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PROPOSED PLAN SITE 19 DERECKTOR SHIPYARD MARINE SEDIMENT OPERABLE UNIT
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U S NAVY



Proposed Plan

Site 19 – Derecktor Shipyard Marine Sediment Operable Unit 5 Naval Station (NAVSTA) Newport Middletown/Newport, Rhode Island

The Proposed Cleanup

This **Proposed Plan** has been prepared in accordance with federal laws to present the Navy's proposed cleanup approach for marine sediment at Site 19, Former Derecktor Shipyard, located at the Naval Station Newport, in Middletown and Newport, Rhode Island. This plan describes the Navy's proposed cleanup (remedy) for the Site, which after careful study and consideration consists of the following:

- Open Water Areas – **Dredge contaminated sediment** at target locations to depths of 1 to 2 feet, and perform confirmation sampling to ensure cleanup goals have been achieved.
- Under-Pier Areas – Placement of a 1 foot cover on target areas under Pier 2, and **Land Use Controls** to ensure that the cover is not disturbed and that sediment is further addressed should reconstruction or demolition of Pier 2 occur.
- **Land Use Controls** to prevent exposure to potential asbestos in dredged shipyard sediment

This document provides the public with information about the proposed cleanup.

Introduction

This Proposed Plan provides information on the Navy's preferred cleanup plan for marine sediment at IRP Site 19 – Former Derecktor Shipyard, at Naval Station (NAVSTA) Newport, and located in the communities of Middletown and Newport, Rhode Island. This plan has been prepared to inform the community of the Navy's strategy for the proposed cleanup approach, and to encourage community input on the proposed plan and overall environmental cleanup process for marine sediment at Site 19. Site 19 marine sediment is identified by the U. S.

Environmental Protection Agency (U.S. EPA) as Operable Unit (OU) 5 of the Naval Education and

Let us know what you think!

Mark Your Calendar!

PUBLIC COMMENT PERIOD:
May 21, 2014 to June 20, 2014



The Navy will accept comments on the Proposed Plan for marine sediment at Site 19 during this period. **Send written comments, postmarked no later than June 20, 2014, to:**

Ms. Lisa Rama
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690 Peary Street
Naval Station Newport
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PUBLIC MEETING AND PUBLIC HEARING
Wednesday, May 21, 2014
7:00 PM to 8:00 PM
Courtyard Marriott
9 Commerce Drive
Middletown, Rhode Island

The Navy will hold a public meeting at 7:00 PM to provide information about this Proposed Plan. Following a presentation describing the planned site cleanup, the Navy will host an informal question-and-answer session. The Navy will then hold a formal Public Hearing at 7:30 PM until all comments on the Proposed Plan are heard. It is at this Hearing that an official transcript of comments will be entered into the record.

For detailed historical information, visit the local Information Repository identified at the end of this Proposed Plan.

Training Center (NETC) Superfund Site. (Note: A glossary of terms is provided at the end of this document for bolded terms within the text.)

The Former Derecktor Shipyard Site is split into two portions: the on-shore portion and the offshore

portion. This Proposed Plan is focused on the offshore portion (the marine sediment). The on-shore portion of the Site has been investigated separately, and actions specific to that part of the Site will be addressed by a separate decision document.

Federal and state environmental laws govern cleanup activities at federal facilities. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), better known as “Superfund”, provides procedures for investigating and cleaning up sites where releases of hazardous materials pose an unacceptable risk to human health or the environment. Under this law, the Navy is pursuing cleanup of designated sites at NAVSTA Newport to ensure protection of human health and the environment. OU 5, or Site 19 (also known as Derecktor Shipyard offshore) is one of these designated sites.

The Navy works closely with U.S. EPA and the Rhode Island Department of Environmental Management (RIDEM) to implement CERCLA cleanup actions. The Navy is the lead agency for all investigation and cleanup programs ongoing at NAVSTA Newport.

As the lead agency, the Navy has prepared this Proposed Plan for marine sediment at Site 19 in accordance with CERCLA Section 117(a) and Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan. This Proposed Plan and its associated public involvement opportunities fulfill the Navy’s public participation responsibilities under these laws. This proposed plan was developed with support from the U.S. EPA and RIDEM.

The purpose of this Proposed Plan is to:

- Encourage public review and comment on the cleanup plan for the Site marine sediment.
- Provide background information on the Site, which includes a description of the site, a summary of the results of environmental investigations, and the conclusions of human health and ecological risk assessments.
- Describe cleanup alternatives (Remedial Action Alternatives) that have been considered for the Site 19 marine sediment.
- Identify and explain the Navy's preferred cleanup remedy for the Site 19 marine sediment.

Once the public has had the opportunity to review and comment on this Proposed Plan, the Navy, U.S. EPA, and RIDEM will carefully consider all comments received and, based on the comments, could modify the cleanup plan or even select a different remedy from the one currently proposed. Ultimately, the selected remedy will be documented in a **Record of Decision (ROD)** for the Site. The Navy will respond to all comments received during the comment period and public hearing in a document called the

Responsiveness Summary. The Responsiveness Summary will be issued with the ROD.

This Proposed Plan presents the highlights of key information from previous investigations of marine sediment at Site 19, many of which have been presented to the public at **Restoration Advisory Board** meetings. More detailed information about marine sediment at Site 19 can be found in key documents, such as the **Ecological Risk Assessment (ERA)**, **Human Health Risk Assessment (HHRA)**, Supplemental Sediment Investigation (SSI) Report, **Feasibility Study (FS)**, the related regulatory agency correspondence, and other documents that form the **Administrative Record** for this Proposed Plan. These documents are available for review at the public Information Repository listed at the end of this Proposed Plan. The Navy encourages the public to review these documents to gain a better understanding of the environmental activities and investigations performed on the marine sediment at Site 19 (OU5).

