10)—1927 Disposal Area**

Site 10, the 1927 Disposal Area and surrounding vicinity, is located in the southern portion of the Main Shipyard in an area covered with paved roads, buildings, and parking lots. A site map is provided as **Figure 2-5**. A summary of documents that contain site-specific information is provided in **Table 2-8**.

The Site 10 Disposal Area was used prior to 1927 and until 1941. Wastes disposed of at the site reportedly included various solid wastes generated by NNSY, salvage waste, ABM, fly ash, and asbestos waste. There is no design information for the landfill.

### **Site Screening Process Investigation (CH2M, 2003c)**

An SSP investigation for Site 10 was conducted in September 2001. The investigation consisted of installation and sampling of 11 monitoring wells, collection of eight surface soil and 11 subsurface soil samples for laboratory analysis, and visual ID of landfill waste.

The investigation concluded that any minimal habitat for ecological receptors would not result in an unacceptable risk, and that the groundwater-to-surface water and/or sediment chemical exposure routes to ecological receptors either: 1) did not exist because there was no CERCLA-type release, or 2) did not present an adverse effect to ecological receptors. The screening HHRA, conducted using data collected during the SSP, identified arsenic, iron, and mercury in surface and subsurface soil at the 1927 Disposal Area, and metals in groundwater, as potentially posing unacceptable risks. The SSP report recommended additional investigation at Site 10 to further assess potential soil and groundwater contamination and risk to human health.

### **Remedial Investigation and Feasibility Study (CH2M, 2006b)**

In 2004, a soil and groundwater investigation was conducted at Site 10 to accomplish this objective. The results of this sampling, combined with the SSP sampling, were used in the Site 10 RI, HHRA, and FFS process that was completed in June 2006.

### Proposed Plan and Record of Decision (CH2M, 2007 and Navy, 2008)

A PP was prepared and made available for public comment from December 9, 2006, through January 9, 2007. No public comments were received during this time period. A public meeting was held on December 20, 2006; however, there were no public participants. The ROD was signed September 2008. Following signature of the ROD, NAVFAC prepared an RD for the LUC measures that will continue at Site 10 to prevent residential development. LUCs to prevent unacceptable exposure and control changes in site use are being maintained in accordance with the LUC RD (Navy, 2010b). LUC maintenance will continue as long as contamination is left in place. LUC objectives are provided in **Table 2-6**. Maintenance includes LUC site inspections, reporting, and corrective actions (as necessary).

### 2016 Five Year Review Recommendations Investigation (CH2M, 2021a)

Based on recommendations from the 2016 Five-Year Review, a soil and groundwater evaluation was initiated to determine if dioxins and furans are present in Site 10 soil and groundwater. Dioxins and furans were detected in soil and groundwater from direct-push sampling locations (January 2020). The 2,3,7,8-tetrachlorodibenzodioxin (2,3,7,8-TCDD) toxicity equivalent (TEQ) was calculated for soil and groundwater samples and was detected in soil at concentrations above soil-to-groundwater screening levels but below industrial soil RSLs. The 2,3,7,8-TCDD TEQ in Columbia aquifer groundwater samples exceeded the tap water RSL and maximum contaminant level at one or more location. A second phase of groundwater sampling from permanent monitoring wells was initiated in August to collect data for use in an HHRS and collect tidal data for use in a groundwater to surface water pathway evaluation. The HHRS concluded that exposure to dioxins and furans in subsurface soil at Site 10 would not be expected to result in potentially unacceptable human health risks to future residents. In addition, LUCs to prohibit unrestricted access and the development and use of the property for residential housing, elementary and secondary schools, childcare facilities, or a playground were implemented in 2008 (Navy, 2010b). At the request of the USEPA, an evaluation of the groundwater to surface water discharge pathway was completed through an assessment of available groundwater data and refinement of the CSM.

The tidal study at Site 10 concluded that there are tidal influences on groundwater levels, indicating that the quay walls and bulk heads along the river front do not serve as complete barriers to site groundwater flow and that discharge to surface water and a complete groundwater transport pathway from Site 10 to the river sediment and surface water may exist. However, TEQ concentrations marginally exceeded the ESV in groundwater and the ecological screening indicated a very low potential for ecological exposures to dioxin/furan concentrations associated with groundwater transport from Site 10 to the nearest receptor (Southern Branch of the Elizabeth River). Since no potentially unacceptable risks to human health or the environment from soil and groundwater have been found, no further environmental assessment for dioxins and furans was recommended.

FY 2022 activities associated with Site 10 are summarized in **Section 3.2.3**.

#### 2.2.4 Appendix A Site Screening Areas under the Site Screening Process

There are currently no sites listed in the FFA as **Appendix A** areas under the SSP. Site 10, the 1927 Disposal Area, was previously listed as an **Appendix A** site, but was moved to a Findings of Fact site. Site 15, Past Pier Side Maintenance Operations and Southgate Annex Waterfront Area were identified after the FFA for evaluation under the SSP and are currently both closed out (see **Section 2.2.6**).

#### 2.2.5 Appendix B Preliminary Screening Areas

There are no identified NNSY Appendix B sites for preliminary screening for FY 2022.

#### 2.2.6 Appendix C Sites No Further Action in the CERCLA Process

As noted earlier, 218 potentially contaminated sites, areas, or SWMUs at NNSY were identified for evaluation in the IAS, RFA, RFA-S, EPIC, and/or other NNSY assessments. Due to the inconsistent numbering and nomenclature of the 218 units in these reports, the PMT developed a correlation to group these units into discrete and

individual areas of potential contamination that were identified for evaluation. This correlation showed that there are a total of 163 potentially contaminated areas at NNSY.

In 1999 and 2000 the PMT evaluated many of these potentially contaminated areas by conducting site visits and reviewing historical records, operational procedures, and aerial photographs. As a result, 154 of these areas were identified as requiring NFA under CERCLA and were designated as such in the NNSY FFA. Since 2000, the PMT has determined that additional sites require NFA under CERCLA. These sites are documented as NFA in the NNSY FFA; the rationale for such classification is documented in previous versions of the annual SMP. Sites 1 and 9 were included in the FFA as Appendix C sites.

**Table 2-2** identifies each of the sites and areas evaluated and summarizes the rationale and basis for the site status determinations and when consensus for these determinations was achieved.

Site 15 and Southgate Annex Waterfront Area were closed out following the SSP and are discussed in the following subsections.

#### 2.2.6.1 Site 15

Site 15, Past Pier Side Maintenance Operations, underwent a desktop review in FY 2004, and the NNSY PMT concluded that the site warranted further review and evaluation as an **Appendix A** site, based on NNSY pier-side activities adjacent to the Southern Branch of the Elizabeth River. A site map is shown as **Figure 2-6**. A desktop review and historical records search was conducted in mid-FY 2006, and a *Preliminary Assessment and Action Determination for Site 15 – Past Pier-Side Maintenance Operations* was prepared (CH2M, 2006c). An NFA determination was made for the site in December 2006 by the PMT, based in part on the following findings: a specific CERCLA release at the site cannot be defined, most of the potentially affected sediment has been removed by maintenance dredging, planned waterfront improvements in the area will encapsulate any remaining affected sediment, and engineering controls to prevent future releases have been implemented at the site. USEPA sent a formal letter requesting sediment sampling along the NNSY and Southgate Annex waterfront area in December 2010. The NNSY PMT prepared a Virginia-Tier II Elevation Point Paper when resolution was not reached within Tier I. The NNSY Tier I PMT received direction from Virginia Tier III to sample near-shore sediment along the waterfront areas of the Main Shipyard (Site 15). A near-shore sediment investigation SAP and subsequent field work were completed in FY 2017. Results of the investigation were documented in the Site Investigation Report (CH2M, 2018) completed in FY 2019. Based on results of the investigation and the Preliminary Assessment and Action Determination for Site 15 (CH2M, 2006c), the NNSY Tier I PMT concluded that a RI/FS was not warranted at Site 15. Furthermore, the Preliminary Assessment and Action Determination for Site 15 (CH2M, 2006c) and Site Investigation (CH2M, 2018) fulfilled the requirements of the SSP report and site closeout decision document as defined in the NNSY FFA Subsection 9.3 (A) (1) and (3), respectively. No activities are anticipated at Site 15 in FY 2022.

#### 2.2.6.2 Southgate Annex Waterfront Area

NNSY Southgate Annex (SGA) waterfront area was originally included as a part of Site 15, Past Pier-Side Maintenance Operations in the Initial Assessment Study (Water and Air Research, 1983). In 2006, a PA and Action Determination was completed for Site 15 which included only the waterfront area along the Main Shipyard (CH2M, 2006). SGA was not evaluated as part of the PA because SGA activities were inconsistent with the large scale industrial and maintenance operations associated with the Main Shipyard. For this reason and the fact that the activities at SGA would not have likely resulted in contamination to the river, the Tier I PMT determined that it was appropriate to remove the SGA waterfront from the area of further study.

In 2008, USEPA conducted sediment sampling along the waterfront adjacent to the Atlantic Wood Industries (AWI) and SGA waterfront. Inorganics were detected in the sediment samples that USEPA attributed to Navy operations. In December of 2010, the USEPA formally requested the Navy to collect samples and complete a screening level risk analysis for Elizabeth River sediments. A technical memorandum was prepared in June 2011 comparing the sediment data collected by USEPA with data collected throughout the Southern Branch of the Elizabeth River and against several risk-based screening levels. However, consensus for site closeout was not

achieved and the issue was elevated to Tier 3. In November of 2012, Tier III concluded that evaluation of the USEPA dataset was necessary at some point to support construction completion, either by the Navy or the USEPA. However, Navy counsel requested that no analysis be completed until the Department of Justice concluded its settlement agreement negotiations at the AWI National Priorities List site. The settlement agreement was completed in April 2019.

In October 2019, the Tier I PMT revisited the June 2011 technical memorandum and agreed with the conclusion that further investigation or analysis of the sediments by the Navy is not necessary. Site closeout was documented on March 4, 2020 in a *Site Screening Process Concurrence for Site Close-out Signature Page* (NAVFAC MIDLANT, 2020).

**Table 2-1. Sites Identified for Management Under CERCLA**

Norfolk Naval Shipyard  
Portsmouth, Virginia

Site Identification	Other Identification				FFA (2004) Status	Name / Description	Location	Study Area Location	Additional Information and Current Status
	IAS (1983) Site #	RFA (1986) SWMU #	RFA-S (1987) SWMU #	OU Number					
Site 17	17	17	2-21	4	Findings of Fact - Site 17	Building 195 - Plating Shop/ Building 195 and Vicinity	Bldg. 195	Bldg. 236 /ER Site 17	This area was a coal pile for a power plant and is the area around Building 195 plating shop. The area was last used for coal storage in 1966. Bldg 195 is an active RCRA site. RFA recommended verifying integrity of piping. The site was evaluated as part of an RI/FS. ROD signed August 2006. Based on recommendations from the FYR, a groundwater evaluation was conducted in FY 2020 to determine if PFAS are present in Site 17 groundwater. In addition, although there are no current exposure pathways to groundwater, an evaluation of the groundwater discharge to surface water pathway through an assessment of available groundwater data and refinement of the CSM was conducted in FY 2020. To determine nature and extent of PFAS constituents in soil and groundwater at the site, a PFAS RI will be initiated in FY22.
Site 3	3	3	3-03	2 (soil); 7 (groundwater)	Findings of Fact - Site 03	High Dump Sanitary Landfill; Paradise Creek Disposal Area	Adjacent to Southgate	Paradise Creek ER Site 3 Area	RI/FS was conducted under the ER Program. PP for soil finalized, ROD (soil) completed May 2010. Groundwater currently in RI/FS stage as OU7.
		30	3-04			Temporary Waste Piles	Paradise Creek Area	Paradise Creek ER Site 3 Area	Temporary waste piles ABM dirt & concrete, waste removed 1986, area graded and covered with fill from power plant excavation, area covered under IR Program, Site 5. PP for soil finalized. ROD (soil) completed May 2010. Groundwater currently in RI/FS stage as OU7.
		22	3-05			Old Incinerator	Bldg. 431	Paradise Creek ER Site 3 Area	Operated 1943-1947, bldg and incinerator have been demolished and removed, RFA recommended NFA. Site is in area of Site 3 ER Program RI/FS (groundwater as OU7).
Site 4	4	4	3-14	2 (soil); 7 (groundwater)	Findings of Fact - Site 04	Chemical Waste Pits	Oil Reclamation Area	Oil Reclamation area of Paradise Creek ER Site 3	Inactive unit, site is in area of Site 3 ER Program RI/FS Paradise Creek Disposal Area. PP for soil finalized, ROD (soil) completed May 2010. Groundwater currently in RI/FS stage as OU7.
Site 5	5	31	3-09	2 (soil); 7 (groundwater)	Findings of Fact - Site 05	Fillport/Concrete Pad	Oil Reclamation Area	Oil Reclamation area of Paradise Creek ER Site 3	Inactive unit, site is Site 5 in area of Site 3 ER Program RI/FS Paradise Creek Disposal Area. PP for soil finalized, ROD (soil) completed May 2010. Groundwater currently in RI/FS stage as OU7.
			3-10	2 (soil); 7 (groundwater)		Waste Oil Storage Pads			Inactive unit, site is in area of Site 3 ER Program RI/FS Paradise Creek Disposal Area. PP for soil finalized, ROD (soil) completed May 2010. Groundwater currently in RI/FS stage as OU7.
		5	3-11	2 (soil); 7 (groundwater)		Underground Storage Tank			Inactive unit, site is in area of Site 3 ER Program Paradise Creek Disposal Area. PP for soil finalized, ROD (soil) completed May 2010. Groundwater currently in RI/FS stage as OU7.
		32	3-12	2 (soil); 7 (groundwater)		Temporary Storage Pad for Freon			Inactive unit, site is in area of Site 3 ER Program RI/FS, Paradise Creek Disposal Area. PP for soil finalized, ROD (soil) completed May 2010. Groundwater currently in RI/FS stage as OU7.
			3-13	2 (soil); 7 (groundwater)		Oil/Water Separator			Inactive unit, site is in area of Site 3 ER Program RI/FS Paradise Creek Disposal Area. PP for soil finalized, ROD (soil) completed May 2010. Groundwater currently in RI/FS stage as OU7.
			3-15	2 (soil); 7 (groundwater)		Temporary Container Storage Shack			Inactive unit, site is in area of Site 3 ER Program RI/FS Paradise Creek Disposal Area. PP for soil finalized, ROD (soil) completed May 2010. Groundwater currently in RI/FS stage as OU7.
Site 6	6	6	3-06	2 (soil); 7 (groundwater)	Findings of Fact - Site 06	East Dump	SE of Bldg. 431	Paradise Creek ER Site 3 Area	Inactive landfill, site is in area of Site 3 ER Program RI/FS Paradise Creek Disposal Area. PP for soil finalized, ROD (soil) completed May 2010. Groundwater currently in RI/FS stage as OU7.
Site 7	7	7	3-07	2	Findings of Fact - Site 07	Bermed Chemical Dump Site	Paradise Creek Area	Paradise Creek ER Site 3 Area	Inactive dump site, site is in area of Site 3 ER Program RI/FS Paradise Creek Disposal Area. PP for soil finalized, NFA ROD completed May 2010.

