



## PORTSMOUTH NAVAL SHIPYARD

*Kittery, ME*

### *Update on Installation Restoration Program Sites*

#### **Introduction**

This Fact Sheet describes the sites and their status within the Installation Restoration (IR) Program at the Portsmouth Naval Shipyard (PNS), Kittery, Maine. These sites are in various phases of cleanup under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, commonly known as Superfund). The Fact Sheet explains the various clean-up, or remedial, phases and indicates which phase of the CERCLA process each site is in as of September 30, 2003. Additional information related to the history of PNS, the IRP sites, and the environmental regulatory process for PNS is provided in the FY04 Amended Site Management Plan (SMP).

PNS is a federal facility and because investigations have been conducted under several regulatory programs, including CERCLA and the Resource Conservation and Recovery Act (RCRA), the investigative history for PNS has been complicated. However, a Federal Facility Agreement (FFA) between the Navy and U.S. Environmental Protection Agency (USEPA) called for the Navy to meet the provisions of CERCLA, as well as RCRA, and applicable state law. The process required by the FFA is comparable to CERCLA, which is described below.

#### **IR Sites and Site Screening Areas (SSAs) at PNS**

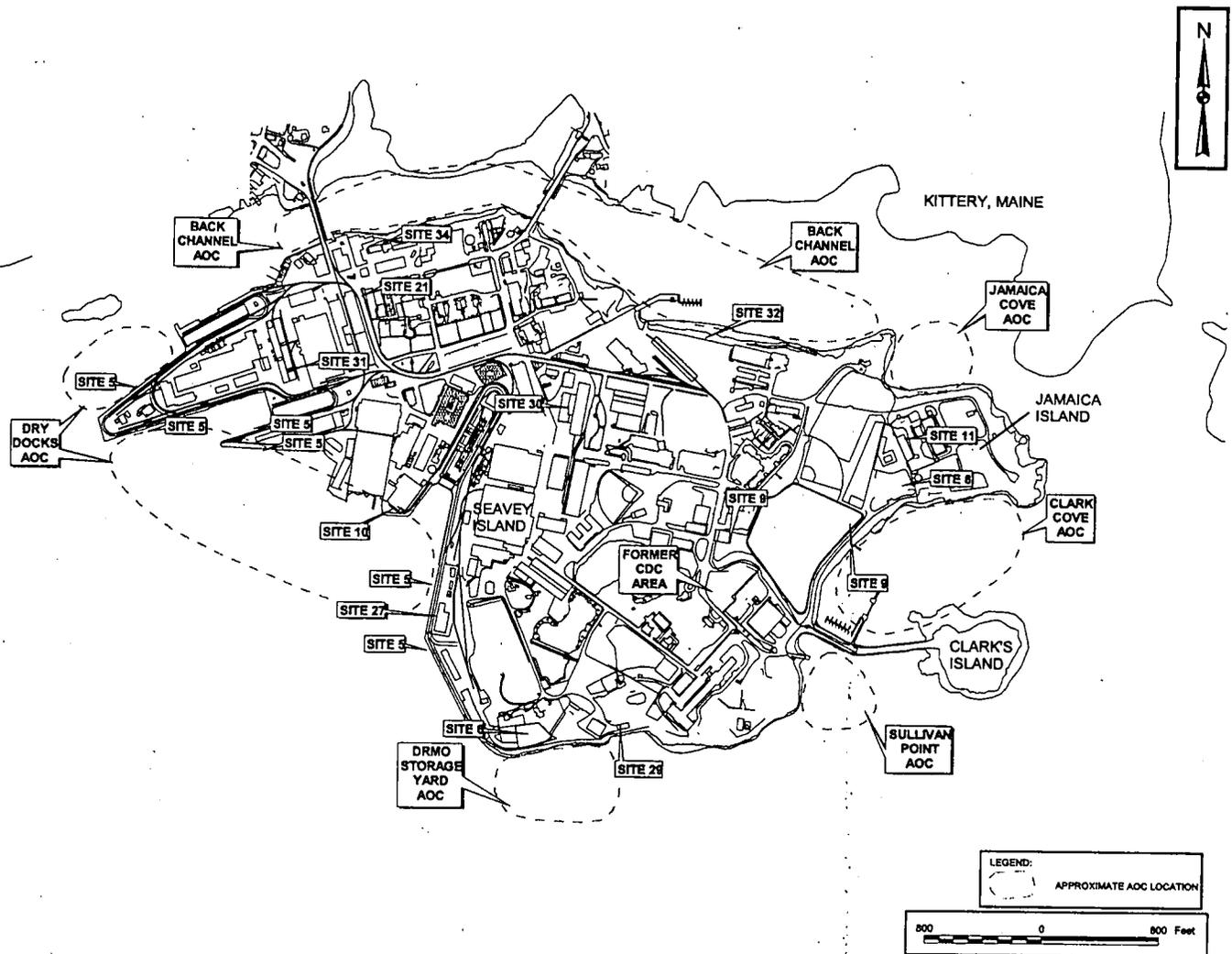
The IR sites at PNS have been grouped as operable units (OUs) so sites that are near each other or that have similar characteristics are addressed together. Currently, the OUs are as follows:

- OU1: Site 10 - Former Battery Acid Tank No. 24 and Site 21 - Acid/Alkaline Drain Tank (groundwater only).
- OU2: Site 6 - Defense Reutilization and Marketing Office Storage Yard (DRMO) and Site 29 - Incinerator Site.
- OU3: Soil/fill material and groundwater within the Jamaica Island Landfill (JILF) boundary, including Site 8 - JILF, Site 9 - Former Mercury Burial Sites (MBI and MBII), and Site 11 - Former Waste Oil Tanks Nos. 6 and 7.
- OU4: Site 5 - Industrial Waste Outfalls, and Offshore Areas Potentially Impacted by PNS Onshore Sites (Offshore Areas of Concern).
- OU6: Management of migration from the JILF (migration in the intertidal area offshore of the JILF).

- OU7: Site 32 - Topeka Pier Site.
- OU8: Site 31 - West Timber Basin.

In addition to the IR sites, two SSAs are currently under investigation at PNS:

- Site 30 - Galvanizing Plant Building 184.
- Site 34 - Former Oil Gasification Plant, Building 62.



Portsmouth Naval Shipyard Facility Site Map

Operable Units and Site Screening Locations at PNS	
Operable Unit 1:	Site 10-Former Battery Acid Tank No. 24 Site 21-Acid/Alkaline Drain Tank (groundwater)
Operable Unit 2:	Site 6-Defense Reutilization and Marketing Office (DRMO) Storage Yard Site 29-Incinerator Site
Operable Unit 3:	Site 8-Jamaica Island Landfill (JILF) Site 9-Former Mercury Burial Sites Site 11-Former Waste Oil Tanks Nos. 6 & 7.
Operable Unit 4: (Offshore Area)	Site 5-Former Industrial Waste Outfalls Offshore Areas potentially impacted by onshore IRP sites (Six AOCs have been delineated)

Operable Units and Site Screening Locations at PNS	
Operable Unit 6:	Management of groundwater migration from the JILF
Operable Unit 7:	Site 32-Topcka Pier Site
Operable Unit 8:	Site 31-West Timber Basin Landfill
Site Screening Area:	Site 30-Galvanizing Plant Building 184
Site Screening Area:	Site 34-Former Oil Gasification Plant

**This Figure does not reflect the new layout of Site 8 based on the OU3 Remedial Action.**

## CERCLA Remedial Phases

The CERCLA clean-up process has several phases. Investigations at some of the sites were conducted under RCRA; therefore, the corresponding RCRA phase is also indicated.

The preliminary assessment/site inspection (PA/SI) is the initial study conducted under CERCLA at a site in response to a real or suspected hazardous substance release. The comparable step under the FFA is the site screening process (SSP), and, under RCRA, this phase of investigation is the RCRA facility assessment (RFA). The SSP, RFA, and PA/SI are the tools under the different regulatory programs for evaluating whether identified SSAs should proceed to the RI/FS stage for further investigation. (SSAs are areas not previously identified that may pose a threat, or potential threat, to public health, welfare, or the environment.)