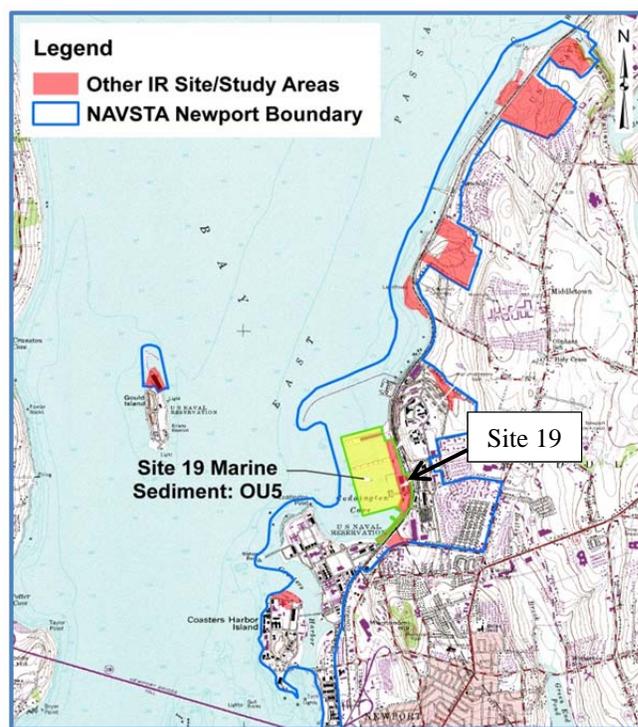


FIGURE 1: Site 19 Location

Scope and Role of the Response Action

Site 19, Former Derecktor Shipyard, is one of several sites identified at NAVSTA Newport for cleanup under the CERCLA process. Each of these sites progresses through the cleanup process independently of the others, and as such, this plan is not expected to impact the strategy or progress of cleanup for other sites at NAVSTA Newport. Separate Proposed Plans have been, and will be, issued for these other sites as they progress through the investigation and cleanup process.

Site Background and Characteristics

Where is The Site?

Site 19 is part of the NAVSTA Newport facility. Site 19 is also known as the Former Derecktor Shipyard, and is located in the central portion of the facility, in Middletown and Newport, Rhode Island (Figure 1).

The offshore portion of Site 19 occupies approximately 110 acres along the shoreline in the vicinity of Piers 1 and 2, within Coddington Cove (Figure 2). Surrounding the offshore portions of the Former Derecktor Shipyard on the north and west sides are other portions of Coddington Cove (with a man-made breakwater to the north and northwest) and on the south and east are portions of NAVSTA Newport, including the onshore portions of the Site.

The study area for offshore portions of the Former Derecktor Shipyard includes marine sediment extending from an approximate east-west line 200 feet north of Pier 2 south, to an approximate east-west line located 350 feet south of the T-Wharf. See Figure 2.



FIGURE 2: Site 19 OU5 - Current Features

What caused the contamination in marine sediment at the Site?

The property occupied now by Site 19 was used as an industrial port since World War II. From its development in the 1940s until 1973, Site 19 was used by the Navy as a naval supply station and headquarters to the Commander Cruiser-Destroyer Force.

From 1979 to 1992 Robert E. Derecktor Shipyards of Rhode Island leased the Site for ship repair, maintenance, and construction activities. The shipyard had a history of violations of environmental statutes for the improper management and disposal of wastes and contaminants both on land and in the bay. Much of the contamination present in the marine sediment at Site 19 is believed to come from these activities. Suspected sources of contaminants include two floating dry-docks that were located at Pier 1, and the Greenport Ferry that was located south of the T-Wharf; all of which were operated during the lease of the Site by Derecktor. Additionally, storm water runoff during the Derecktor lease likely contributed to the contamination in marine sediment at the Site. Since the end of the lease, on-shore contaminant sources have been addressed and only some small areas of residual contamination are believed to remain. These areas will be addressed under the separate Site 19, Former Derecktor Shipyard On-Shore cleanup.

Figure 3 presents an aerial image of the Site from 1988 (3 years before the termination of the lease). Contaminants remaining from these historical practices are currently regulated under CERCLA and are the focus of this Proposed Plan.

What does Site 19 look like today?

All buildings on site that were once occupied by Derecktor have been removed or refurbished. Additionally, multiple onshore removal actions have addressed contaminant sources that were once present. Remaining contaminants on shore will be addressed by the on-shore remedy, discussed previously, and are not part of this Proposed Plan.

Currently the on-shore portion of Site 19 is comprised of undeveloped areas, foundations of former buildings, temporary offices, parking areas, storage areas utilized by the United States Coast Guard (USCG) for buoy maintenance, and on-going construction projects (USCG Buoy Tender Waterfront).

Offshore, both Pier 1 and Pier 2 have limited use and have weight restrictions in place. Currently, the sole use of Pier 1 is as a moorage for the aircraft carrier ex-Saratoga (scheduled for removal in 2014).

Pier 2 is in active use by the Navy, the USCG, and the National Oceanic and Atmospheric Administration (NOAA) for limited purposes (including mooring of multiple ships), and also houses the Naval Undersea Warfare Center (NUWC) Periscope Shop. Pier 2 occasionally supports visiting U.S. Navy and foreign Navy ships. The T-Wharf, located on the far south end of Site 19, is in disrepair and not used. The small boat basin north of the T-Wharf is not currently used.



FIGURE 3: Site 19 in 1988

What were the investigation results at Site 19?

The following contaminants were identified in marine sediment at Site 19:

Benzo(a)pyrene – identified at elevated levels in samples collected from the east ends of Piers 1 and 2, and in the area south of the T-Wharf at depths of up to 4 feet.