**Table 2-1. Sites Identified for Management Under CERCLA**

Norfolk Naval Shipyard  
Portsmouth, Virginia

Site Identification	Other Identification				FFA (2004) Status	Name / Description	Location	Study Area Location	Additional Information and Current Status
	IAS (1983) Site #	RFA (1986) SWMU #	RFA-S (1987) SWMU #	OU Number					
Site 10	10	10	2-17	6	Appendix A - Site 10	1927 Landfill	Near Bldgs. 260 and 510	1927 Landfill Area	Review existing data assoc. with RCRA closure of SWMU 2-91& EPIC study; SSP Investigation 2001 concluded additional investigation was warranted. RI/HHRA/FFS finalized May 2006. ROD signed September 2008. Based on recommendations from the FYR, a soil and groundwater evaluation will be conducted in FY 2019 to determine if dioxins and furans are present in Site 10 soil and groundwater at concentrations potentially posing risk to human health. In addition, although there are no current exposure pathways for groundwater, an evaluation of the groundwater discharge to surface water pathway through an assessment of available groundwater data and refinement of the CSM was conducted in FY 2020. Site is currently remedy in place status (Land use controls).
Site 15	15				Appendix A - Site 15	Past Pier Side Maintenance Operations	Eastern boundary of NNSY	Piers and wharfs along NNSY waterfront	Feb 01 1999 PMT meeting added AOC to the list. Consensus April 01 1999 mtg for further review. Desktop review June 2004, PMT consensus for Appendix A investigation. Final Preliminary Assessment submitted December 2006. PMT consensus for NFA December 2006. Collection of near shore sediment samples was completed in FY 2017 based upon direction from Tier II/III consensus agreement issued November 2012. PMT consensus for NFA December 2018.

- ABM - Abrasive Blast Material
- AOC - Area of Concern
- CERCLA - Comprehensive Environmental Response Compensation and Liability Act
- CSM - Conceptual site model
- DSA - Drum Storage Area
- EPIC - Environmental Photographic Interpretation Center
- ER - Environmental Restoration
- FFA - Federal Facility Agreement
- FS - Feasibility Study
- IAS - Initial Assessment Study
- IWTP - Industrial Waste Water Treatment Plant
- MILCON - Military Construction Project
- NFA - No further action
- NNSY - Norfolk Naval Shipyard
- OSA - Outside Storage Area
- OU - Operable Unit
- PFAS - Per and Polyfluororalkyl substances
- PMT - Project Management Team
- RCRA - Resource Conservation and Recovery Act
- RFA - RCRA Facility Assessment and RFA-S Supplemental RCRA Facility Assessment
- RI - Remedial Investigation
- ROD - Record of Decision
- SSA - Site Screening Assessment
- SWMU - Solid Waste Management Unit
- UST - Underground Storage Tank
- WAA - Waste Accumulation Area
- Appendix A Site Screening Areas Under Site Screening Process
- Appendix B Preliminary Screening Areas
- Appendix C No Further Action Sites

Blue shading indicates additional sampling/investigation is currently planned.

**Table 2-2. Sites Not Selected for Further Investigation Under CERCLA**

Norfolk Naval Shipyard  
Portsmouth, Virginia

Site ID	Other AOCs	OU #	Building #	Name / Description	Location	Study Area Location	Active Unit	Justification for CERCLA Exclusion/No Further Action
Site 1		5		Former New Gosport Landfill	Adjacent to Former New Gosport housing and Paradise Creek	Paradise Creek	No	Site Investigation and waste delineation study in 2000. Removal action in 2001. Project Management Team consensus for NFA June 2004. Site Closeout Document July 2004.
Site 2		1		Scott Center Landfill	South of Scott Center	Scott Center	No	Site Closeout via no further action ROD October 2005.
Site 9		3		Acetylene Waste Lagoon	Southgate Annex	Southgate Annex	No	Former calcium hydroxide area delineated in 1996 and 2001, removal actions and wetlands creation for site restoration conducted in 2003. Site Closeout Document for NFA May 2004.
SWMU 4			174	Soot Hopper	NW of Bldg. 174	Bldg 174	No	Inactive, Soot Hopper and boilers were removed in 1993-1994, RFA noted potential for release if soot is hazardous, staining evident 1987 RFA indicated further research for the site was warranted. June 2004 DEQ and NNSY site visit. Desktop review June 2004 PMT meeting and consensus for NFA based on site history, current site conditions (paved parking), and June 2004 site visit.
SWMU 5			202	Shop 56, Caustic Cleaning Area	SW side of Bldg. 202	Bldg 202	Yes	RFA recommended sampling, Title V Permit, facility re-done, new concrete, excavation removed tanks. Piping in floor drains to IWTP, active site managed under Clean AER, Clean Water, and RCRA. DEQ & NNSY Site visit June 2004 and no sign of release. Desktop review June 2004 PMT meeting and consensus for NFA.
SWMU 6				Operated 1971-1980 storage area	Grass border of Elm Ave	1941 Ldf/ RDF Plant/SPSA	No	Currently concrete sidewalks and asphalt roads, area is former salvage yard, Review SPSA EBS report. Desktop review June 2004 PMT meeting and consensus for NFA based on current site conditions and June 2004 site visit.
SWMU 7	AOC 04			PCB Storage	Southgate Annex Bldg 381	Southgate Annex	No	PCB storage from Annual Inventory of PCBs 7/7/80 (Askeral mineral oil storage for transformers), This building is no longer present, based on employee interviews the site was out of service 1984/1985 and no recollection of spills. All contents removed prior to 1984 demo. PCB inventory reports note "liquid level "N"" indication no PCB oils present. Concrete floor still present, now fenced storage piping, RR ties, tires, batteries. Desktop review June 2004 PMT meeting and consensus for NFA.
SWMU 8	AOC 07			Facility Storm Sewer	Throughout NNSY	NNSY	Yes	Active storm sewers, Managed under Clean Water Act and monitoring by VPDES with monthly discharge reporting to DEQ. Dye testing of storm water system performed in March 2004. Updated drawings of system in July 2004. No non-compliance reports. Desktop review June 2004 PMT meeting and consensus for NFA.
SWMU 9				Industrial Waste Piping System (input to IWTP)	Various locations	NNSY	Yes	Piping from Bldgs. 163, 171, 172, 202, 234, 268 & 510. Piping should be investigated per 5/99 SSA meeting., review controls for leak detection, Investigate waste handling (Aug 99) - waste stream constituents identified. Preventative maintenance requires annual inspection, visual inspection conducted on exposed parts of piping. Pumping station inspected 3 x/day, periodic hydrostatic testing of system, piping is double walled and volumes monitored. Desktop review June 2004. Consensus June 2004 PMT meeting for NFA.
Site 8				1941 Landfill	SW of Bldg. 1545	1941 Ldf/ RDF Plant/SPSA	No	Reviewed EBS report, use existing data, EPA toxicologist review risk, FAR needed in a streamlined RA/FS process. For purpose of SSA no additional investigation needed, (NFA Consensus for SSA). Consensus for NFA April 01 meeting.
Site 11				Old Gantry Pickling Tanks	South end of Bldg. 202	Bldg 202	No	Inactive unit site has been removed, review site report, Refer to Conclusions, Section 3.3 of the Final HW Permit, 3/21/98. RFA recommended NFA, NFA consensus at August 99 SSA meeting.
Site 12			510	Pickling Tanks Building 510	Building 510		Yes	Currently concrete sidewalks and asphalt roads, area is former salvage yard, Reviewed EBS report, use existing data, consensus NFA
Site 13			369	Pickling Tanks	Bldg. 369	Bldg 369 Area	No	Inactive unit site has been removed, need to obtain site report, RFA recommended NFA, NFA consensus at August 99 SSA meeting.
Site 14				PCB Spill, Berth 42	West end of Bldg. 369	Bldg 369 Area	No	PCB spill 1979, pavement and soil removed, new asphalt in area, review soil removal documentation, consensus to NFA soils at 5/99 99 SSA meeting., cross reference with Bldg 369 area where groundwater sampling is proposed, NFA consensus at August 99 SSA meeting.
Site 16			202	Pickling Tanks Building 202	Building 201		Yes	NFA Consensus April 1999.



Table 2-2. Sites Not Selected for Further Investigation Under CERCLA

Norfolk Naval Shipyard  
Portsmouth, Virginia

Site ID	Other AOCs	OU #	Building #	Name / Description	Location	Study Area Location	Active Unit	Justification for CERCLA Exclusion/No Further Action
Site 18				1914 Landfill	SE of Bldg. 163		No	NFA Consensus April 1999
Site 19				1942-54 Landfill	SPSA Area	SPSA Area South	No	Inactive landfill, extensive excavation during construction of SPSA, , existing wells in area, review EBS report, April 01 PA- ICs in place with property under SPSA consider NFA RODs if LUCAP implemented first., Consensus for NFA April 01 meeting.
Site 20			236	Shop 02, WAA	West of Bldg. 236	SSP Bldg. 236 area; Bldg. 236 /ER Site 17	No	Previous < 90 day accumulation point for drums. Inactive unit, area is sandy soil/gravel, in area of bldg 236 where existing data review and additional sampling was conducted as Part of 2001 SSP Investigation of Bldg 236 area. NFA consensus July 2003 based on risk screening and absence of CERCLA release
Site 20			236	Underground Oil Water Separator Tank	SW corner of Bldg. 236	Bldg. 236 /ER Site 17	No	Inactive unit, concrete below ground o/w separator, RFA recommended investigating integrity of oil water separator, research NCAP for site information. Part of 2001 SSP Investigation of Bldg 236 area, NFA consensus July 2003 based on risk screening and absence of CERCLA release
Site 21			369	Hydraulic Fluid Drums Collection Area	East of Bldg. 369	Bldg 369 Area	No	Inactive drum storage on pallets on paved surface, now a fenced nuclear area, part of bldg 369 area with proposed soil sampling and well installation, MILCON in the area. Part of 2001 SSP Investigation of Bldg. 369 area. NFA consensus July 2003 based on risk screening and absence of CERCLA release
Site 21			369	Drum Holding Area	SE corner of Bldg. 369	Bldg 369 Area	No	Inactive drum storage on pallets on pavement, some drums were noted to be in poor condition in 1987, now a fenced nuclear area, part of bldg 369 area with proposed soil sampling and well installation. Part of 2001 SSP Investigation of Bldg. 369 area. NFA consensus July 2003 based on risk screening and absence of CERCLA release
SWMU 10			166	Old Incinerator	Bldg. 166	Bldg. 184 Area	No	Bldg 166 demo 1951, now concrete/asphalt parking. RFA recommended. researching data on wastes managed. Site is nearby MILCON (AOC3) and Site 10. Included in 2001 SSP investigation of 1927 Landfill . NFA consensus July 2003 based on risk screening and absence of CERCLA release, groundwater will be addressed as part of Site 10
SWMU 11			1460	Salvage Fuel Boiler Plant & the Refuse Transfer Station	Bldg. 1460	Bldg 212 & 1460, W of 1927 Ldf.	Boiler-No/ Refuse-Yes	Site visit 5/99, concrete containment area (former AST) . Site in State Permit process, NFA consensus at Sept 99 SSA meeting.
SWMU 12			202	Shop 56, Freon Recovery Still	Bldg. 202	Bldg 202	Yes	Inactive under RCRA, no RCRA closure, RFA recommended NFA, NFA consensus at August 99 SSA meeting.
SWMU 13			1499	Paint Room/Solvent Recovery Still	Bldg. 1499	Bldg 1499	No	Inactive unit 1995, 1998 site visit, asphalt area, no evidence of release, NFA consensus at Sept 99 SSA meeting.
SWMU 15			1485	IWTP Cyanide Pretreatment Tank	Fac. 1485	IWTP Fac. 1485	No	Active IWTP, operated under Clean Water Act, IWTP in area of Bldg 236 and ER Site 17, Air emissions, NFA consensus at August 99 SSA meeting.
SWMU 16			1485	IWTP Chromium Pretreatment Tank	Fac. 1485	IWTP Fac. 1485	Yes	Active IWTP, operated under Clean Water Act, IWTP in area of Bldg 236 and ER Site 17, RFA recommended NFA, NFA consensus at August 99 SSA meeting.
SWMU 17			1485	IWTP Primary Reaction Tank	Fac. 1485	IWTP Fac. 1485	Yes	Active IWTP, operated under Clean Water Act, IWTP in area of Bldg 236 and ER Site 17, RFA recommended NFA, NFA consensus at August 99 SSA meeting.
SWMU 18			1485	IWTP Primary Clarifier Tank	Fac. 1485	IWTP Fac. 1485	Yes	Active IWTP, operated under Clean Water Act, IWTP in area of Bldg 236 and ER Site 17, RFA recommended NFA, NFA consensus at August 99 SSA meeting.
SWMU 19			1485	IWTP Primary Clarifier Effluent Sump	Fac. 1485	IWTP Fac. 1485	Yes	Active IWTP, operated under Clean Water Act, IWTP in area of Bldg 236 and ER Site 17, RFA recommended NFA, NFA consensus at August 99 SSA meeting.
SWMU 20			1485	IWTP Oily Waste Scum Tank	Fac. 1485	IWTP Fac. 1485	Yes	Active IWTP, operated under Clean Water Act, IWTP in area of Bldg 236 and ER Site 17, RFA recommended NFA NFA consensus at August 99 SSA meeting.
SWMU 21			1485	IWTP Oily Waste Holding Tank	Fac. 1485	IWTP Fac. 1485	Yes	Active IWTP, operated under Clean Water Act, IWTP in area of Bldg 236 and ER Site 17, RFA recommended NFA, NFA consensus at August 99 SSA meeting.
SWMU 22			1485	IWTP Initial pH Adjustment Tank	Fac. 1485	IWTP Fac. 1485	Yes	Active IWTP, operated under Clean Water Act, IWTP in area of Bldg 236 and ER Site 17, RFA recommended NFA, NFA consensus at August 99 SSA meeting.
SWMU 23			1485	IWTP Thickener Tank	Fac. 1485	IWTP Fac. 1485	Yes	Active IWTP, operated under Clean Water Act, IWTP in area of Bldg 236 and ER Site 17, RFA recommended NFA, NFA consensus at August 99 SSA meeting.