If the initial study of a site indicates the need for further investigation, a remedial investigation/feasibility study (RI/FS) is conducted under the CERCLA remedial process. The RI is intended to determine the nature and extent of contamination, potential migration pathways, the toxicity and persistence of contamination, and the potential (risk) for adverse impacts to human health or the environment. The FS is intended to develop the objectives for site cleanup, to identify regulations and guidance relevant to the site that must be considered in clean-up activities, and to identify and evaluate the possible clean-up options for the site. The RCRA facility investigation (RFI)/corrective measures study (CMS) corresponds with the RI/FS process.

The next stage in the process is the Proposed Plan (also known as a Proposed Remedial Action Plan or PRAP), which outlines the Navy's proposed clean-up alternative. The Proposed Plan is provided to the public for their review and comment during a formal comment period.

At the end of the formal comment period and consideration of the public's comments on the Proposed Plan, the Navy prepares a Record of Decision (ROD) that identifies the selected clean-up option. The USEPA and the Navy sign the ROD, and the Maine Department of Environmental Protection (MEDEP) issues a letter of concurrence or non-concurrence. RCRA does not have a process similar to the Proposed Plan/ROD.

The ROD establishes the scope of the remedial, or clean-up, design and subsequent remedial action. Pre-design investigations are sometimes necessary to gather more information to support the design. The RCRA corrective measures implementation (CMI) corresponds with the remedial design (RD)/remedial action (RA) process.

At any time during the investigation of a site, the Navy may conduct a removal action or an interim remedial action for a site to reduce the threat to human health or the environment by removing released hazardous substance or reducing potential exposure pathways. For the removal action, an engineering evaluation/cost analysis (EE/CA) is prepared to select the best removal action for the site. A focused FS may be prepared to identify an interim removal action. An Interim Proposed Plan and Interim ROD are prepared as part of the selection of the interim action.

## Site Descriptions and Status

The following provides a description of each site (by OU) with the current status of the site. Table 1 shows a summary of the status of each site.

**OU1 consists of Site 10 - the Former Battery Acid Tank No. 24 and Site 21 - the Acid/Alkaline Drain Tank (groundwater concerns only).** The sites in OU1 are located in the western portion of PNS. OU1 is in the RI stage of the CERCLA process.

Site 10 was an underground, 9,680-gallon steel holding tank that was used from 1974 until 1984 for waste lead battery acid from battery rebuilding operations. The tank was taken out of service in 1984 when it was found to be leaking, and the tank was removed in 1986. Subsequently, the area of investigation was expanded to include potential tank fill line leaks. Investigations were previously conducted at the site in 1991 (of soil around the tank) and in 1998 (of soil around the tank and fill lines and of groundwater by the tank). Based on the results of the 1998 investigation, it was determined that additional information on soil and groundwater contamination at the site was necessary. The additional investigation was performed in November 2001. The report with the results of the November 2001 investigation was finalized in March 2003. The 1998 and 2001 investigations were conducted as part of the RI for Site 10.

Table 1

**Installation Restoration Program Status  
Portsmouth Naval Shipyard, Kittery, Maine**

SITE #, SITE NAME	LEGEND																				
	Preliminary Assessment	Site Investigation	No Further Action Decision Document	Engineering Evaluation/Cost Analysis	Action Memorandum	Removal Action	Removal Action Report	Remedial Investigation	Feasibility Study	Proposed Remedial Action Plan	Record of Decision	Remedial Design	Remedial Action	Remedial Action Report	Long Term Operations	Long Term Monitoring	Preliminary Close Out Report	Close Out Report	Notice of Intent to Delete	Site Deletion	Site Closed Out
<b>Operable Unit 1</b>																					
10, Bldg. 238 Battery Acid Tank	●	●						▶													
21, Bldg 75 Acid/Alkaline Drain Tank	●	●						●													
<b>Operable Unit 2</b>																					
6, Defense Utilization Marketing Office (DRMO)	●	●						●													
29, Teepee Incinerator Site	●	●						●													
<b>Operable Unit 3</b>																					
8, Jamaica Island Landfill	●	●						●	●	●	●	●	▶								
9, Mercury Burial Vaults I and II	●	●			●	●	●	●	●	●	●	●									
11, Jamaica Island Waste Oil Tanks	●	●						●	●	●	●	●									
<b>Operable Unit 4 Offshore</b>																					
5, Industrial Waste Outfalls	●	●						▶		●	*										
<b>Operable Unit 6, Management of Migration, Site 8</b>																					
	●	●						▶													
<b>Operable Unit 7, Site 32, Topeka Pier</b>																					
	●	●						▶													
<b>Operable Unit 8, Site 31, West Timber Basin</b>																					
	●	●						▶													
<b>Study Areas</b>																					
30, Bldg 184, Galvanizing Plant	●	▶		▶																	
34, Oil Gasification Plant	●	▶																			
<b>No Further Action under CERCLA</b>																					
12, Bldg 72, Boiler Blowdown Tank	●	●	●																		
13, Bldg 76, Rinse Water Tank	●	●	●																		
16, Bldg 174, Rinse Water Tank	●	●	●																		
23, Bldg 174, Chemical Cleaning Facility Tank	●	●	●																		
26, Portable Oil/Water Tanks	●	●	●																		
27, Industrial Area, Berth 6	●	●	●																		