High molecular weight (HMW) polynuclear aromatic hydrocarbons (PAHs) – identified at elevated levels in samples collected from the east end of Pier 2 and the area south of the T-Wharf at depths of up to 4 feet.

Lead – identified in samples collected from areas surrounding the east end of Pier 1 and multiple locations surrounding Pier 2, at depths of up to 4 feet.

Polychlorinated Biphenyls (PCBs) – identified in samples collected from south of Pier 2 at depths of up to 2 feet, and beneath Pier 1 at depths between 2 and 4 feet.

Abbreviated History of Site 19

Pre 1979 – Navy operated Coddington Cove as a supply station and home to the Commander Cruiser-Destroyer Force.

1979 – Derecktor Corp. began lease of Pier 1 and onshore areas.

1980 – The Naval Assessment and Control of Installation Pollutants (NACIP) program was initiated to identify and assess contamination at Navy installations.

1987 – Derecktor Shipyard pled guilty to criminal violations of the Toxic Substance Control Act, CERCLA, Clean Water Act, Resource Conservation and Recovery Act, Clean Air Act, and Hazardous Transportation Act, for illegal disposal activities including the discharge of over 4,000 tons of pollutants into the Bay.

1988 – A Technical Review Committee was convened to oversee CERCLA investigations and remedial actions at NAVSTA Newport.

1989 – NAVSTA Newport was listed on the National Priorities List (NPL).

1992 – The Derecktor Corp. filed for bankruptcy.

1993 – The Navy completed a Preliminary Assessment of Site 19 that concludes shipyard activities performed during the Derecktor lease generated large quantities of hazardous materials that were disposed of onsite and released to the environment. Based on these conclusions the Navy added Derecktor Shipyard to the FFA list as a “Study Area”.

1993 – The Navy, in coordination with URI performed an initial sediment investigation at select locations within Coddington Cove, and found that contaminants were present in marine sediment samples at elevated levels.

1994 – 2007 – Navy performed multiple onshore removal actions that mitigated onshore contaminant sources.

1995 – The Restoration Advisory Board (RAB) was formed, replacing the Technical Review Committee established in 1988.

1997, 1998 – Marine Ecological Risk Assessment (ERA) and Human Health Risk Assessment (HHRA) concluded that potential risks are present at the Site due to marine sediment contamination.

1998 – A Stillwater Basin Evaluation Study was conducted and concluded that environmental characteristics of the Stillwater Basin (north of the T-Wharf) are not suitable for development of a benthic community.

2004 – Additional sediment sampling was conducted at the Site and found that contaminants were present in marine surface sediment at locations similar to locations identified in previous investigations, but at lower concentrations.

2011 – A Supplemental Sediment Investigation (SSI) found that contaminants were present in marine sediment at locations similar to ones previously identified at depths of up to 4 feet, and at concentrations similar to the ones reported in the ERA.

Asbestos – identified at concentrations of up to 2% in two of the 27 samples collected from beneath Pier 1. All other samples were non-detect or trace detections (<1%).

Where are the marine sediment contaminants located?

The marine sediment contaminants at Site 19 are localized, and found mostly surrounding the piers and south of the T-Wharf, where the most ship construction and maintenance activities took place. COC concentrations have been reported at levels greater than screening criteria at depths of up to four feet around Piers 1 and 2, and at a depth of up to two feet south of the T-Wharf. Figure 4 depicts the areas of affected sediment.

Summary of Site Risks

In 1997 and 1998 a marine ERA and HHRA were conducted following CERCLA methodologies. The Navy evaluated the potential effects of site contaminants on human health and the environment, both under current land use and potential future land use scenarios.

Table 1 summarizes site risks. Unacceptable risks were estimated for the subsistence fisherman based on shellfish ingestion from the site. All other human health risks were deemed acceptable.

It is the Navy's current judgment that the Preferred Alternative identified in this Proposed Plan, or one of the other active measures considered in the Proposed Plan, is necessary to protect public health or welfare or the environment from actual or threatened releases of pollutants or contaminants from this site that may present an imminent and substantial endangerment to public health or welfare.

Human Health Risk

The HHRA estimated the "baseline risk," which is the likelihood of health problems occurring if no cleanup actions were taken at the site. To estimate the baseline risk for human health, a four-step process was used:

Step 1 - Identify Chemicals of Potential Concern.

Chemicals of potential concern (COPCs) were defined as chemicals detected in marine sediment at concentrations that exceeded federal or state risk-screening levels. Chemicals with concentrations above these benchmarks were further evaluated in Step 2.

Step 2 - Conduct an Exposure Assessment.

The ways that humans could come into contact with the identified COPCs were evaluated. Both current and reasonably foreseeable future exposure scenarios were considered. For marine sediment at Site 19, potential exposures to COPCs include:

- Ingestion of shellfish by children or adult recreational fishermen, or adult subsistence fishermen.
- Exposure to sediment (incidental ingestion and dermal contact) by trespassers.

It should be noted that the current and planned future use of the site is as an industrial/commercial port with some potential use by recreational or commercial fishermen. There is no current or planned unrestricted recreational use of the site or shorelines nearby. Recreational uses are evaluated in the risk assessment process to provide a basis for the need for a cleanup action.

How is Risk to People Expressed?

In evaluating risks to humans, estimates for risk from carcinogens (chemicals that may cause cancer) and non-carcinogens (chemicals that may cause adverse effects other than cancer) are expressed differently.