**Table 2-2. Sites Not Selected for Further Investigation Under CERCLA**

Norfolk Naval Shipyard  
Portsmouth, Virginia

Site ID	Other AOCs	OU #	Building #	Name / Description	Location	Study Area Location	Active Unit	Justification for CERCLA Exclusion/No Further Action
SWMU 24			1485	IWTP Final pH Adjustment Tank	Fac. 1485	IWTP Fac. 1485	Yes	Active IWTP, operated under Clean Water Act, IWTP in area of Bldg 236 and ER Site 17, RFA recommended NFA, NFA consensus at August 99 SSA meeting.
SWMU 25			1485	IWTP Sludge Conditioner Tank	Fac. 1485	IWTP Fac. 1485	Yes	Active IWTP, operated under Clean Water Act, IWTP in area of Bldg 236 and ER Site 17, RFA recommended NFA, NFA consensus at August 99 SSA meeting.
SWMU 26			1485	IWTP Sludge Drying and Loading Area	Fac. 1485	IWTP Fac. 1485	Yes	Active IWTP, operated under Clean Water Act, IWTP in area of Bldg 236 and ER Site 17, RFA recommended NFA, NFA consensus at August 99 SSA meeting.
SWMU 27			291	Old Transformer Storage Bldg.	Inside Bldg. 291	Bldg 291	No	Transformers containing PCBs were stored within this building and disposed of through DRMO Inactive unit, concrete floor, RFA recommended NFA, site visit 5/99, NFA consensus at April 99 SSA meeting.
SWMU 28			79	Old Transformer Storage Building	Bldg. 79	S of Bldg 74	No	NFA consensus at April 99 SSA meeting.
SWMU 29			1512	RCRA Interim Status Hazardous Waste Drum Storage Shed	Bldg 1512	Bldg. 236 /ER Site 17	No/C	RCRA closure, site inactive, no evidence of release 1998 site visit, within area of Bldg 236 and ER Site 17 which is proposed for study, RFA recommended NFA, NFA consensus at August 99 SSA meeting.
SWMU 30			260	Drum Accumulation Area/Container Storage Slab	Bldg. 260	1927 Landfill Area	Yes/C	Asphalt drum storage, RCRA closure, cross reference with 1927 landfill, Also discussed in 3/21/98 VDEQ Final Hazardous Waste Permit. NFA consensus at Sept 99 SSA meeting.
SWMU 31			59	Shop 07 (PWC Maintenance), WAA	Inside Bldg. 59		Yes	NFA Consensus April 1999
SWMU 32			236	Shop 02, Forklift Shop WAA	West end of Bldg. 236	Bldg. 236 /ER Site 17	No	Exact location in Bldg. 236 unknown, site visit ('87) stained floor, site visit (5/99) no evidence of concern, research/document floor drains, cross reference with storm drains, NFA consensus at Sept 99 SSA meeting.
SWMU 33			2611	Fuel Tanks Leak/Spill Area	SE of Bldg. 261	Slip 3 / Davis Ave. Area	No	Petroleum spill area, tanks removed, under UST program, SWMU removed as part of water front MILCON, Site visit 5/99 NFA consensus at August 99 SSA meeting.
SWMU 34			236	Shop 02, Expended Battery Collection Point	Outside west end of Bldg. 236	Bldg. 236 /ER Site 17	No	site visit (5/99) no evidence of concern, RFA recommended NFA, NFA consensus at April 99 SSA meeting.
SWMU 35				Sand Blast Residues	Various dock areas	NNSY	Yes	NNSY paved over most of facility, NFA consensus at August 99 SSA meeting. Obtain documentation of sandblast use and summary of system - shrink wrap activity all water is contained - dry dock maintenance procedures, DEQ MOU
SWMU 36			236	Shop 02, Mobile Crane Shop (Code 900) WAA	Inside west end of Bldg. 236	Bldg. 236 /ER Site 17	Yes	site visit (5/99) no evidence of concern. NFA consensus at April 99 SSA meeting.
SWMU 37			236	Equipment Steam Cleaning Pads	West of Bldg. 236	Bldg. 236 /ER Site 17	No	Discharge was into O/W separator and then to the sanitary sewer. The pads have been removed and the O/W separator could not be located. Site visit (5/99) no evidence of concern for soil exposure, NFA consensus at Sept 99 SSA meeting. Also included in 2001 SSP for Bldg. 236 are with NFA consensus
SWMU 38			212	Battery Shop	Bldg. 212	Bldg 212 & 1460, W of 1927 Ldf.	No	Bldg is being demolished, FONSI. NFA consensus at April 99 SSA meeting.
SWMU 39				Chemical Lab Drum Accumulation Area	West side of Bldg. 184	Bldg. 184 Area	No	5/99 site visit no signs of release, area concrete NFA consensus at April 99 SSA meeting.
SWMU 40				Main Railcar Area	Near Bldg. 369	Bldg 369 Area	Yes	Active unit, staging area only, no transfer of materials, NFA consensus
SWMU 41				Tanker trailers for Collecting/ Handling Industrial Wastes	Throughout NNSY	NSSY	Yes	NFA consensus at April 99 SSA meeting.
SWMU 42				Concrete Bunker Storage House	Bldg. 1541	1941 Ldf/ RDF Plant/SPSA	No	Previous temporary storage area. Review EBS report, use existing data, cross reference with 1941 Landfill, NFA consensus at Sept SSA meeting.
SWMU 43			195	Spill Drum Accumulation Area	Corner of Bldg. 195	Bldg. 236 /ER Site 17	No	This area was inside loading entrance shop 56, Pipe Shop, for accumulating drums. It was a temporary storage area Inactive WAA area bldg 195, vicinity of active RCRA site and ER Site 17, review existing ER 17 data, now concrete floor. NFA consensus at Sept 99 SSA meeting.

**Table 2-2. Sites Not Selected for Further Investigation Under CERCLA**

Norfolk Naval Shipyard  
Portsmouth, Virginia

Site ID	Other AOCs	OU #	Building #	Name / Description	Location	Study Area Location	Active Unit	Justification for CERCLA Exclusion/No Further Action
SWMU 44			195	Annex Chromic Acid Sump Area	Bldg. 195	Bldg. 236 /ER Site 17	Yes	Side room extension. Active unit bldg 195, vicinity of ER Site 17, review existing ER 17 data, cross reference with SWMU 2-21, NFA consensus at Sept 99 SSA meeting. SWMU 2-23 is handled under RCRA, surrounding soils are CERCLA
SWMU 45			195	Ventilation Scrubbers	Bldg. 195	Bldg. 236 /ER Site 17	Yes	Located outside. Active unit bldg 195, vicinity of ER Site 17. NFA consensus at Sept 99 SSA meeting
SWMU 46			195	Electroplating Containment Area	Bldg. 195	Bldg. 236 /ER Site 17	Yes	Main plating shop. Active unit bldg 195, within current RCRA or ER Site 17. NFA consensus at Sept 99 SSA meeting.
SWMU 47				Drum/Railcar/Truck Transfer Operations	NNSY	NNSY	Yes	Active operations, may be in RCRA, RFA addressed surface runoff control for rail cars. Activities addressed in NNSY Process Instructions for railcar transfers, NFA consensus at Sept 99 SSA meeting.
SWMU 48			260	Dumpster Area	West of Bldg. 260	Bldg 260	Yes	Active units, dumpsters solid waste, NFA consensus at April 99 SSA meeting.
SWMU 49			1499	Indoor Sandblasting Baghouses	Bldg. 1499	Bldg 1499	Yes	Active unit, NFA consensus at Sept 99 SSA meeting.
SWMU 50				Waste Oil Boxes	Throughout NNSY	NNSY	Yes	NFA consensus at April 99 SSA meeting.
SWMU 51			1499	Drum Accumulation Area for Sandblasting Dust	Bldg. 1499	Bldg 1499	No	Inactive under RCRA, no RCRA closure, NFA consensus at June 99 SSA meeting.
SWMU 52			1499	Outdoor Baghouses	Bldg. 1499	Bldg 1499	No	Inactive unit, NFA consensus at Sept 99 SSA meeting.
SWMU 53			1499	Drum Accumulation Area for Paint Waste	Outside of Bldg. 1499	Bldg 1499	No	Inactive unit, concrete pad, DEQ close-out, NFA consensus at July 1999 meeting.
SWMU 54			1499	Steel Dust Vacuum Unit	Bldg. 1499	Bldg 1499	Yes	Active unit, NFA consensus at August 1999 meeting. Document how disposal is regulated
SWMU 55			171	Inside Machine Shop (Shop 31)	Bldg. 171	Bldg 171/ Bldg 268/ Bldg 172	Yes	Active unit, NFA consensus at July meeting.
SWMU 56			171	Storage Accumulation Area for Bldg. 171, Inside Machine Shop	Bldg. 171	Bldg 171/ Bldg 268/ Bldg 172	Yes	Active unit RFA recommended. Secondary containment, under RCRA program, NFA consensus at Sept 99 SSA meeting., Site paved and drums in good condition, verify secondary containment
SWMU 57			268	Outside Machine Shop	West inside end of Bldg. 268	Bldg 171/ Bldg 268/ Bldg 172	No	Inactive area, concrete floor in bldg, 1998 site visit no evidence of release, NFA consensus at August 1999 meeting.
SWMU 58			268	Outside Machine Shop Accumulation Area (Shop 38)	SW corner of Bldg. 268	Bldg 171/ Bldg 268/ Bldg 172	No	Inactive under RCRA, no RCRA closure, previous SSA (Satellite Storage Area - <90 day accumulation area for oils and corrosives), 1998 site visit no evidence of release, NFA consensus at Sept 99 SSA meeting.
SWMU 59			369	Woodcraft & Fiberglass Shop, Suction Hopper & Drum Staging Area	Bldg. 369	Bldg 369 Area	No	Previous < 90 day accumulation point for drums. Inactive unit, NFA consensus at July 99 meeting.
SWMU 60				Shop 06, Temp. Drum Accumulation Point	East side of Bldg. 42	N of slip 1	No	NFA consensus at April 99 SSA meeting.
SWMU 61			369	Drum Accumulation Area (outside)	NW corner of Bldg. 369	Bldg 369 Area	No	Inactive unit, asphalt area, NFA consensus at July 99 meeting.
SWMU 62			300	Drum Storage Area (DSA) Outside of Bldg. 300 Cage	West end of Bldg. 300	Bldg 300	No	Inactive unit, RFA recommended NFA, now asphalt parking area, NFA consensus at July 99 meeting.
SWMU 63			300	Storage Annex	Bldg. 300	Bldg 300	No	Inactive unit, RFA recommended NFA, now asphalt area, NFA consensus at July 99 meeting.
SWMU 64			1485	Industrial Waste Water Treatment Plant Storage Area	Bldg. 1512	Bldg. 236 /ER Site 17	No	Inactive site under RCRA closure, in area of ER Site 17 where existing data will be reviewed, NFA consensus at July 99 meeting.
SWMU 65			172	Foundry Waste Accumulation Areas, Shop 06	West outside end of Bldg 172	Bldg 171/ Bldg 268 /Bldg 172	No	Used as a < 90 day accumulation point for cutting fluids and lubricants Bldg 172 housed former foundry, RFA recommended NFA, concrete floor, 1998 visit staining on concrete, NFA consensus at Sept 99 SSA meeting.
SWMU 66			172	Foundry Baghouse	Bldg. 172	Bldg 171/ Bldg 268/ Bldg 172	No	Foundry was torn down and bag house was removed. Inactive unit, floor is concrete, 1998 site visit no evidence of release, RFA recommended NFA, NFA consensus at July 99 meeting.