Site 21 was a 695-gallon underground steel tank used from 1974 until 1991 to hold discharge from two washing machines. The washing machines were used to clean air filters, which were used to remove dirt and debris from ships. In 1991, as part of the RFI for PNS, the tank was excavated and removed in accordance with a closure plan. The tank was not intact. Stained fill and exposed bedrock were evident in the excavation. Confirmation soil samples were collected from the excavation, which was then backfilled with clean fill and covered with asphalt. The Navy, USEPA, and MEDEP agreed that no further action was necessary for soil and that groundwater will be investigated as part of the Site 31 investigation, and documented this decision in a Consensus Document signed in October 1996. The investigation of Site 31 was conducted in the summer of 1998. The results indicated that groundwater has not been impacted by Site 21 and the Navy recommended no further action for Site 21 groundwater.

**OU2 consists of Site 6 - the DRMO and Site 29 - Teepee Incinerator Site. The sites are located in the southern portion of PNS.** The RI for OU2 (including the revised risk assessment completed in 2000) are complete and the Navy is planning to conduct an FS.

Site 6 has been in operation since approximately 1960. The 2-acre area is used for temporary storage of used materials that are to be taken off site for recycling or disposal. Practices that resulted in obvious sources of contaminants, such as open storage of batteries, were ended in approximately 1983. Currently, within the fenced area of the DRMO, asphalt or an interim cap covers most of the surface.

Heavy metal contamination of soils at the site was identified in 1984. The site was further investigated from 1989 to 1992 (as part of the RFI for PNS), in 1995 (as part of the RFI Data Gap Investigation for PNS), and during the 1996/1997 groundwater monitoring program for PNS to determine the nature and extent of contamination at the site and the potential risks associated with the contamination.

Interim corrective measures were conducted in 1993 including capping of areas of the site with high metals concentrations as well as installing stormwater controls. These measures were conducted to reduce the spread of site contamination.

Shoreline erosion that exposed contaminated soil at Site 6 was discovered in the summer of 1999, and interim erosion controls were put in place in September 1999. The shoreline was regraded in November 1999.

Site 29 includes the area surrounding Buildings 298 and 310 along the southern shoreline of PNS. The site encompasses the area around a former open burning area and a former industrial incinerator (Teepee Incinerator) and ash disposal area.

Sampling as part of the RFI for PNS included Site 29 within the DRMO investigation boundary. Subsequent to the RFI, the area of Site 29 has been investigated as a separate site. The site was further investigated as part the 1996/1997 groundwater monitoring program for PNS and the 1998 field investigation at the site to determine the nature and extent of contamination at the site and the potential risks associated with the contamination.

**OU3 consists of Site 8 - Jamaica Island Landfill, Site 9 - Former Mercury Burial Sites, and Site 11 - Former Waste Oil Tank Nos. 6 and 7.** OU3 is located in the eastern portion of PNS and is currently in the RD/RA stage of the remedial process.