For carcinogens, risk estimates are expressed in terms of probability. For example, exposure to a particular carcinogenic chemical may present a 1 in 10,000 increased chance of causing cancer over an estimated lifetime of 70 years. This can also be expressed as 1×10^{-4} . The USEPA acceptable risk range for carcinogens is 1×10^{-6} (1 in 1,000,000) to 1×10^{-4} (1 in 10,000). In general, calculated risks higher than this range would require consideration of clean-up alternatives.

For non-carcinogens, exposures are first estimated and then compared to a reference dose (RfD). The RfD is developed by USEPA scientists to estimate the amount of a chemical a person (including the most sensitive person) could be exposed to over a lifetime without developing adverse health effects. The exposure dose is divided by the RfD to calculate the measure known as a hazard index (HI) (a ratio). A HI greater than 1 suggests that adverse effects may be possible.

Risk from exposure to lead is evaluated by using a model developed by the USEPA. The approach is based on effects to a fetus through exposure to the mother. For fetuses born to mothers exposed to lead, a probability that the fetal blood-lead concentration exceeds 10 micrograms per deciliter ($\mu\text{g}/\text{dL}$) is calculated. If the probability is less than 5 percent, it is accepted that lead does not pose a risk to humans.

Step 3 - Complete a Toxicity Assessment.

Possible harmful effects associated with potential exposure to the COPC were evaluated. Generally,

these COPC were separated into two groups: carcinogens (chemicals that may cause cancer) and non-carcinogens (chemicals that may cause adverse health effects other than cancer).

Step 4 - Characterize the Risk.

The results of Steps 2 and 3 were combined to estimate overall risks from exposure to the COPCs. The terms used to define the estimated risk are explained in the text box, *How is Risk to People Expressed?* The risk assessment results are summarized on Table 1.

Unacceptable risks to human health were associated with the following exposure scenarios:

- Exposure to benzo(a)pyrene through Ingestion of shellfish by persons eating 36 or more meals (lobster, clams, mussels) per year taken from this area.

Cancer and non-cancer risks for trespassers (swimming, wading, occasional shellfish meals) exposure were found to be within acceptable levels.

Ecological Risks

The Marine ERA was conducted to identify any risks to ecological receptors or the environment posed by site contaminants. To conduct the ERA, the following five-step process was used:

Step 1 - Problem Formulation.

The problem formulation involved determining the nature and extent of contamination of off-shore (sub-tidal) media associated with Site 19 contamination sources. Specifically, this activity involved identifying contaminated media, identifying COPCs, evaluating the spatial extent of contamination, identifying the ecological receptors potentially at risk from COPCs, and identifying appropriate assessment and measurement endpoints.

Step 2 – Site Characterization.

Side-scan sonar, sub-bottom profiling sonar, and sediment core surveys were undertaken to determine the characteristics of both surface and underlying sediments within the Derecktor Shipyard/Coddington Cove study area. In addition, hydrographic surveys were performed to measure current velocity and water column profiling of conductivity, temperature, and depth to determine patterns of water circulation within the study area.

Step 3 – Exposure Assessment.

Exposure assessments included evaluating the concentrations of **Chemicals of Concern (COCs)** in environmental media in the exposure pathways from contaminant sources to ecological receptors. Several exposure pathways, which allow contaminant sources associated with historic activities at Derecktor Shipyard to impact biota, were identified. These include exposure to, and bioaccumulation of,

contaminants from water and sediments. The exposure assessment addressed the spatial distribution and concentration of contaminants in bottom sediments and biological tissues, as well as the possible fate and transport mechanisms by which shipyard-associated COCs might reach receptors of concern. Receptors of concern for the site included bivalves, lobsters, the benthic invertebrate community, fish, and avian aquatic predators.

Step 4 – Ecological Effects Assessment.

The ecological effects assessment involved combining toxicological literature review, site-specific investigations of the status of receptor species, toxicity evaluations of exposure media, and modeling exercises to predict the occurrence of adverse ecological impact. Ecological effects were quantified by determining the relationships between exposure patterns and resulting responses of ecological systems.

Site-specific evaluations of toxicity were conducted for surface sediments using the 10-day amphipod (*Ampelisca abdita*) mortality test. Sea urchin (*Arbacia punctulata*) fertilization and larval development tests were used for sediment elutriates (suspended sediment). Tissue residue effects (effects due to COCs in tissue of animals) were evaluated for fish, mussels, hard clams, and lobster. Toxicity reference values for avian predators were compared with concentrations detected in their prey species.

In addition, field-based assessments were conducted to identify contaminant based, as well as non-contaminant based stressors to the ecology of the cove, including benthic community structure analyses, biota condition, neoplasia (a blood disorder), and presence of fecal indicators.

Step 5 – Risk Characterization.

The Marine ERA incorporated the assessment of the exposure and effects endpoints with a weight-of-evidence framework. The terms used to define the ecological risk are explained in the text box, *How is Ecological Risk Expressed?*

How is Ecological Risk Expressed?

The risk to ecological receptors is expressed as a Hazard Quotient (HQ). HQs are calculated by dividing the exposure of the receptors to contaminants, through food or direct contact, with concentrations considered to pose little or no risk of adverse effects.

When the HQ is below 1, toxicological effects are unlikely to occur and no significant risk is present. When the HQ is above 1, there is a potential for significant risk to be present.

Ultimately the line-of-evidence framework determined that there was potential for adverse effects to fish, shellfish, and seabirds from PCBs, high molecular

weight PAHs or lead at 10 of 18 sample stations located within Derecktor Shipyard.

Potential for Risk from Asbestos in Sediment

Asbestos, which is known to have been released as insulation from piping under pier 1, was observed on the seafloor under this pier. However, the nature of this material is such that it cannot be recovered after it has been soaked in water for more than several days: the binding agents used in the manufacturing of the insulation are water-soluble, and any disturbance of the water-soaked material results only in dispersion of the asbestos fibers into the water.