**Table 2-2. Sites Not Selected for Further Investigation Under CERCLA**

Norfolk Naval Shipyard  
Portsmouth, Virginia

Site ID	Other AOCs	OU #	Building #	Name / Description	Location	Study Area Location	Active Unit	Justification for CERCLA Exclusion/No Further Action
SWMU 67			517	Recovered Material DSA	West of Bldg. 517	Bldg. 236 /ER Site 17	No	No longer used for storage. Containment area is covered with a metal storage box. RFA recommended NFA, concrete containment area, site visit 5/99, NFA consensus at July 99 meeting.
SWMU 68			236	Supply Department DSA	West of Bldg. 236	Bldg. 236 /ER Site 17	No	Inactive unit, drums on pallets in 1987, NFA consensus at July 99 meeting.
SWMU 69			234	Shop 17, Sheet Metal Dip Tanks	Bldg. 234	Bldg 234	No/C	open-top tanks for acid cleaning solution, these tanks are no longer active, steel gridwork over concrete floor, inactive, tanks removed, sandblasted floor, RFA recommended NFA, RCRA closure, NFA consensus at August 99 SSA meeting.
SWMU 70				Trash Dumpsters	Throughout NNSY	NNSY	Yes	NFA consensus at April 99 SSA meeting.
SWMU 71			174	Shop 03, Cation Exchange Resin Sump	Bldg. 174	Bldg 174	No	Inactive, Bldg. 174 no longer exists, this sump was removed, existing data IT Report 1988 to be reviewed, RFA recommended NFA, NFA consensus at July 99 meeting.
SWMU 72			174	Shop 03 Accumulation Area	West of Bldg. 174	Bldg 174	No	Inactive, Bldg. 174 no longer exists, no signs of this area are present. existing data IT Corp. Environmental Investigations Report, Demolition of Old Power Plant, May 1988. to be reviewed, RFA recommended NFA, NFA consensus at July 99 meeting.
SWMU 73			174	Utility Shop Accumulation Point #2	West of Bldg. 174	Bldg 174	No	Inactive, existing data IT Report 1988 to be reviewed, RFA recommended NFA, NFA consensus at July 99 meeting.
SWMU 74			234	Shop 17, Waste Oil Accumulation Point	Between Bldgs. 234 & 163	Bldg 234	No	This was a one time temporary storage point. Inactive area, concrete pad with drums on pallets, exact site could not be located during 1998 site visit, no evidence of release in general area. NFA consensus at August 99 SSA meeting.
SWMU 75			298	Shop 71, Paint WAA	East of Bldg. 299	Bldg 299 E of 1927 Ldf	Yes	Active unit < 90 day Accumulation Area under RCRA, RFA recommended secondary containment, Bldg 298 aerosol can recovery and paint crusher, NFA consensus at August 99 SSA meeting.
SWMU 76			163	Shop 11, WAA	East of Bldg. 163	Slip 3 / Davis Ave. Area	No	Inactive under RCRA, no RCRA closure, previous storage area, RFA recommended NFA, 1998 Site Visit, reviewed EPIC and current photos, NFA consensus at August 99 SSA meeting.
SWMU 77			163	Shop 41, WAA	NW corner of Bldg. 163	Bldg 163/174	No	Previously a < 90 day accumulation point. Inactive unit drums on pallets on asphalt surface, RFA recommended NFA NFA consensus at August 99 SSA meeting.
SWMU 78			234	Shop 71, Paint Shop Spray Booth	Bldg. 234	Bldg 234	Yes	RFA recommended NFA, NFA consensus at August 99 SSA meeting.
SWMU 79			369	PCB Contaminated Material Collection Point	East of Bldg. 369	Bldg 369 Area	No	This collection area was near Unit 2-59 and was a one time event for the temporary storage of a transformer. Inactive drum storage on pallets on ground surface, now a fenced nuclear area, part of bldg 369 area with proposed soil sampling and well installation, cross reference with SWMU 2-59, NFA consensus at August 99 SSA meeting.
SWMU 80			202	Shop 56, WAA	NW side of Bldg. 202	Bldg 202	No	Previous < 90 drum storage area, a conex box is currently in this area. Inactive unit asphalt surface, drums on pallets, RFA recommended NFA, NFA consensus at August 99 SSA meeting.
SWMU 81			202	Shop 26, Wheelabrator Cleaning Unit	Bldg. 202	Bldg 202	Yes	Inactive under RCRA, no RCRA closure, RFA recommended air sampling, Inside Bldg 202, possible dust release, NNSY Industrial Hygiene Program, NFA consensus at Sept 99 SSA meeting.
SWMU 82			202	Shop 26, Wheelabrator Waste Drum Accumulation Point	Bldg. 202	Bldg 202	Yes	Inactive under RCRA, no RCRA closure, RFA recommended NFA, NFA consensus at August 99 SSA meeting.
SWMU 83				Shop 64/07, Asbestos Waste Collection Points	Various locations	NSSY	Yes	Active unit, RFA recommended NFA, controlled environmental operations NFA consensus at August 99 SSA meeting.
SWMU 84			510	Shops 51 & 67, WAA	North of Bldg. 510	1927 Landfill Area	No	Previous < 90 day accumulation point for drums.. Inactive drum storage on pallets on concrete surface, Concrete in good condition 1998 site visit, 3 storm grates in area, RFA recommended NFA, NFA consensus at August 99 SSA meeting.
SWMU 85			510	Shop 51, Below Ground Effluent Collection Tanks	East side of Bldg. 510	1927 Landfill Area	Yes	Cross reference with Site 10 (RFA-S SWMU# 2-17), RFA recommended NFA, NFA consensus at August 99 SSA meeting.
SWMU 86			510	Shop 67, Effluent Collection Tank	West side of Bldg. 510	1927 Landfill Area	Yes	Active unit cross reference with Site 10 RFA-S SWMU# 2-17, RFA recommended NFA, NFA consensus at August 99 SSA meeting.

**Table 2-2. Sites Not Selected for Further Investigation Under CERCLA**

Norfolk Naval Shipyard  
Portsmouth, Virginia

Site ID	Other AOCs	OU #	Building #	Name / Description	Location	Study Area Location	Active Unit	Justification for CERCLA Exclusion/No Further Action
SWMU 87			510	Shop 67, Drum Collection Area	Between Bldgs. 510 & 297	1927 Landfill Area	No	Inactive drum storage on pallets on asphalt surface, 5/99 site visit no evidence of release, two storm drains in area, one time storage area, within 1927 landfill area which includes bldg 510 and is being investigated as SWMU 2-17, NFA consensus at August 99 SSA meeting.
SWMU 88			163	Shop 41, Boiler Tubes Cleaning Tanks	Bldg. 163	Bldg 163	Yes	Included in Title V Permit, NFA consensus at Sept 99 SSA meeting.
SWMU 89			236	Shop 02, Parts Washer Units	Bldg. 236	Bldg. 236 /ER Site 17	No	Exact location in Bldg. 236 unknown, site visit (5/99) no evidence of concern. NFA consensus at April 99 SSA meeting.
SWMU 90			60	Shop 51, Sulfuric Acid Waste Collection Sump and Tank	Bldg. 60	Bldg 60	No	Former sump and collection tank for dilute sulfuric acid wastes, concrete area, diked and in good condition 1998 visit, RFA recommended NFA, NFA consensus at August 99 SSA meeting.
SWMU 91			163	Shop 56, Asbestos Removal Unit	North side of Bldg. 163	Bldg 163/174	No	Metal bldg next to Bldg 163 for removal of asbestos insulation, bldg now gone, RFA recommended NFA, NFA consensus at August 99 SSA meeting.
SWMU 92			236	Shop 02, Automotive Shop WAA	North side of Bldg. 236	Bldg. 236 /ER Site 17	No	Exact location in Bldg. 236 unknown, site visit (5/99) no evidence of concern. NFA consensus at April 99 SSA meeting.
SWMU 93			261	Drum Accumulation Area	South of Bldg. 261	Slip 3 / Davis Ave. Area	No/C	Concrete slab for drum storage, RCRA closure, 32 samples collected, no samples from RCRA closure exceed TCLP, NFA consensus at August 99 SSA meeting.
SWMU 94				Floating Oil Holding Donuts	Various pier areas	Piers	Yes	Used only on contingency basis, if in use it is regulated under VDPES, RFA recommended NFA, Donuts removed, NFA consensus at August 99 SSA meeting.
SWMU 95			275	Shop 64, WAA	NW of Bldg. 275	Bldg 275	Yes	Active unit under RCRA, RFA recommended secondary containment, NFA consensus at Sept 99 SSA meeting.
SWMU 96				Discarded Drums (near Berth 43)	Near Berth 43	Bldg 369 Area	No	Drums on pallets on asphalt, This area is no longer used as a drum storage area, exact location could not be verified, RFA recommended NFA, cross reference with Bldg 369, Site visit 5/99 NFA consensus at August 99 SSA meeting.
SWMU 97			236	Shop 02 Construction Equipment Shop WAA	Bldg. 236	Bldg. 236 /ER Site 17	No	Exact location in Bldg. 236 unknown, site visit (5/99) no evidence of concern, research/document floor drains, Used for equipment maintenance on pay-loaders and fork lifts, drums of used oil, anti-freeze, and fuels were collected inside the building. NFA consensus at Sept 99 SSA meeting.
SWMU 98				Sand Blast Residues Drum Collection Area	North of Wet Slip #2	Slip 2	No	Sand storage bins have been removed. Temporary one time storage area for blast grit, 5/99 site visit, NFA consensus at April 99 SSA meeting.
SWMU 99				Shipyard Sanitary Sewer System	Various locations	NNSY	Yes	Active sanitary sewer system, system clean out in progress, cross referenced with AOC 7- facility storm sewer, NFA consensus at Sept 99 SSA meeting.
SWMU 100				Oil Spill Area	North side of Pier 3	Slip 3 / Davis Ave. Area	No	Stained soil in 1987, area now paved, Site visit 5/99 NFA consensus at August 99 SSA meeting.
SWMU 101				Temporary Overflow Storage Area	Southgate Annex	Southgate Annex	No	Cross reference with AOC 2 under RCRA closure, Site visit 5/99, document closure information
SWMU 102	AOC 01			Shop 06 Insecticide Mixing	Bldg 17A, between Bldgs 17 & 39	N of slip 1	No	Insecticide mixed for NNSY application - containers triple rinsed, punctured and disposed. Bldg demolished, area asphalt, storm drain in area, Site visit 5/99, NFA consensus at Aug 99 SSA meeting.
SWMU 103	AOC 02			Bldg 383 Tanks	Southgate Bldg 383	Southgate Annex	No	4 ASTs at loading dock have been removed under RCRA closure, Site visit 5/99, area now storage of booms, pallets, cylinders, NFA consensus at Aug 99 SSA meeting.
SWMU 104	AOC 03			Previous Abrasive Blast Recycling Facility	S of Bldg 172	Bldg 1499; SSP 1927 Landfill area	No	MILCON soil samples indicated hydrocarbons in soils and groundwater. Area now asphalt parking. Included in 2001 SSP Investigation of 1927 Landfill area. NFA consensus July 2003 based on risk screening and absence of CERCLA release, groundwater will be addressed as part of Site 10
SWMU 105	AOC 05			Mil Con P-331 Crane Rail	E of Bldgs 163 & 202	Slip 3 / Davis Ave. Area	No	Environmental sampling FY90 MCON Report of Findings, 11/18/88 associated with construction at ER Site 18, Samples show metals TCLP below levels of concern, Construction project to go forward, NFA consensus at Aug 99 SSA meeting.
SWMU 106	AOC 06			Former Gyro Facility	Next to Chaplain Office Bldg 67	Chapel E of Slip 2 and Bldg 73	No	Mercury from electronics shop, facility has been removed. Exact location uncertain, some grass areas near Chapel, Site visit 5/99, review EPIC photos, no area of concern, NFA consensus at Aug 99 SSA meeting.

Table 2-2. Sites Not Selected for Further Investigation Under CERCLA

Norfolk Naval Shipyard  
Portsmouth, Virginia

Site ID	Other AOCs	OU #	Building #	Name / Description	Location	Study Area Location	Active Unit	Justification for CERCLA Exclusion/No Further Action
SWMU 107			464	Operated 1963-1980	NE corner of Bldg 464	Bldg 464-424 Area	No	Identified in EPIC study, review photos, no areas of concern noted , NFA consensus at Aug 99 SSA meeting.
SWMU 108				Operated 1976-1980	Area of Bldg 1515 of SPSA	1941 Ldf/ RDF Plant/SPSA	No	Currently concrete sidewalks and asphalt roads, area is former salvage yard, Review EBS report, use existing data, NFA SSA, cross reference with ER Site 8, NFA Consensus at Sept SSA meeting.
SWMU 109				Operated 1971	Area of Bldg 1521/1545 & 1517/1518 & 1519	1941 Ldf/ RDF Plant/SPSA	No	Currently concrete sidewalks and asphalt roads, area is former salvage yard, Review EBS report, use existing data, NFA SSA, cross reference with ER Site 8, NFA Consensus at Sept SSA meeting.
SWMU 110				Operated 1976	Area of Bldg 1517/1519 & along RR track near Bldg 1522/1520	1941 Ldf/ RDF Plant/SPSA	No	Currently concrete sidewalks and asphalt roads, area is former salvage yard, Review EBS report, use existing data, NFA SSA, cross reference with ER Site 8, NFA Consensus at Sept SSA meeting.
SWMU 111				Operated 1971	East side Bldg 1452	Bldg 1452	No	Temporary one time storage event, NFA consensus at Aug 99 SSA meeting.
SWMU 112				Operated 1971	SW corner Bldg 172 E-SE Stevens St	Bldg 171/ Bldg 268/ Bldg 172	No	Bldg 172 housed former foundry, RFA recommended NFA, Currently asphalt road surface, drums stored for limited- one- time only 1998 visit staining on concrete, cross ref with SWMU 2-44 NFA consensus at Aug 99 SSA meeting.
SWMU 113				Operated 1985-1986	W-SW corner Bldg 1499	Bldg 1499	No	Inactive under RCRA, no RCRA closure, identified in EPIC Study, Concrete surface in fair condition, NFA consensus at Aug 99 SSA meeting.
SWMU 114				Operated 1971-1985	W Bldg 152 E of Bldg 1499	Bldg 171/ Bldg 268/ Bldg 172	No	Bldg 172 housed former foundry, RFA recommended NFA, Now concrete parking area, concrete in fair condition 1998 visit staining on concrete cross reference with SWMU 2-45, NFA consensus at Sept SSA meeting.
SWMU 115				Operated 1971-1985	S end Bldg 510	1927 Landfill Area	No	< 90 day storage for shops 51 a & 67, drum storage on S side of bldg 510, area in vicinity of 1927 landfill, cross reference with SWMU 2-66 NFA consensus at Aug 99 SSA meeting.
SWMU 116				Operated 1985	SW corner Bldg 268	Bldg 171/ Bldg 268/ Bldg 172	No	< 90 day drum storage for oils and corrosive, drum storage on S side of bldg 268, Inactive area, concrete floor in bldg, 1998 site visit no evidence of release, cross reference with SWMU 2- 38 RFA recommended NFA, NFA consensus at Aug 99 SSA meeting.
SWMU 117				Operated 1980-1982	IWTP	Bldg. 236 /ER Site 17	No	Active IWWTP storage, in area of ER Site 17 reviewed existing data and site photos, NFA consensus at Aug 99 SSA meeting. DSA-L is handled under RCRA, surrounding area is CERCLA
SWMU 118				Operated 1980	S of fuel storage tanks 1250 to 1255	Bldg. 236 /ER Site 17	No	Drum storage south of fuel tanks 1250 to 1255, concrete surface in fair condition, surface staining noted, In area of ER Site 17, reviewed existing data and site photos, NFA consensus at Aug 99 SSA meeting.
SWMU 119				Operated 1982	SW Bldg 174	Bldg 163/174	No	Surface concrete in fair condition, few drums temporarily stored outside Bldg 174, no evidence of release, reviewed site photos, NFA consensus at Aug 99 SSA meeting.
SWMU 120				Operated 1982	Adjacent to Bldg 1512 XFER Facility	Bldg. 236 /ER Site 17	No	RCRA closure, site inactive, no evidence of release 1998 site visit, RFA recommended NFA, reviewed site photos, NFA consensus at Aug 99 SSA meeting.
SWMU 121				Operated 1980	W of Bldg 236	Bldg. 236 /ER Site 17	No	Inactive unit < 90 day accumulation point for drums. Adjacent to SWMU 2-46 area is sandy soil/gravel, site will be addressed with SWMU 2-46, reviewed site photos, NFA consensus at Aug 99 SSA meeting.
SWMU 122				Operated 1944-1970	S and W of Bldg 212	Bldg 212 & 1460, W of 1927 Ldf.	No	Various open storage areas noted in EPIC study, No visible environmental concerns noted in 1998 site visit, currently asphalt and concrete misc. storm drains, Cross-reference with SWMU 2-27, Reviewed recent site photos, NFA consensus at Aug 99 SSA meeting.
SWMU 123				Operated 1944-1990	E of Harrington Ave, N Bldg 260, SW of Bldgs 297/510, Farquhar Ave as E boundary, current Bldg 1341	1927 Landfill Area	No	Various open storage areas noted in EPIC study, Cross-reference with RCRA closure at SWMU 2-91, currently asphalt and concrete and acid storage tanks 1341, Reviewed recent site photos, NFA consensus at Aug 99 SSA meeting.