The JILF was a tidal mudflat that the Navy used as a disposal area from 1945 to 1978 for general refuse, trash, construction rubble, and various industrial wastes. Site 9 comprises two mercury burial vaults (MBI and MBII) that were placed in the landfill in the 1970s and were removed intact in the 1990s/early 2000. Site 11 consists of two tanks, nos. 6 and 7, in the northeastern corner of JILF that were used from 1943 to 1989 and were removed (intact) in 1989. There is evidence, however, that spills occurred during earlier tank filling.

Sampling of the sites within OU3 was conducted as part of the RFI for PNS, the RFI Data Gap for PNS, and the 1996/1997 groundwater monitoring for PNS to determine the nature and extent of contamination at the site and the potential risks associated with the contamination. After the revised risk assessment for OU3 was complete (in 2000), the Navy prepared an FS for OU3 in 2000. [Since preparation of the FS, OU3 was divided and now consists of source control only; management of groundwater migration is now being addressed

as OU6 (see OU6 discussion).] The Proposed Plan for OU3 was issued January 2001 and the ROD was signed in August 2001. Remedial action at OU3 will consist of a cover over the landfill, institutional controls to limit use of and exposure to the area, shoreline erosion controls, and long-term monitoring of the effectiveness of the remedy. The design of this action was completed in January 2003. The first phase of the design includes movement of the waste in the portion of the landfill near Jamaica Cove to the remaining portion of the landfill to consolidate the waste in a smaller area. After the consolidation, wetlands will be constructed in Jamaica Cove. The consolidation activities were completed in September 2002. The wetlands planting was completed in Spring 2003. The second phase of the design includes construction of the cover over the landfill and shoreline erosion controls. Construction activities began in the Spring 2003.

At the time the RFI for PNS was conducted, the Child Development Center (CDC) was located to the west of the JILF. Sampling, as part of the RFI, was conducted in this area to ensure that the children at the CDC were not being exposed to soil contaminated by wind dispersal of JILF contamination. The CDC has since been moved to a different location and this area is now referred to as the Former CDC. The building and playground equipment have been removed and the area is currently used as an open-green space, with grass and trees covering the area. The Navy determined that additional sampling is needed at the Former CDC before determining a final remedial action. The Navy finalized the work plan and conducted the sampling in August 2003.

**OU4 is the PNS offshore area and consists of Site 5 - Industrial Waste Outfalls and Offshore Areas Potentially Impacted by PNS Onshore Sites.** Site 26 - Portable Oil/Water Tanks was previously included within OU4. Sites 5 and 26 were included in OU4 because these two sites had potential offshore impacts, but no potential onshore impacts. The Navy is currently conducting an interim action for OU4 (as discussed below) before preparing an FS for OU4.

Site 5 consisted of several discharge points along the Piscataqua River, near Berths 6, 11, and 13. The outfalls were used to discharge liquid industrial wastes from plating and battery shops prior to construction of the Industrial Waste Treatment Plant. They are believed to have been in operation

from 1945 to 1975, and they may have contained heavy metals (mercury, lead, cadmium, chromium, copper, and zinc), oil and grease, and polychlorinated biphenyls (PCBs).

Site 26 was the oil/water tanks at the submarine berths used for the clean-out of submarine bilges and various tanks. The resulting oily wastes are pumped for offsite disposal. Although the tanks are still in use, operations have been modified and equipment improved over the years to eliminate spillage and improve handling methods. In August 2001, a decision document was signed for no-further action under CERCLA and this site has been removed from OU4.

Offshore areas refer generally to areas in the Piscataqua River offshore of PNS that may have been affected by the release of hazardous waste or hazardous constituents from any site or study area located at PNS. Sampling of the offshore areas from 1991 to 1993 was conducted as part of the estuarine ecological risk assessment (EERA). A human health risk assessment was conducted using the EERA data. Based on the results of the risk assessment, the Navy determined that interim monitoring was warranted for OU4 to determine whether onshore remedial actions, natural processes, and/or other sources may have impacted the offshore areas. An Interim ROD was signed in May 1999 that requires the Navy to conduct this interim offshore monitoring. A monitoring plan has been prepared and to date seven rounds of sampling have been completed. A baseline report summarizing the first four rounds of sampling was finalized in July 2002.

In 2001, ecological preliminary clean up levels (preliminary remediation goals or PRGs) were developed for OU4 using the interim offshore monitoring data. The PRGs are being used as interim remediation goals for the OU4 interim monitoring to determine whether additional scrutiny is required. In addition, the PRGs may be used as part of the OU4 FS to evaluate possible remedies.