Since risk is associated with inhalation of asbestos fibers, this material does not currently pose a risk to receptors. However, if in the future, bulk sediment is removed from under the pier, and if that sediment contains measurable quantities of asbestos, and if that material were allowed to dry and become respirable, there could be a risk of exposure through inhalation of the associated dust. Therefore, there may be potential future risk from this contaminant, and the Navy will ensure appropriate protection from this potential.

Cleanup Objectives

Based on the results of the risk assessments, the following COCs were identified for remediation in marine sediment at Site 19:

- High Molecular Weight (HMW) Polycyclic Aromatic Hydrocarbons (PAHs)
- Benzo(a)pyrene
- Polychlorinated Biphenyls (PCBs)
- Lead

In addition, asbestos, which is known to be present in the marine sediment under Pier 1, and possibly under Pier 2, is identified for consideration in the remedial action as well as for construction projects that may result in removal of sediments, particularly those under the piers. To address potential asbestos risks, any removed sediment will be managed by assuming it is asbestos-containing material unless testing proves otherwise.

Remediation (cleanup) goals for the COCs in marine sediment were developed in the PRG document (published after finalization of the ERA and HHRA), based on calculations of acceptable risk levels and regulatory criteria. For the COCs in marine sediment at Site 19, the associated remediation goals and the basis for these goals are presented in Table 2. These concentrations help identify areas within the Site where COCs need to be addressed in line with the Cleanup Objectives described below.

Cleanup Objectives (also known as **Remedial Action Objectives [RAOs]**) are the goals that a cleanup plan should achieve. The goals are designed to be protective of human health and the environment and

to comply with pertinent federal and state regulations. The cleanup objectives are developed to address all the identified COCs in marine sediment.

As the RAOs are developed for the marine sediment, it is necessary to determine the areas where COCs are present at concentrations above the cleanup goals. Data from over 300 samples collected from the site were used to make this determination.

One practice used to overcome this complexity was to address the areas with higher concentrations, lowering the overall exposures to the receptors on a site-wide basis. This was appropriate because many receptors (birds, fish, lobsters, and also humans) are not exposed to sediment only at one location, but to the sediment (and shellfish) of the cove as a whole, particularly during different life stages. Lowering the average concentration across a given area will reduce overall exposure to the receptors to below the cleanup levels. Utilizing this understanding, the following RAOs were identified for Site 19 marine sediment:

- Reduce human health risk associated with ingestion of shellfish impacted by benzo(a)pyrene by reducing exposure concentrations in sediment.
- Reduce risk to aquatic organisms from sediment impacted by lead, PCB, and HMW PAHs by reducing exposure concentrations.
- Prevent exposure to potential asbestos in dredged shipyard sediment through development of documented precautionary measures and safe work practices.

Integral to this remedy is the methodology by which the areas of sediment to address were selected to meet the RAOs. Through discussions with U.S. EPA and RIDEM, the Navy identified the sediment that causes excessive risk as sediment that causes the surface area-weighted average concentration (SWAC) of the COCs at the site to exceed their respective PRGs. Addressing the sediment by reducing the SWAC ensures that PRGs are met where exposure can occur.

Summary of Cleanup Alternatives

Remedial alternatives (cleanup options) were developed and evaluated in the Site 19, Derecktor Shipyard Marine Sediment FS. The alternatives were developed to meet the RAOs listed above and are described briefly below. Full details are available for review in the FS, located in the public information repository described at the end of this Proposed Plan.

The alternatives were developed to meet RAOs by addressing the SWAC. As described in the preceding section, the purpose behind the SWAC calculations was to conservatively identify sediment areas requiring action so the Site as a whole would achieve RAOs. It was determined that covering/capping or dredging sediment areas selected by the SWAC

calculation would reduce risk to an adequate level as long as the calculations addressed each COC individually. Additional actions (**Land Use Controls [LUCs]** and monitoring) were also determined to be required for the covering/capping and dredge alternatives to ensure prolonged protectiveness of the remedy.

To protect from potential exposure to asbestos that may be in the sediment, safe work practices will be mandated for any construction operations that involve removal of sediment in bulk, and these practices will be documented in a LUC established to protect COCs remaining at the site. Specifically, if any dredging were to take place, or if there is construction or demolition of the piers, dredge spoils will be tested for asbestos before disposal.

The following five cleanup options were evaluated for marine sediment and are summarized in Table 3.

Alternative 1 – No Action:

Under the NCP, a “no action” alternative must be evaluated to serve as a baseline for comparison with the other alternatives. Under this option, the site would be left as it is today and no further cleanup or monitoring would be performed.

Alternative 2 – Enhanced Natural Recovery through Thin Layer Cover, Land Use Controls, and Monitoring:

This alternative could achieve RAOs through the placement of a 6 inch-thick sand cover on target areas while also relying on natural deposition and implementation of LUCs and monitoring. The purpose of the enhanced natural recovery (ENR) cover would be to prevent receptor exposure through enhancement of the natural deposition of sediment that would, if in a depositional environment, isolate the contaminants above remediation goals by covering the contaminated sediment with clean substrate over time.

LUCs and monitoring would ensure that the cover is not disturbed, ensure that deposition is occurring at a sufficient rate, and ensure that contaminated sediment is not re-exposed or migrating.

If it is determined that the target areas are within an adequately depositional area, given enough time this alternative would reduce average concentrations to below cleanup goals for each COC. LUCs and monitoring would be required to ensure the remedy remains protective.