Table 2-2. Sites Not Selected for Further Investigation Under CERCLA

Norfolk Naval Shipyard  
Portsmouth, Virginia

Site ID	Other AOCs	OU #	Building #	Name / Description	Location	Study Area Location	Active Unit	Justification for CERCLA Exclusion/No Further Action
SWMU 124				Operated 1944-1990	E of Bldg 510 & W of Hitchcock St	1927 Landfill Area	No	Various open storage areas noted in EPIC study, currently asphalt soil and concrete in area of 1927 landfill, Reviewed recent site photos, cross reference with 1927 landfill, NFA consensus at Sept SSA meeting.
SWMU 125				Operated 1944-1970	E of Bldg 298 & W of Dry Dock 8	Area East of Bldg 298	No	Various open storage areas noted in EPIC study, currently asphalt Reviewed recent site photos, NFA consensus at Aug 99 SSA meeting.
SWMU 126				Operated 1944-1990	N-NW of Dry Dock 8	Area East of Bldg 298	No	Various open storage areas noted in EPIC study, Currently asphalt, Near Dry Dock 8, no environmental concern noted in 1998 site visit, Reviewed recent site photos, NFA consensus at Aug 99 SSA meeting.
SWMU 127				Operated 1944-1980	SE NNSY N of Atlantic Wood Now parking and Bldgs 1513/1523/1554	North of Atlantic Wood	No	Various open storage areas noted in EPIC study, Currently asphalt parking, No environmental concern noted in 1998 site visit, Reviewed recent site photos, NFA consensus at Aug 99 SSA meeting.
SWMU 128				Operated 1944-1990	N of Bldg 435	Slip 3 / Davis Ave. Area	No	Various open storage areas noted in EPIC study, Currently asphalt parking and roadway and fenced area for tool box storage, Same area of SWMU 2-57 where RFA recommended NFA, Reviewed recent site photos, NFA consensus at Aug 99 SSA meeting.
SWMU 129				Operated 1944-1985	SW of Dry Dock 4, NE of Bldg 261, current Bldg 1539	Slip 3 / Davis Ave. Area	No	Various open storage areas noted in EPIC study, Currently asphalt roadway and staging area, Utility vaults and storm drains in area, no environmental concerns noted in 1998 site visit, MILCON Dry dock improvements with soil samples collected, Reviewed recent site photos, NFA consensus at Aug 99 SSA meeting.
SWMU 130				Operated 1944-1990	Adjacent to Bldg 300	Bldg 300	No	Various open storage areas noted in EPIC study, Currently asphalt roadway, Storm drains in area, no environmental concerns noted in 1998 site visit, Cross-reference with SWMU 2-41, Reviewed recent site photos, NFA consensus at Aug 99 SSA meeting.
SWMU 131				Operated 1944-1990	E of Bldg 1575	S of Slip 1 and Berth 6	No	Various open storage areas noted in EPIC study, Currently asphalt parking, No environmental concerns noted in 1998 site visit, Reviewed recent site photos, NFA consensus at Aug 99 SSA meeting.
SWMU 132				Operated 1952-1982	SW of Pier 5 (Berths 38/39), current Bldgs 271/1301/1527/544/502	Area East of Bldg 298	No	Various open storage areas noted in EPIC study, Currently asphalt parking and roadway, No environmental concerns noted in 1998 site visit, Reviewed recent site photos, NFA consensus at Aug 99 SSA meeting.
SWMU 133				Operated 1982-1990	Between Dry Dock 4 and Pier 3, S-SE of Bldg 261, current Bldgs 247/1263/193/45	Slip 3 / Davis Ave. Area	No	Various open storage areas noted in EPIC study, Currently asphalt and soil, now storage of trailers, concrete debris, and satellite accumulation area, No environmental concerns noted in 1998 site visit, Cross-reference with SWMU 2-87 & 10A RCRA Closure. Reviewed recent site photos, NFA consensus at Aug 99 SSA meeting.
SWMU 134				Operated 1982-1990	S of Bldg 260	Bldg 212 & 1460, W of 1927 Ldf.	No	Open storage noted in EPIC study, Currently worn and cracked concrete, 1998 visit noted rail cars containing bilge water and sodium nitrate. Reviewed recent site photos, NFA consensus at Aug 99 SSA meeting.
SWMU 135				Operated 1990	NE of Dry Dock 1, S-SW of Bldg 62	N of Dry Dock 1	No	Open storage noted in EPIC study, Currently asphalt, 1998 visit noted concrete and brick debris, No environmental concerns identified in 1998 site visit, Reviewed recent site photos, NFA consensus at Aug 99 SSA meeting.
SWMU 136				Operated 1990	Between Dry Dock 4 and Dry Dock 3	N of Dry Dock 4	No	Open storage noted in EPIC study, Currently concrete, asphalt, and cinders. 1998 visit noted cylinders, tankers of sodium nitrate and misc. storage, No environmental concerns identified in 1998 site visit, Reviewed recent site photos, NFA consensus at Aug 99 SSA meeting.
SWMU 137				Operated 1937-1961	Bldg 369	Bldg 369 Area	No	Various storage areas around bldg 369 identified in EPIC Study, Cross reference with SWMUs 2-2A, 2-39, 2-40, 2-59, 2-60, In area of Bldg 369, NFA consensus at Aug 99 SSA meeting.
SWMU 138				Operated 1963-1990	SW dry dock 8 and W Bldg 369	Bldg 369 Area	No	Various storage areas around bldg 369, Currently asphalt parking, cross-reference with SWMU 2-40, NFA consensus at Aug 99 SSA meeting.
SWMU 139				Operated 1963-1970	S of Bldg 369	Bldg 369 Area	No	storage area around bldg 369, Currently asphalt parking, items stored as noted in EPIC study should not have impacted the site, NFA consensus at Aug 99 SSA meeting.
SWMU 14			1485	IWTP Tanker Dumping Station	Fac. 1485	IWTP Fac. 1485	Yes	Active IWTP, operated under Clean Water Act, IWTP in area of Bldg 236 and ER Site 17, RFA recommended NFA, NFA consensus at August 99 SSA meeting.

**Table 2-2. Sites Not Selected for Further Investigation Under CERCLA**

Norfolk Naval Shipyard  
Portsmouth, Virginia

Site ID	Other AOCs	OU #	Building #	Name / Description	Location	Study Area Location	Active Unit	Justification for CERCLA Exclusion/No Further Action
SWMU 140				Operated 1937-1961	E of Bldg 369 to end of berth 43	Bldg 369 Area	No	Various storage areas near Berth 43 in vicinity of bldg 369. In MILCON area near bldg 369, Currently asphalt surface, RR tracks traverse the area, Cross-reference with SWMUs 2-59, 2-60, & 2-86, NFA consensus at Aug 99 SSA meeting.
SWMU 141				Operated 1944-1990	W of Bldg 280 where Bldg 1567 is now	Bldg 1567	No	Various open storage areas noted in EPIC study, Currently active storage area of items that do not represent environmental concern, Reviewed recent site photos NFA consensus at Aug 99 SSA meeting.
SWMU 142				Operated 1949-1990	N of Bldg 463/464/424, S of Beaty St W to Black Lane	Bldg 464-424 Area	No	Various open storage areas noted in EPIC study, currently asphalt for parking, Cross-reference with DSA-A, Reviewed recent site photos, NFA consensus at Aug 99 SSA meeting.
SWMU 143				Operated 1949-1976	NE of Bldg 1499 bordered by Green St/Old Williams Ave on W, Pennock St N-NW, Stevens St on SE	Bldg 1499	No	Various open storage areas noted in EPIC, No visible environmental concerns noted in 1998 site visit, currently asphalt for parking, existing railroad tracks paved over, misc. storm drains, Reviewed recent site photos, NFA consensus at Aug 99 SSA meeting.
SWMU 144				1937 Impoundment	SW of Bldg 510 open area N of Hitchcock St		No	Identified in EPIC Study, Area filled in, NFA consensus at Aug 99 SSA meeting.
SWMU 145				Impoundment	Berths 42/43		No	Site no longer exists, Berths 42/43 possibly Eliz River from dredging for dry dock8 & Bldg 369, NFA consensus at Aug 99 SSA meeting.

ABM - Abrasive Blast Material

AOC - Area of Concern

CERCLA - Comprehensive Environmental Response Compensation and Liability Act

DSA - Drum Storage Area

EPIC - Environmental Photographic Interpretation Center

ER - Environmental Restoration

FFA - Federal Facility Agreement

IAS - Initial Assessment Study

IWTP - Industrial Waste Water Treatment Plant

MILCON - Military Construction Project

NFA - No further action

OSA - Outside Storage Area

RFA - RCRA Facility Assessment and RFA-S Supplemental RCRA Facility Assessment

SSA - Site Screening Assessment

SWMU - Solid Waste Management Unit

UST - Underground Storage Tank

WAA - Waste Accumulation Area

Appendix A Site Screening Areas Under Site Screening Process

Appendix B Preliminary Screening Areas

Appendix C No Further Action Sites



**Table 2-3 Current Status of Active ERP Sites**

Norfolk Naval Shipyard  
Portsmouth, Virginia

Site Number	ERP Site Name	Former Site/SWMU ID	IAS	Interim RFA	Interim RI	SSI/AD	RI/FS	ERA	HHRA	Phase II RI	WMP	FFS	PP	DD	Path Forward
3	Sanitary Landfill	SWMUs 3, 22, and 30	1983	1986	1989		1995	2001	2002	2002	2005	2009	2009	2010 (Soil)	Complete RI/FS for groundwater associated with OU7 - Paradise Creek Landfill
4	Chemical Holding Pits	SMWU 4	1983	1986	1989		1995	2001	2002	2002	2005	2009	2009	2010 (Soil)	Complete RI/FS for groundwater associated with OU7 - Paradise Creek Landfill
5	Oil Reclamation Area	SWMUs 5 and 32	1983	1986	1989		1995	2001	2002	2002	2005	2009	2009	2010 (Soil)	Complete RI/FS for groundwater associated with OU7 - Paradise Creek Landfill
6	East Dump	SWMU 6	1983	1986	1989		1995	2001	2002	2002	2005	2009	2009	2010 (Soil)	Complete RI/FS for groundwater associated with OU7 - Paradise Creek Landfill
7	Bermed Chemical Pits	SMWU 7	1983	1986	1989		1995	2001	2002	2002	2005	2009	2009	2010	Complete emerging contaminants investigation with OU7 groundwater
10	1927 Disposal Area	SWMU 10				2001	2006		2006			2006	2007	2008	Remedy in place (LUCs)
17	Building 195 Metal Plating Shop	SWMU 17	1983	1986	1989		1995		1999	1999		2006	2006	2006	Complete PFAS RI
-	Operable Unit 8 - NNSY Basewide	-													A PA and SI specific to known or suspected releases of PFAS to the environment will be conducted for NNSY

Legend

1998 - Year Activity Completed  
 DD - Decision Document  
 ERP - Environmental Restoration Program  
 FS - Feasibility Study  
 FFS - Focused Feasibility Study  
 IAS - Initial Assessment Study  
 LTM - Long Term Monitoring  
 LUC - Land Use Controls

PP - Proposed Plan  
 RFA - RCRA Facility Assessment  
 RI - Remedial Investigation  
 SSI/AD - Site Screening Investigation and Action Determination  
 WMP - Wetlands Mitigation Plan  
 Active Sites  
 Reopened for PFAS investigation

**Table 2-4. OU7 (Sites 3, 4, 5, and 6) Chronology**

*Norfolk Naval Shipyard*

*Portsmouth, Virginia*

<b>Date</b>	<b>Investigation</b>	<b>Document Administrative Record Number</b>
2001	Dense Non-aqueous Phase Liquid Delineation Report (Baker, 2001)	000673, 000674
2001	Ecological Risk Assessment, Paradise Creek (CH2M, 2001)	000703
2002	Phase II Remedial Investigation Report Operable Unit 2 (CH2M, 2002)	000729, 000730, 000731
2010	Additional Groundwater Investigation (CH2M, 2010)	-
2011	Ecological Screen of Groundwater (CH2M, 2011b)	-
2012	Ecological Evaluation of Groundwater to Surface Water Pathway (CH2M, 2012)	-
2013	Work Plan for Pore Water Sampling (CH2M, 2013)	-
2017	Sampling and Analysis Plan Supplemental Remedial Investigation (CH2M, 2017a)	001520
2019	Phase I Supplemental Remedial Investigation (CH2M, 2020)	PENDING
2021	Draft Sampling and Analysis Plan Phase II Supplemental Remedial Investigation (CH2M, 2021)	PENDING