**OU6 is the management of migration from the JILF (migration in the intertidal area offshore of the JILF).** In October 2000, the JILF was split into two OUs: OU3 (see description earlier in this fact sheet) and OU6. The Navy, USEPA, and MEDEP determined that, in order to move forward with a remedy for soil/landfill material and the groundwater within the landfill boundary without further delay, the groundwater migrating off site to

Jamaica Cove and Clark Cove of the Piscataqua River would need to be addressed separately. The Navy prepared a memorandum explaining the separation of operable units; however, the separation of operable units is not reflected in the documents and studies conducted and finalized in November 2000 or before.

The Navy, with input from the USEPA, MEDEP, and Restoration Advisory Board (RAB), has determined the additional investigation may be necessary to complete the RI for OU6 and the planning document (referred to as the data quality objectives or DQOs) is being prepared. The Navy, with agreement from the USEPA and MEDEP, will prepare a decision tree that will be followed to initiate preparation of a work plan for sampling for OU6, if additional investigation is necessary.

**OU7 is Site 32, the Topeka Pier Site, which is the fill area east of Dennett's Island and north of Seavey Island near Topeka Pier.** Various materials were used to fill the area, including bricks, wood, glass, asbestos cloth, and foundry waste. An RI was recommended for the site based on the site screening investigation conducted in 1998. The Navy finalized the work plan (referred to as a Quality Assurance Project Plan or QAPP) for the RI investigation and conducted the first phase of field work in April and May 2003. Site 32 is the only site within the newly identified OU7.

**OU8 is Site 31, the West Timber Basin. The site is a portion of the filled area between Dry Docks 1 and 3.** Original operations at the site were storage and seasoning for wood used in the production of Navy ships. Metal washing and pickling activities were also conducted at the site. A site screening investigation was conducted at the site in 1998, and based on the results, an RI was recommended for the site. Site 31 is the only site within the newly identified OU8.

**Site 30 is the Galvanizing Plant, Building 184, is located in the north-central portion of PNS, is currently under an SSI investigation (as part of the SSP).** The building, constructed in 1943, includes an acid-proof pit in which pickling tanks were used as part of the galvanizing operations and later as part of the Clean Room Facility. Use of the pit was discontinued in the early 1960s and the pit was filled and covered with a concrete floor. Over the years, a crystalline substance has been noted along the edges of the pit. Based on investigation of soil and groundwater outside the building (in 1998) and in the pit (in 2001), the Navy has recommended that a removal action be

conducted for the pit before determining whether an RI is necessary for the site. The Navy finalized the EE/CA in December 2002 and held the public comment period on the final EE/CA in January and February 2003. The Navy has determined that currently Building 184 operations cannot be disrupted by the removal action activities; therefore, additional removal action alternatives will be evaluated and the Navy will prepare a revised EE/CA.

**Site 34 is the Former Oil Gasification Plant, Building 62 and it is located in the western portion of PNS.** It originally served as an illuminating gas manufacturing plant. It was later used as a blacksmith shop from approximately 1915 to 1930 and from approximately 1930 to present has been used by Public Works. Pesticide storage in a portion of the building occurred from approximately 1960s to 1985. Currently the building is used as the bobcat (mini bulldozer) maintenance shop and storage. Ash was noted on the northern side of the building and six drums of the ash were removed in 1999. The Navy finalized the work plan (QAPP) to collect data for the site investigation (SSP) for Site 34 and to support a removal action for the ash. The field work was completed in April 2003.

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#### FOR ADDITIONAL INFORMATION, CONTACT

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Ms. Debbie White  
Public Affairs Office  
Code 100PAO  
Portsmouth Naval Shipyard  
Portsmouth, NH 03804-5000  
(207) 438-1525

Mr. Matthew Audet  
U.S. EPA  
1 Congress Street  
Suite 1100 Mail Code HBT  
Boston, MA 02114-2023  
(617) 918-1449

Mr. Iver McLeod  
Maine DEP  
17 State House Station  
Augusta, ME 04333  
(207) 287-8010