Alternative 3 – In-Situ Cap (Engineered Barrier), LUCs and Monitoring:

This alternative would achieve RAOs through the placement of a 1 foot thick in-situ cap on target areas, and implementation of LUCs and monitoring. Multiple layers of sand and stone may be needed based on hydraulic energy of the target areas. The purpose of this cap would be to prevent receptor exposure to

target areas and contain the sediment with COCs above PRGs beneath a permanent layer of clean substrate. LUCs and monitoring would ensure that the cover is not disturbed and that contaminated sediment is not re-exposed or migrating.

It is projected that this alternative would reduce average concentrations to below cleanup goals for each COC by isolating them below the cover material. LUCs and monitoring would be required to ensure the remedy remains protective.

Alternative 4 – Combination Dredge / Backfill (open water), Cap, LUCs, and Monitoring (under Pier 2):

This alternative would achieve RAOs through a combination of dredge and backfill at open water areas, and installing a cap (engineered barrier) at two target areas beneath Pier 2. The sediment located in target open water areas would be removed by mechanical or hydraulic means, and dredged areas would then be backfilled using clean material. Backfill material would blend with remaining sediment and provide a clean substrate for natural recovery and reduced exposure to the receptors. LUCs and monitoring would ensure that the average concentrations remain below the cleanup goals, and that any possible re-distribution of sediment does not result in development of new “hot-spots”.

Dredged sediments would be transported off base for disposal at an approved on-shore landfill. The disposal location would be selected based on the chemical characteristics of the sediment dredged.

Sediment in target areas located beneath Pier 2 would be contained by placing a 1 foot (minimum) thick engineered barrier over the top of the target areas. LUCs would be required for these covered areas beneath Pier 2 to ensure that contaminated sediment capped beneath Pier 2 will be addressed if Pier 2 is ever reconstructed or demolished, and monitoring will ensure that contaminated sediment beneath Pier 2 is not exposed or migrating.

It is projected that this alternative would reduce site average concentrations to levels below cleanup goals for each COC. Confirmation sampling will be conducted after placement of backfill or capping material to document final average concentrations relative to the cleanup goals. LUCs and monitoring would be required to ensure the remedy remains protective.

Alternative 5 – Target Dredging (open water), Cap, LUCs, and Monitoring (under Pier 2):

This alternative achieves RAOs by dredging target open water areas, and installing a cap (engineered barrier) at target areas beneath Pier 2. The open water areas would be dredged in an arrangement and to a depth such that the average concentrations remaining in sediment at the site would be below the cleanup goals. Also, three additional target areas

would be dredged due to specific concerns for past disposal activities by the shipyard and contaminants present in deeper sediment. No backfill material would be placed in any of the dredge areas after sediment removal.

It is projected that this alternative would reduce average concentrations to levels below cleanup goals for all COCs. Confirmation sampling will be conducted both in dredge areas and adjacent to those areas after dredging to ensure final average concentrations are below the cleanup goals.

LUCs, confirmation sampling, and monitoring would be required for the covered areas under Pier 2 to ensure the remedy remains protective, particularly during any future construction or demolition activities affecting the pier.

Common Elements

Each of the cleanup options, except for the No Action Alternative, also includes the following common element as part of the overall site remedy:

Five-Year reviews – In accordance with CERCLA, a detailed review of site conditions would occur every 5 years in coordination with federal and state regulatory agencies for as long as COCs are present at concentrations that do not allow for unrestricted use and unlimited exposure to the sediment.

In addition, the Navy will prevent exposure to potential asbestos in dredged shipyard sediment through development of documented precautionary measures and safe work practices. These practices will be documented in land use control documentation provided to address COCs remaining at the site. Because asbestos pipe insulation has been released to the marine sediment under at least one of the piers, and because this material could have migrated through water flow, sediment removed will be tested for presence of asbestos and be handled and disposed in accordance with local, state and federal regulations based on those test results.

Evaluation of Alternatives

U.S. EPA established nine criteria for use in comparing the advantages/disadvantages of each cleanup alternative. These criteria fall into three groups: (1) “threshold criteria” that any selected alternative must meet; (2) “primary balancing criteria” that are used to differentiate between alternatives; and (3) “modifying criteria” that may be used to modify the recommended remedy. In the FS, each alternative was individually analyzed with respect to the criteria. Next, the alternatives were compared against each other with respect to each criterion. Table 3 at the end of this proposed plan provides a summary of the alternative comparison for marine sediment.

Preferred Action Alternative

The Navy is proposing Alternative 5 for the marine sediment remedial action. This alternative is recommended because it offers the highest level of protection while maintaining a balance among the nine evaluation criteria (Table 3).

Alternative 5 includes:

- dredging target open water areas (approximately 27,646 cubic yards), disposal of the dredged sediment at an offsite landfill (see Figure 5);
- capping target sub-pier areas (approximately 83,574 square feet);
- confirmation sampling in dredged areas (and possibly adjacent areas) to ensure the cleanup goals have been met on an area-average basis;
- establishing LUCs to ensure capped areas beneath Pier 2 will be protected or addressed in another manner if Pier 2 is ever reconstructed or demolished;
- confirmation sampling and monitoring the capped areas to ensure that COCs left beneath Pier 2 did not migrate into the cap during placement and do not migrate after capping;
- establishing safe work practices in the LUC documentation that require future dredging projects to consider the presence of potential asbestos to ensure that dredge spoils are handled appropriately; and
- conducting five year reviews and inspections to ensure long – term protectiveness.

Summary

Section 404 of the Clean Water Act and Executive Orders 11990 (Protection of Wetlands) and 11988 (Protection of Floodplains), as incorporated under Federal Emergency Management Agency regulations that are relevant and appropriate to the cleanup, require a determination that there is no practical alternative to taking federal actions affecting federal jurisdictional wetlands, aquatic habitats and floodplain. EPA and the Navy are requesting public comment concerning the finding that the proposed cleanup alternative for sediments is the least environmentally damaging practicable approach for protecting wetlands and aquatic habitats.