**Table 2-5. OU2 (Sites 3, 4, 5, 6, and 7 Soil) Chronology**

*Norfolk Naval Shipyard*

*Portsmouth, Virginia*

<b>Date</b>	<b>Investigation</b>	<b>Document Administrative Record Number</b>
1983	Initial Assessment Study (Water and Air Research, 1983)	00482
1983	NNSY Landfill Management Plan (Talbot and Associates, 1983)	-
1986	Phase I Final Interim RCRA Facility Assessment Report (NUS Corporation, 1986)	-
1989	Interim Remedial Investigation (IT Corp., 1989)	000027
1994	Aerial Photograph Site Analysis (EPIC Study)	-
1995	Remedial Investigation / Feasibility Study (Foster Wheeler Environmental Inc., 1995)	-
1996	Site Characterization and Conceptual Design (OHM, 1997)	-
2001	Ecological Risk Assessment (CH2M, 2001)	000703
2002	Phase II RI (CH2M, 2002b)	000729, 000730, 000731
2003	Waste Delineation Investigation (CH2M, 2003e)	001039
2003	Development of Site-Specific Remediation Goals for Marsh Sediments (CH2M, 2003d)	001002
2004	Findings of Phase I Paradise Creek Marsh Sediment Sampling Adjacent to Scott Center Landfall and Paradise Creek Disposal Area and Remedial Action Considerations (CH2M, 2004a)	001113
2004	Environmental Baseline Survey for Three Parcels Adjacent to Paradise Creek Landfill (CH2M, 2004b)	001041
2004	OU2 Engineering Evaluation/Cost Analysis (EE/CA) (CH2M, 2004)	001093
2004	Project Design Submittals Phase I, II, and III Construction (AGVIQ-CH2M Joint Venture I, 2004a and 2004b)	-
2005	Wetlands Mitigation Plan (CH2M, 2005b)	001203, 001270
2005	Site 7 (Phase 1) Non-Time Critical Removal Action	001438, 001439
2007	Construction Completion (FSSI, 2007)	001440, 001392
2009	Focused Feasibility Study (CH2M, 2009)	001396
2009	Proposed Plan (Navy, 2009)	001400
2010	Record of Decision (Navy, 2010a)	000058
2010	Post-Closure Monitoring Plan (Navy, 2010b)	-
2011	Construction Completion Report (Soil Cover) (Shaw, 2011)	-
2011	Remedial Design Land Use Controls (Navy, 2011a)	001431
2011	Remedial Action Completion Report (Navy, 2011b)	-

Table 2-6. Environmental Restoration Program Land Use Controls  
 Norfolk Naval Shipyard  
 Portsmouth, Virginia

Environmental Restoration Program Site	Site Name	Date of Final ROD	Location on NNSY	Estimated Area	LUC Objectives	LUC Implementation and Maintenance Actions
OU2 (Sites 3, 4, 5, and 6)	Paradise Creek Disposal Area	May-10	South of the main shipyard, east of Victory Boulevard	70 acres	1) Prevent exposure to contaminated soils and waste remaining in place 2) Prohibit residential development or any other land use inconsistent with the RAO and selected soil remedy 3) Prevent unauthorized access to the site with fencing, secured and locked gates, No-Trespassing signs, and limited site access 4) Prevent activities that negatively affect the integrity of the soil cover and side slopes 5) Comply with the Post-Closure Monitoring Plan, which includes gas monitoring, visual inspections, and maintenance activities.	<ul style="list-style-type: none"> <li>●5-year site remedy reviews</li> <li>●Annual inspections of LUCs</li> <li>●Indicate where LUCs have been imposed and annotate LUC objectives in the Navy GIS database and real estate summary map(s) for the installation, and follow LUC-related procedures pertaining to the ground-disturbing activity and changes in land use</li> <li>●Post and maintain No-Trespassing signs</li> <li>●Notify USEPA and VDEQ at least 45 days in advance of: proposals for changes in land use that would be inconsistent with use restrictions and exposure assumptions described in the ROD; any anticipated action that may disrupt LUC effectiveness; or any action that may alter or negate the need for LUCs</li> <li>●Notify USEPA and VDEQ 6 months in advance of any anticipated transfer, out of Navy custody and control, of real property subject to LUCs</li> <li>●Notify USEPA and VDEQ as soon as practicable of the discovery of activity at OU2 inconsistent with LUC objectives, and then promptly investigate and take appropriate corrective action</li> <li>●Obtain USEPA and VDEQ concurrence prior to modifying or terminating LUC objectives or required LUC implementation actions</li> <li>●Maintain a comprehensive list of LUCs with associated boundaries and expected durations</li> <li>●Notify and invite comment from USEPA and VDEQ at least 14 days prior to making changes to internal LUC-related policies or procedures if such changes are reasonably likely to negatively impact the effectiveness of LUCs</li> </ul>
OU4 (Site 17)	Building 195 and Vicinity	Aug-06	Central portion of the main shipyard within the Controlled Industrial Area.	< 1 acre	1) Prevent residential or childcare use until site conditions allow for unlimited use and unrestricted exposure to surface and subsurface soil 2) Prohibit unrestricted exposure to contaminated soil	<ul style="list-style-type: none"> <li>●5-year site remedy reviews</li> <li>●Annual inspections of LUCs</li> <li>●Indicate where LUCs have been imposed and annotate LUC objectives in the Navy GIS database and real estate summary map(s) for the installation, and follow LUC-related procedures pertaining to the ground-disturbing activity and changes in land use</li> <li>●Notify USEPA and VDEQ at least 45 days in advance of: proposals for changes in land use that would be inconsistent with use restrictions and exposure assumptions described in the ROD; any anticipated action that may disrupt LUC effectiveness; or any action that may alter or negate the need for LUCs</li> <li>●Notify USEPA and VDEQ 6 months in advance of any anticipated transfer, out of Navy custody and control, of real property subject to LUCs</li> <li>●Notify USEPA and VDEQ as soon as practicable of the discovery of activity at Site 10 inconsistent with LUC objectives, and then promptly investigate and take appropriate corrective action</li> <li>●Obtain USEPA and VDEQ concurrence prior to modifying or terminating LUC objectives or required LUC implementation actions</li> <li>●Maintain a comprehensive list of LUCs with associated boundaries and expected durations</li> <li>●Notify and invite comment from USEPA and VDEQ at least 14 days prior to making changes to internal LUC-related policies or procedures if such changes are reasonably likely to negatively impact the effectiveness of LUCs</li> </ul>

Table 2-6. Environmental Restoration Program Land Use Controls  
 Norfolk Naval Shipyard  
 Portsmouth, Virginia

Environmental Restoration Program Site	Site Name	Date of Final ROD	Location on NNSY	Estimated Area	LUC Objectives	LUC Implementation and Maintenance Actions
OU6 (Site 10)	1927 Disposal Area	Sep-08	Southern portion of main shipyard east of Williams avenue and west of Dry Dock 8 and Slip 5.	36 acres	1) Prevent residential or childcare use until site conditions allow for unlimited use and unrestricted exposure to surface and subsurface soil	<ul style="list-style-type: none"> <li>●5-year site remedy reviews</li> <li>●Annual inspections of LUCs</li> <li>●Indicate where LUCs have been imposed and annotate LUC objectives in the Navy GIS database and real estate summary map(s) for the installation, and follow LUC-related procedures pertaining to the ground-disturbing activity and changes in land use</li> <li>●Notify USEPA and VDEQ at least 45 days in advance of: proposals for changes in land use that would be inconsistent with use restrictions and exposure assumptions described in the ROD; any anticipated action that may disrupt LUC effectiveness; or any action that may alter or negate the need for LUCs</li> <li>●Notify USEPA and VDEQ 6 months in advance of any anticipated transfer, out of Navy custody and control, of real property subject to LUCs</li> <li>●Notify USEPA and VDEQ as soon as practicable of the discovery of activity at Site 10 inconsistent with LUC objectives, and then promptly investigate and take appropriate corrective action</li> <li>●Obtain USEPA and VDEQ concurrence prior to modifying or terminating LUC objectives or required LUC implementation actions</li> <li>●Maintain a comprehensive list of LUCs with associated boundaries and expected durations</li> <li>●Notify and invite comment from USEPA and VDEQ at least 14 days prior to making changes to internal LUC-related policies or procedures if such changes are reasonably likely to negatively impact the effectiveness of LUCs</li> </ul>

Notes:  
 GIS - geographic information system  
 LUC - land use control  
 NNSY - Norfolk Naval Shipyard  
 ROD - Record of Decision  
 USEPA - United States Environmental Protection Agency  
 VDEQ- Virginia Department of Environmental Quality

**Table 2-7. OU4 (Site 17) Chronology**

*Norfolk Naval Shipyard*

*Portsmouth, Virginia*

<b>Date</b>	<b>Investigation</b>	<b>Document Administrative Record Number</b>
1999	Phase II Remedial Investigation Report (Baker, 1999)	001338
2003	Focused Feasibility Study (CH2M, 2003a)	000970
2004	Project Plans – Additional Site Investigation (Baker, 2004)	001023
2006	Revised Final Focused Feasibility Study (Baker, 2006)	001269
2006	Proposed Plan (CH2M, 2006a)	001259
2006	Record of Decision (Navy, 2006)	001322
2010	Remedial Design Land Use Controls (Navy, 2010b)	001430
2019	Sampling and Analysis Plan Site 10 (OU6) and Site 17 (OU4) Five-Year Review Recommendations (CH2M, 2019b)	005165 (Post Decision)
2021	Draft Site 10 (OU6) and Site 17 (OU4) Five-Year Review Recommendations Technical Memorandum (CH2M, 2021)	PENDING

**Table 2-8. OU6 (Site 10) Chronology**

*Norfolk Naval Shipyard*



*Portsmouth, Virginia*

<b>Date</b>	<b>Investigation</b>	<b>Document Administrative Record Number</b>
2003	Site Screening Investigation and Action Determination Report (CH2M, 2003c)	000983
2004	Work Plan Supplemental Site Investigation (CH2M, 2004c)	001042
2005	Technical Memorandum Considerations for Risk Management of Arsenic in Groundwater at Norfolk Naval Shipyard (CH2M, 2005a)	001217
2006	Remedial Investigation/Human Health Risk Assessment/Focused Feasibility Study (CH2M, 2006b)	001321
2007	Proposed Plan (CH2M, 2007)	001368
2008	Record of Decision (Navy, 2008)	
2010	Remedial Design Land Use Controls (Navy, 2010b)	001430
2019	Sampling and Analysis Plan Site 10 (OU6) and Site 17 (OU4) Five-Year Review Recommendations (CH2M, 2019b)	005165 (Post Decision)
2021	Draft Site 10 (OU6) and Site 17 (OU4) Five-Year Review Recommendations Technical Memorandum (CH2M, 2021)	PENDING





**Legend**

-  Land Use Control Boundary
-  Installation Boundary



0 750 1,500  
Feet

Imagery Source: Esri 2017

Figure 2-1  
Regional Site Map  
Site Management Plan  
Norfolk Naval Shipyard  
Portsmouth, Virginia







- Legend**
- Remedy in Place
  - No Further Action (NFA)
  - Installation Boundary

Notes:  
 1. Groundwater at Sites 3, 4, 5, and 6 is currently under investigation as Operable Unit 7.  
 2. Sites 3, 4, 5 and 6 have a remedy in place for soil only. Remaining media is currently under investigation.

Imagery: Esri, 2016

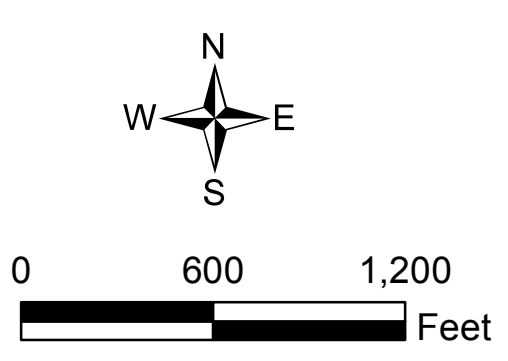
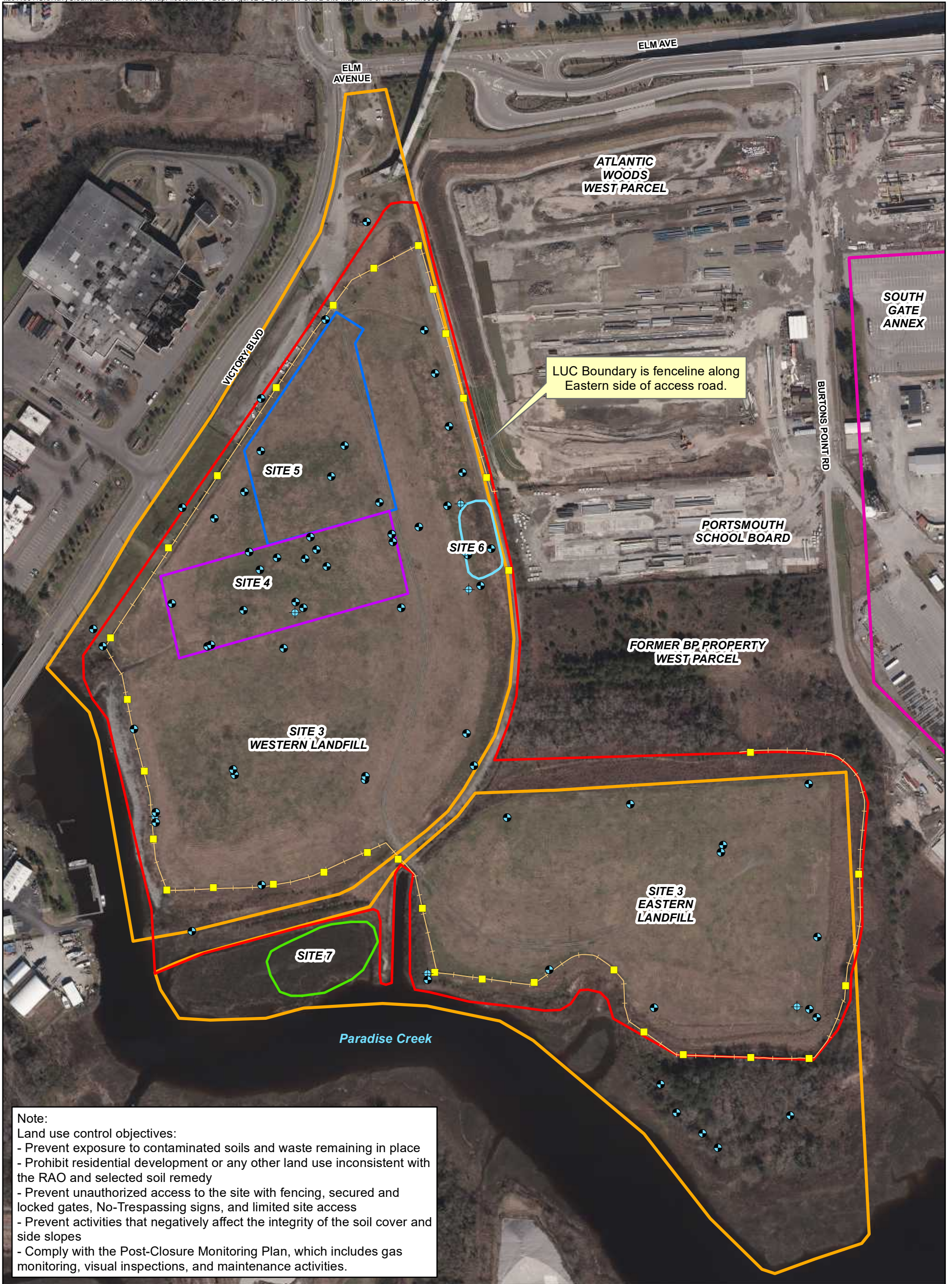
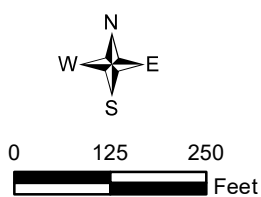


Figure 2-2  
 Environmental Restoration Program Sites  
 Site Management Plan  
 Norfolk Naval Shipyard  
 Portsmouth, Virginia





- Legend**
- Columbia Aquifer Monitoring Well
  - ⊕ Yorktown Aquifer Monitoring Well
  - Sign Location
  - Fence Line
  - OU2 Soils LUC Boundary
  - Site 4 Boundary
  - Site 5 Boundary
  - Site 6 Boundary
  - Site 7 Boundary (No Further Action)
  - Navy Annexes
  - OU2 Boundary





**Figure 2-3**  
**OU2 and OU7 (Sites 3, 4, 5, 6, and 7) - Paradise Creek Disposal Area**  
 Site Management Plan  
 Norfolk Naval Shipyard  
 Portsmouth, Virginia





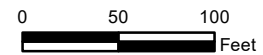
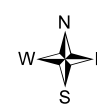
**Legend**

-  Columbia Aquifer Monitoring Well Location
-  OU4 (Site 17) Land Use Control Boundary

**Note:**

Land Use Control objectives:

- Prohibit unrestricted access to the site.
- Prohibit the development and use of the property for residential housing, elementary and secondary schools, childcare facilities, or a playground.