EPA and the Navy are also proposing a finding under the Toxic Substances Control Act (TSCA), that the risk-based PCB cleanup level for sediments and the capping of a limited area of contaminated sediments under Pier 2 will not pose an unreasonable risk of injury to health or the environment.

In accordance with the Clean Water Act, the Navy has determined that Alternative 5 is the Least Environmentally Damaging Practicable Alternative to

protect wetland and aquatic resources because it provides the best balance of addressing contaminated sediment within and adjacent to wetlands and waterways with minimizing both temporary and permanent alteration of aquatic habitats on site. Although each of the sediment cleanup options would impact aquatic habitats during cleanup activities, Alternative 5 will permanently remove most COCs in sediment and cover a limited area of contaminated sediments under Pier 2, which will be a long-term benefit to the aquatic habitat in the Bay.

Overall, the Navy expects the Preferred Alternative to: (1) be protective of human health and the environment; (2) comply with all pertinent federal and state regulations; (3) be cost-effective; and (4) use technologies that are permanent.

Next Steps

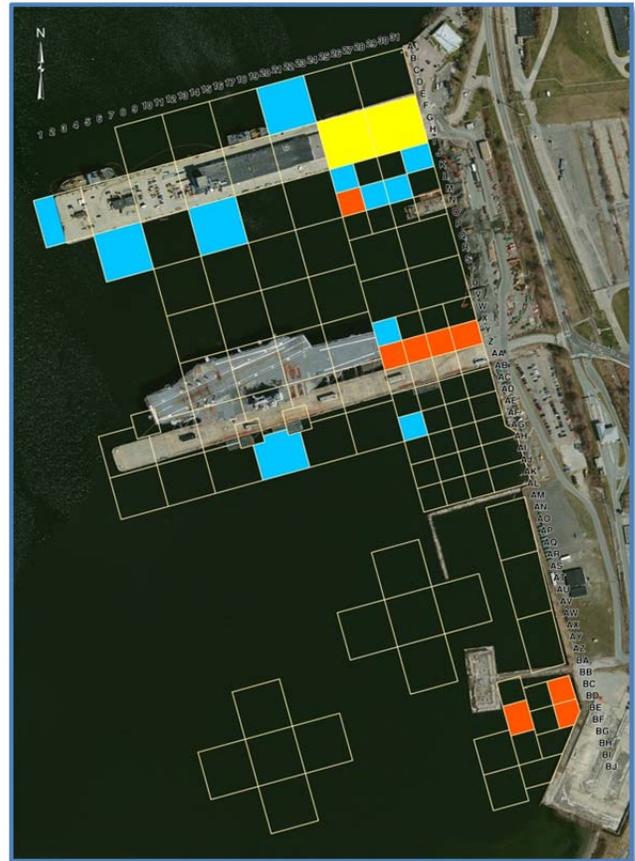
Community consideration of this Proposed Plan is the next step in the cleanup process for marine sediment at Site 19. The public is encouraged to review this plan and submit comments to the Navy.

The Navy will accept written comments on the Proposed Plan during the public comment period, from May 21, 2014 to June 20, 2014. The Navy will accept oral comments during a Public Hearing that follows a Public Information Session to be held on Wednesday, May 21, 2014 at the Courtyard Marriott, 9 Commerce Drive, Middletown, Rhode Island.

You do not have to be a technical expert to take part in the review process. The Navy would like to know your thoughts before making a final decision on whether to implement the proposed remedy for marine sediment at Site 19.

Once the community has commented on this Proposed Plan, the Navy, U.S. EPA, and RIDEM will consider all comments received. It is possible that this Proposed Plan could change based on comments received from the community. The Navy will provide written responses to all comments received on the Proposed Plan. The responses to public comments will be provided in the Responsiveness Summary, which will be part of the ROD for this Site.

The ROD will contain the rationale for the Navy's and U.S. EPA's decision for remedial action at the Site. All comments will be reviewed and the ROD will be signed by September 2014. The ROD will then be made available to the public via the public information repository described at the end of this Proposed Plan. The Navy will announce the availability of the ROD through local newspapers and to the NAVSTA RAB.



**FIGURE 5: Alternative 5
Proposed Remediation Target Areas**

Yellow – Cap Area (under pier)
Blue – 1 foot Dredge Area
Red – 2 foot Dredge Area
Unshaded – Tested, but no dredging required

After the Record of Decision

After the ROD is signed, the Navy will design and implement the selected alternative. The available data and information will be used to design the selected actions. The Navy may need to conduct additional investigations in support of the Remedial Design.

After the design is completed, and assuming there is no major opposition to the proposed action, the Navy will oversee the construction and land use control activities to ensure that the actions are properly implemented. Five-year reviews will be conducted to ensure that the remedy remains protective over time.

Commitment to the Communities

The Navy is committed to keeping the communities informed on the environmental cleanup program at NAVSTA Newport. The RAB, composed of the community and government agency representatives, meets regularly to discuss the environmental cleanup program at NAVSTA Newport. At these meetings, community RAB members can provide input and offer suggestions on program activities. Upcoming RAB meetings are publicized in the local news media and are open to the public. If you would like further information about the RAB or the environmental restoration program at NAVSTA Newport, please contact the Navy Public Affairs Office at the address provided on Page 1 of this Proposed Plan. If you would like further information about the specific investigations conducted at Site 19, please contact the Navy's Public Affairs Office at the phone number listed at the end of this Proposed Plan.