**Figure 2-4**  
**OU4 (Site 17) - Building 195 and Vicinity**  
Site Management Plan  
Norfolk Naval Shipyard  
Portsmouth, Virginia



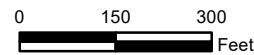




**Legend**

-  OU6 (Site 10) Land Use Control Boundary
-  Installation Boundary

Note:  
Land Use Control Objective:  
- Prohibit the development and use of the property for residential housing, elementary and secondary schools, childcare facilities, or a playground.



**Figure 2-5**  
**OU6 (Site 10) - 1927 Landfill**  
Site Management Plan  
Norfolk Naval Shipyard  
Portsmouth, Virginia







- Legend**
- Site 15 Boundary
  - Buildings
  - Mooring Facilities
  - Dry Dock Area
  - Demolished Pier
  - USACE Navigation Channel
  - Controlled Industrial Area Boundary
  - Installation Boundary

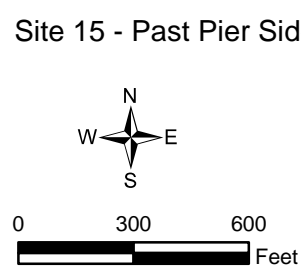


Figure 2-6  
 Site Management Plan  
 Norfolk Naval Shipyard  
 Portsmouth, Virginia



# Proposed Activities for Fiscal Year 2022

This section summarizes ongoing and planned CERCLA activities at each site. The discussion focuses on activities that are proposed for FY 2022, but also includes currently funded activities that may extend beyond September 2022.

Additional work items may be identified during, or as a result of, the execution of this scope of work. **Section 3.1** discusses basewide activities, and **Section 3.2** describes site-specific characterization, remediation, and long-term monitoring and maintenance activities. Schedules are presented in **Section 4**.

## 3.1 Basewide and Multi-Site Activities for Fiscal Year 2022

### 3.1.1 Fiscal Year 2022 Site Management Plan

This SMP is created as a working document and will be updated each year to reflect progress at sites, alterations in site plans, or reprioritization of activities.

### 3.1.2 Five-Year Review

The Five-Year Review is a document required by Section 121 of CERCLA, as amended by the Superfund Amendments and Reauthorization Act. Any RAs that result in any hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure will be reviewed every 5 years to ensure protection of human health and the environment. The Five-Year Review will be consistent with USEPA's *Comprehensive Five-Year Review Guidance, OSWER Directive 9355.7-03B-P*, dated June 2001, to ensure consistent implementation of the Five-Year Review process (USEPA, 2001). The most recent Five-Year Review, known as the Third Five-Year Review, was completed in August 2021 (CH2M, 2021b) and contains recommendations for OU4 (Site 17), which are included in **Section 3.2.4** of this SMP. Remedies for the other sites were determined to be protective of human health and the environment.

The sites that were evaluated for remedy protectiveness in the Third Five-Year Review (August 2021) were OU2 soil, OU4 (Site 17), and OU6 (Site 10). Issues, recommendations, and current status are presented on **Table 3-1**. The next Five-Year Review will be initiated in FY 2025.

### 3.1.3 Basewide (OU8) Per and Polyfluoroalkyl Substances (PFAS) PA/SI

A PA and SI specific to known or suspected releases of PFAS to the environment is being conducted for NNSY, including the main installation and annexes (excluding St. Julien's Creek Annex, which will have a separate PFAS PA/SI). The objective of the PA is to identify potential PFAS areas of concern, and the objective of the SI is to verify the presence or absence of potential PFAS impacts exceeding U.S. Environmental Protection Agency (U.S. EPA), state, or local regulatory-vetted screening levels. The draft PA was submitted in FY 2020 and concluded that 4 areas (Trophy Park, Site 19, Building 236, and the Industrial Wastewater Treatment Plant) are proposed for additional investigation as part of the SI. The SI SAP was initiated in FY 2021.

### 3.1.4 Restoration Advisory Board

The CIP was finalized in October 2019 and recommended reestablishing the NNSY Restoration Advisory Board (RAB). The RAB was established in the mid-1990s and was active, meeting annually, until 2007. Since 2007 the RAB met once in 2010 and 2011 and has not met since. Questionnaires distributed as part of the CIP update indicated that there is public interest in reestablishing a RAB. Additionally, public feedback and involvement will be elicited for the OU7 Proposed Plan and the public will be notified of the Five-Year Review results and a RAB will provide an effective means of communication with interested members of the community. Reestablishing the RAB was postponed in FY 2021 due to COVID-19 and will be reestablished in FY 2022.

## 3.2 Site Characterization and Remediation Activities for Fiscal Year 2022 by OU

### 3.2.1 OU2 (Sites 3, 4, 5, 6, and 7)—Paradise Creek Disposal Area (Soil)

The activities proposed for FY 2022 consist of:

- Complete Site Inspections and maintenance as required in the ROD for LUCs.
- Conduct sediment delineation field activities (to be included in the OU7 Phase II SRI UFP-SAP) to address impacts to sediments identified in FY 2019.
- Begin preparing the OU2 Sediment Technical Memorandum to document results of the sediment sampling activities and path forward.

### 3.2.2 OU4 (Site 17)—Building 195 and Vicinity

The activities proposed for FY 2022 consist of:

- Periodic inspection and continuing to enforce LUC measures to prevent residential development.

A PFAS RI was recommended for OU 4 (Site 17). However, based on the proximity to areas that were recommended for evaluation under a PFAS SI, the RI will be initiated after the SIs have been completed to more efficiently manage the area.

### 3.2.3 OU6 (Site 10)—1927 Disposal Area

The activities proposed for FY 2022 consist of:

- Periodic inspection and continuing to enforce LUC measures to prevent residential development.

### 3.2.4 OU7 (Sites 3, 4, 5, and 6)—Paradise Creek Disposal Area (Groundwater)

The activities proposed for FY 2022 consist of:

- Complete the Phase II Supplemental RI SAP and conduct fieldwork.
- Initiate the Phase I and II SRI Report.

### 3.2.5 OU8 – Norfolk Naval Shipyard Basewide

The activities proposed for FY 2022 consist of:

- Update the NNSY SMP for FY 2022 through FY 2026.
- Complete the PFAS SI UFP-SAP and initiate fieldwork.

**Table 3-1. Five-Year Review Summary Table**

Norfolk Naval Shipyard  
Portsmouth, Virginia

Environmental Restoration Program Site	Name/Description	Issue	Recommendation	Milestone	Status/Resolution
OU2 (Sites 3, 4, 5, and 6)	Paradise Creek Disposal Area Soil	2011 Five-Year Review			
		None	Not Applicable	Not Applicable	Not Applicable
		2016 Five-Year Review			
		None	Not Applicable	Not Applicable	Not Applicable
OU4 (Site 17)	Building 195 and Vicinity	2021 Five-Year Review			
		None	Not Applicable	Not Applicable	Not Applicable
		2016 Five-Year Review			
		Perfluorinated compounds (PFCs) <sup>a</sup> have been identified by the USEPA as an emerging contaminant. Based on site history, these constituents have the potential to be present in site groundwater.	Though there is no direct exposure, determine the presence or absence of PFCs <sup>a</sup> in site groundwater.	2019	Completed in February 2020. A PFAS investigation in the Columbia (surficial) aquifer was initiated in 2019 (CH2M, 2019). Monitoring wells were installed and sampled for PFAS analysis in February 2020. Elevated concentrations of PFOS and PFOA in the groundwater indicate historical activities have resulted in a release of PFAS to the groundwater in the surficial aquifer. A summary technical memorandum is currently in preparation.
		The potential impacts of groundwater discharge to surface water has not been evaluated for this site.	The Navy, at the request of the USEPA, will initiate an evaluation of the groundwater discharge to surface water pathway through an assessment of available groundwater data and refinement of the CSM.	2019	In progress. An evaluation of the groundwater discharge to surface water pathway was initiated in 2019 as part of the Five-Year Review recommendations UFP-SAP (CH2M, 2019). The monitoring wells were installed in February 2020 and a tidal study is planned for June 2020. Results of this evaluation will be summarized in a technical memorandum. A desktop audit was completed in March 2020 for the groundwater discharge to Elizabeth River pathway at Sites 10 and 17. The audit identified previous assessments completed in 2003 (Site 10) and 2006 (Site 17) that concluded potential risks from groundwater discharging to surface water were minimal. The desktop audit summary will be included in the 2021 Five-Year Review and a forthcoming technical memorandum.
2021 Five-Year Review					
		OU4 (Site 17) was identified as a potential PFAS release area based on historical site use as a plating facility. Presence of PFAS compounds has been identified in groundwater at Site 17 at concentrations above risk-based comparison criteria.	Conduct an RI to refine the extent of PFAS in site media at Site 17 and evaluate whether there is a potentially unacceptable risk to human health and/or a potential complete exposure pathway to drinking water receptors.	2024	In progress.



**Table 3-1. Five-Year Review Summary Table**

Norfolk Naval Shipyard  
Portsmouth, Virginia

Environmental Restoration Program Site	Name/Description	Issue	Recommendation	Milestone	Status/Resolution
OU6 (Site 10)	1927 Landfill	2011 Five-Year Review			
		None	Not Applicable	Not Applicable	Not Applicable
		2016 Five-Year Review			
		Dioxins and furans have been identified by the USEPA as an emerging contaminant. Based on site history, these constituents have the potential to be present in site groundwater.	Though there is no direct exposure, determine the presence or absence of dioxins and furans in site soil and groundwater.	2018	Completed in January 2020. An investigation of dioxins and furans in the Columbia aquifer was initiated in 2019 (CH2M, 2019). Soil and groundwater samples were collected in January 2020 using direct push technology for screening purposes. The 2,3,7,8-TCDD TEQ was calculated for soil and groundwater samples and was detected in soil at concentrations above soil-to-groundwater screening levels but below industrial soil RSLs. The 2,3,7,8-TCDD TEQ in Columbia aquifer groundwater samples exceeded the tapwater RSL and MCL at one or more location. An additional phase of investigation is planned for summer 2020 to install permanent groundwater monitoring wells and collect groundwater samples for use in a human health risk screening. Results of this investigation will be summarized in a technical memorandum.
		The potential impacts of groundwater discharge to surface water has not been evaluated for this site.	The Navy, at the request of the USEPA, will initiate an evaluation of the groundwater discharge to surface water pathway through an assessment of available groundwater data and refinement of the CSM.	2018	In progress. An evaluation of the groundwater discharge to surface water pathway was initiated in 2019 as part of the Five-Year Review recommendations UFP-SAP (CH2M, 2019). The monitoring wells were installed in February 2020 and a tidal study is planned for June 2020. Results of this evaluation will be summarized in a technical memorandum.  A desktop audit was completed in March 2020 for the groundwater discharge to Elizabeth River pathway at Sites 10 and 17. The audit identified previous assessments completed in 2003 (Site 10) and 2006 (Site 17) that concluded potential risks from groundwater discharging to surface water were minimal. The desktop audit summary will be included in the 2021 Five-Year Review and a forthcoming technical memorandum.
		2021 Five-Year Review			
None	Not Applicable	Not Applicable	Not Applicable		

Notes:

- <sup>a</sup> The present terminology for PFCs is PFAS.
- µg/L - microgram per liter
- 2,3,7,8-TCDD - 2,3,7,8-tetrachlorodibenzodioxin
- CSM - conceptual site model
- MCL - maximum contaminant level
- PFAS - per- and polyfluoroalkyl substances
- PFOA - perfluorooctanoic acid
- PFOS - perfluorooctane sulfonate

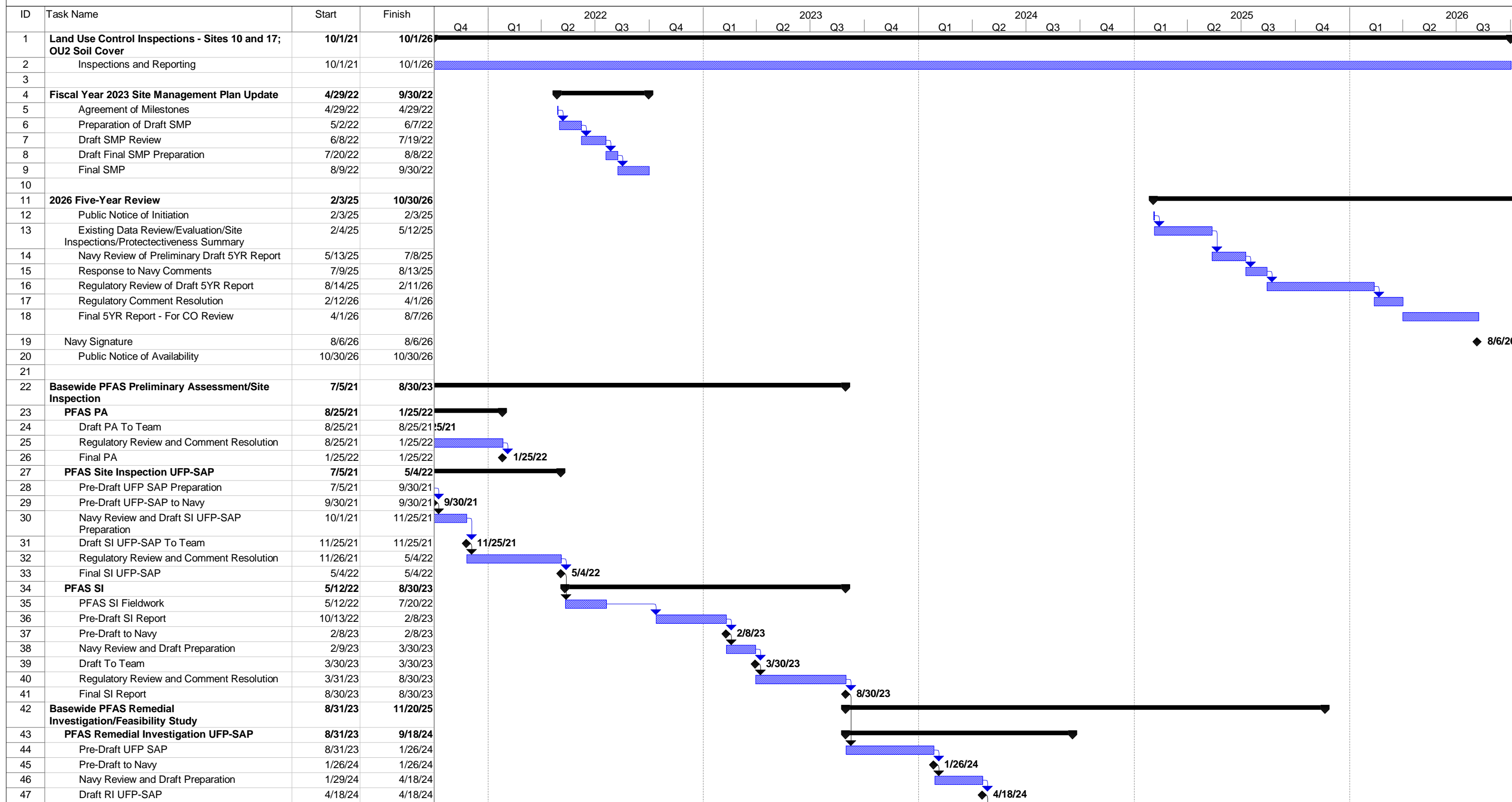
- RSL - regional screening level
- TEQ - toxicity equivalent
- UFP-SAP - Uniform Federal Protocol - Sampling and Analysis Plan
- USEPA - United States Environmental Protection Agency

# Five-Year Site Management Schedules

This section presents the 5-year project schedules for each site, as well as for the basewide and multi-site activities, described in **Section 3**. The 5-year period extends from FY 2022 through FY 2026 (October 1, 2021 through September 30, 2026). These schedules will be adjusted annually in the SMP, as the future site activities are further defined and various administrative issues, including funding, are addressed.

The project schedule for Basewide and multi-site activities is presented on **Figure 4-1**. The site-specific schedule for the Paradise Creek Disposal Area (OU2 and OU7) is presented on **Figure 4-2**. The site-specific schedule for Sites 17 (OU4) and 10 (OU6) is presented on **Figure 4-3**.

Figure 4-1  
 Norfolk Naval Shipyard  
 FY22-26 Site Management Plan  
 Schedule for Basewide and Multi Site Activities



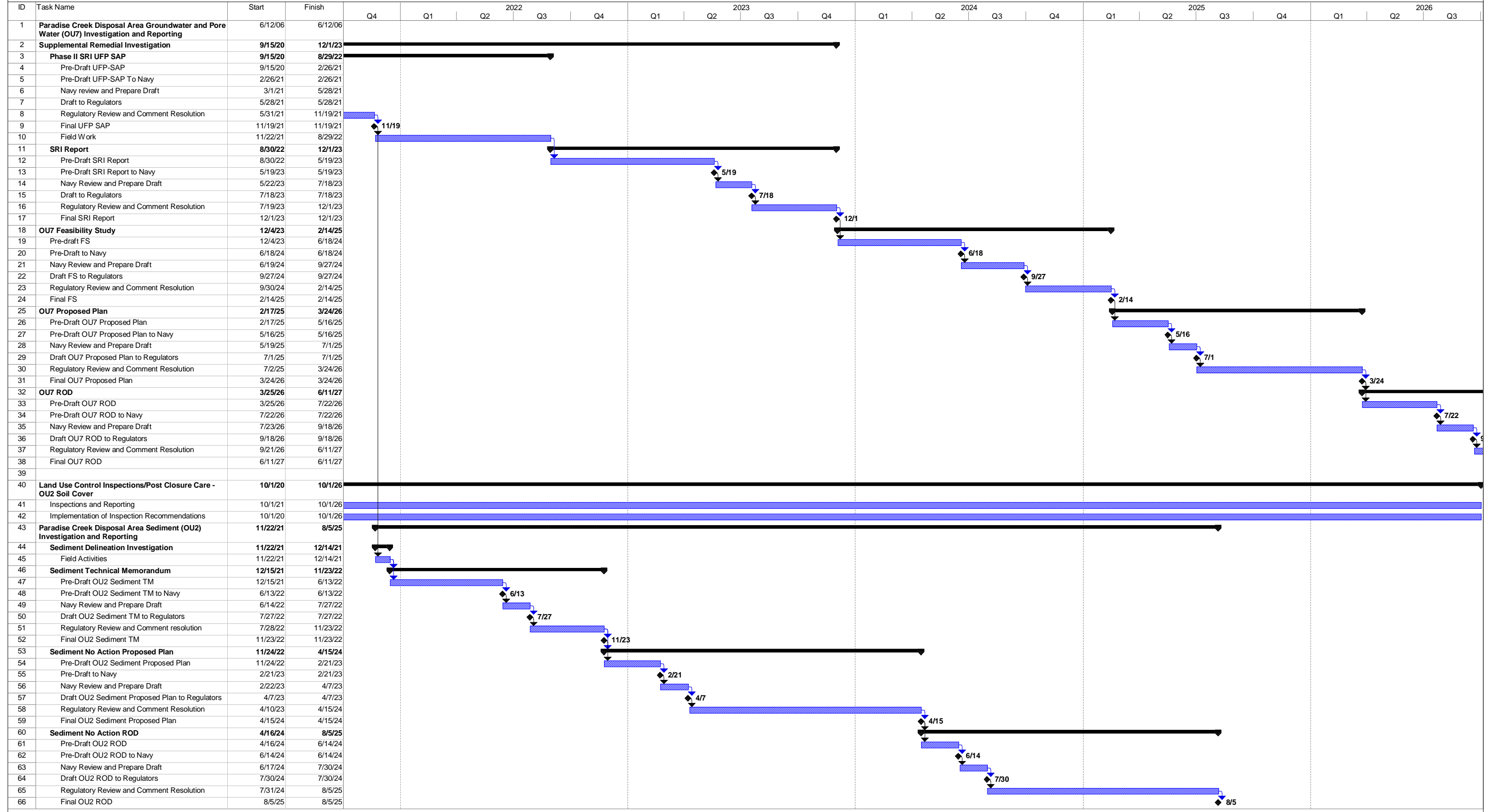
Project: FY 22-26 Schedule for Basewide and Multi Site Activities  
 Date: October 2021

Task [Blue bar] Summary [Black arrow]

Figure 4-1  
 Norfolk Naval Shipyard  
 FY22-26 Site Management Plan  
 Schedule for Basewide and Multi Site Activities

ID	Task Name	Start	Finish	2022				2023				2024				2025				2026																			
				Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3																
48	Regulatory Review and Comment Resolution	4/19/24	9/18/24																																				
49	Final RI UFP-SAP	9/18/24	9/18/24																																				
50	<b>PFAS Remedial Investigation</b>	<b>9/26/24</b>	<b>11/20/25</b>																																				
51	PFAS RI Fieldwork	9/26/24	10/21/24																																				
52	Pre-Draft RI Report	1/14/25	4/21/25																																				
53	Pre-Draft to Navy	4/21/25	4/21/25																																				
54	Navy Review and Draft Preparation	4/22/25	6/20/25																																				
55	Draft RI Report	6/20/25	6/20/25																																				
56	Regulatory Review and comment resolution	6/23/25	11/20/25																																				
57	Final RI Report	11/20/25	11/20/25																																				
58																																							
59	<b>Reestablish Restoration Advisory Board</b>	<b>1/13/22</b>	<b>11/12/26</b>																																				
60	Initial Interest Meeting	1/13/22	1/13/22																																				
61	First RAB Meeting	2/17/22	2/17/22																																				
62	RAB Meeting	11/10/22	11/10/22																																				
63	RAB Meeting	5/18/23	5/18/23																																				
64	RAB Meeting	11/16/23	11/16/23																																				
65	RAB Meeting	5/16/24	5/16/24																																				
66	RAB Meeting	11/14/24	11/14/24																																				
67	RAB Meeting	5/15/25	5/15/25																																				
68	RAB Meeting	11/13/25	11/13/25																																				
69	RAB Meeting	5/14/26	5/14/26																																				
70	RAB Meeting	11/12/26	11/12/26																																				

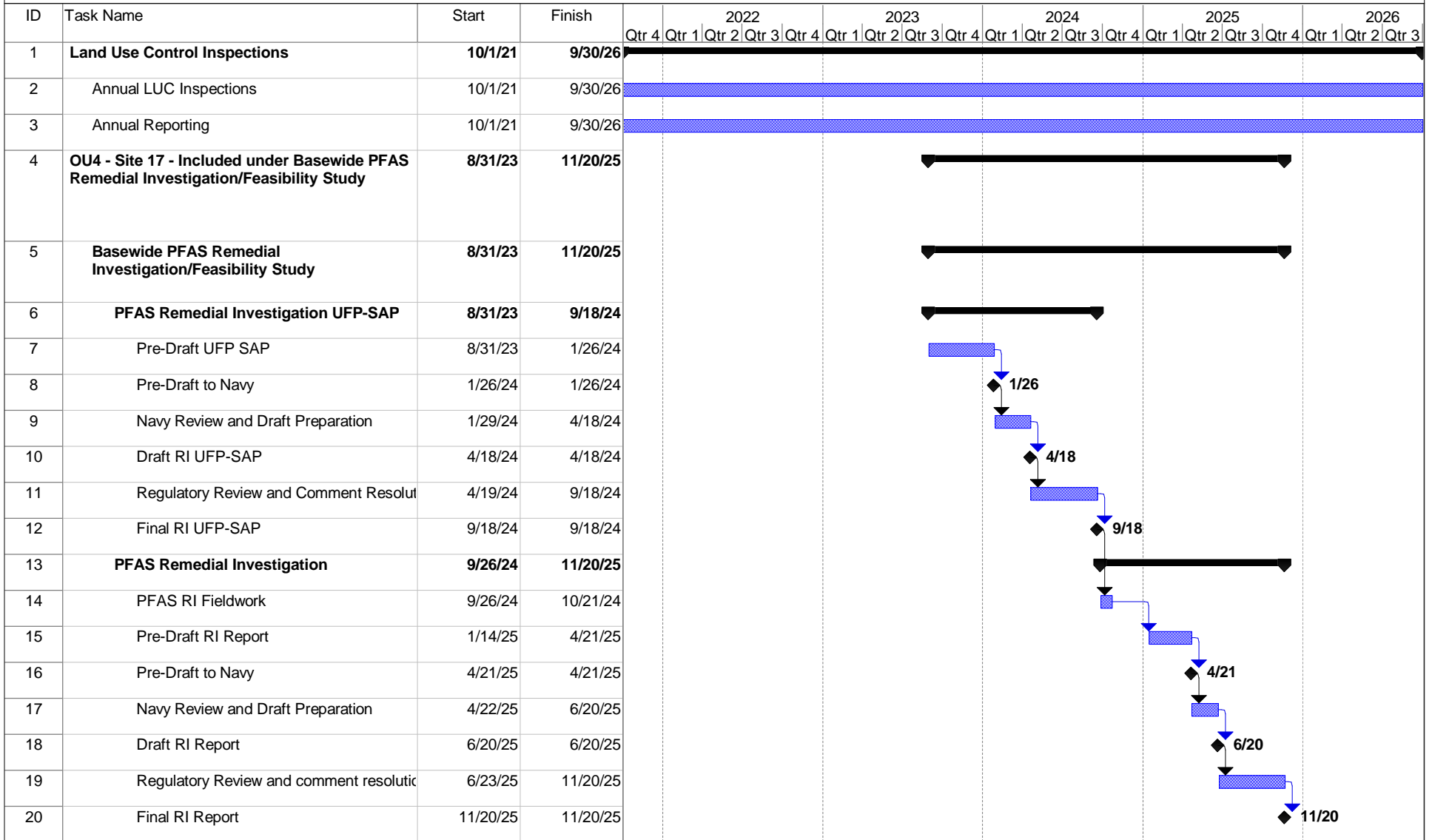
Figure 4-2  
Norfolk Naval Shipyard  
FY22-26 Site Management Plan  
Schedule for Paradise Creek Disposal Area



Project: FY 22-26 Schedule for Paradise Creek Disposal Area  
Date: October 2021

Task Summary

Figure 4-3  
 Norfolk Naval Shipyard  
 FY22-26 Site Management Plan  
 Schedule for OU4 (Site 17) and OU6 (Site 10)



Project: FY 22-26 Schedule for OU4 (Site 17) and OU6 (Site 10)  
 Date: October 2021

Task [Blue bar] Summary [Black bar]

# Remedial Actions and Removal Actions

Remedial Actions and Removal Actions are conducted to prevent a potential release of contaminants and/or migration of contaminants. The Navy will continue to identify possible remedial and removal actions as investigation activities proceed. Currently, no remedial or removal actions are planned or ongoing at NNSY.

Paradise Creek Disposal Area groundwater (OU7) continues to be investigated. Remedial Actions will be taken, as appropriate, as documented in the forthcoming FS, PP, and ROD.

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