For More Information

This Proposed Plan summarizes information that can be found in greater detail in the ERA, SSI Report, and the Feasibility Study, for marine sediment at Site 19, Derecktor Shipyard. These and other site documents are available online at <http://go.usa.gov/DyNw> (click on the link for the "Administrative Records"). The public is invited to review these documents and comment on this Proposed Plan during the public comment period. A copy of the ROD that selects the final remedy and includes the Responsiveness Summary will be available on the website.

Important Dates

30-Day Public Comment Period:

- **Wednesday, May 21 2014 to Friday, June 20, 2014**

Public Meeting:

- **Wednesday, May 21, 2014 (7:00 p.m. to 7:30 p.m.)**

Public Hearing:

- **Wednesday, May 21, 2014 (7:30 p.m. to 8:00 p.m.)**

Your Comments Are Important!

Public comments are used to improve the decision-making process. The Navy will hold a 30-day comment period for receiving written comments, as well as hold a Public Hearing for receiving oral comments. All comments, whether oral or written, received during the public comment period and Public Hearing will become part of the official public record. The Navy will respond to all these comments in writing. For your convenience, there is a comment sheet provided at the end of this Proposed Plan.

Send written comments to:

Ms. Lisa Rama
Public Affairs Office
690 Peary Street
Naval Station Newport
Newport, RI 02841
Fax: (401) 841-2265
Lisa.Rama@navy.mil

All public comments and the Navy's responses will be issued in a document called a Responsiveness Summary that will accompany the ROD (cleanup plan) for marine sediment at Site 19. Copies of the Responsiveness Summary will be mailed or emailed to everyone who gave comment(s). The Navy will consider all comments in making the final decision for the Site. The Navy will announce the final decision through the Newport Daily News.

The public is encouraged to participate during this period as your thoughts and opinions will help in making the final decision. You do not have to be a technical expert to take part in the process.

TABLE 1. RECEPTORS AND CALCULATED HUMAN HEALTH RISK				
RECEPTOR	MEDIUM	PRIMARY CONTRIBUTOR TO RISK	TOTAL CANCER RISK	TOTAL NON-CANCER RISK (HAZARD INDEX)
Child Resident	Shellfish Ingestion (3 meals per year)	High Molecular Weight PAHs (including Benzo(a)pyrene, and Total PCBs)	1.4E-05	0.46
Adult Resident	Shellfish Ingestion (3 meals per year)		4.4E-05	0.3
Subsistence Fisherman	Shellfish Ingestion (36 meals per year)		5.7E-04	3.9
Trespasser (child)	Sediment	Total PCBs	9.9E-07	0.06
Trespasser (adult)	Sediment	Total PCBs	5.4E-07	0.0066

Highlighted cells indicate an exceedance of EPA risk thresholds (cancer risk of 1E-4, and non-cancer Hazard Index of 1).

TABLE 2. REMEDIATION GOALS FOR SEDIMENT		
CHEMICAL OF CONCERN	PROJECT REMEDIAL GOAL	RISK ENDPOINT
Lead	168 mg/kg	Toxicity to aquatic organisms from exposure to suspended sediment
Benzo(a)pyrene	539 µg/kg	Adverse human health effects (Cancer Risk > 10 ⁻⁴) from ingestion of shellfish
Total HMW PAHs	13,903 µg/kg	Toxicity to aquatic organisms from exposure to bedded sediment
Total PCBs	1,060 µg/kg	Toxicity to aquatic organisms from exposure to suspended and bedded sediment Adverse human health effects (Cancer Risk > 10 ⁻⁴) from ingestion of shellfish

TABLE 3. COMPARISON OF SEDIMENT CLEANUP ALTERNATIVES					
	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5
ALTERNATIVE DESCRIPTION/COMPONENTS					
Evaluation Criteria	No Action	ENR Through Thin Layer Cover, LUCs, and Monitoring	In-Situ Cap, LUCs, and Monitoring	Dredge/Backfill (open water); Cover/LUCs and Monitoring (under Pier 2)	Dredge (open water); Cover/LUCs and Monitoring (under Pier 2)
ESTIMATED TIMEFRAMES FOR CLEANUP (years)					
Time to achieve cleanup goals	NA	1 ^(b)	1	1.5	1.5
CRITERIA ANALYSIS: Threshold Criteria – Selected alternative must meet these criteria					
Protects Human Health and the Environment – Will it protect people and animal life? Is it permanent?	⊘	○	●	●	●
Compliance with ARARs – Does this alternative meet federal and state environmental laws, regulations, and requirements?	⊘	● ^(d)	● ^(d)	● ^(d)	●
Primary Balancing Criteria – Used to differentiate between alternatives meeting the threshold criteria					
Provides Long-Term Effectiveness and Permanence – Do risks remain onsite? If so, are the controls adequate and reliable?	⊘	○ ^(c)	○ ^(c)	○ ^(c)	●
Reduces Mobility, Toxicity, and Volume Through Treatment – Does the alternative reduce the harmful effects of the contaminants, their ability to spread, and the amount of contaminated material present?	⊘	⊘	⊘	⊘	⊘
Provides Short-Term Protection – How soon will risks be reduced? Are there short-term hazards to workers, residents, or the environment that could occur during cleanup?	⊘	⊘	○	○	○
Implementability – Is the alternative technically feasible? Are necessary goods and services (treatment equipment, space, etc.) available?	●	○	●	●	●
Cost – Based on a total 30-year present worth.	●	●	●	○	○
Costs (see footnote a)					
Capital Costs (initial costs)	\$ 0	\$ 3,108,057	\$ 4,939,678	\$ 11,954,590	\$ 16,980,477
O&M Costs (total long-term, 30-year)	\$ 0	\$ 2,114,794	\$ 2,768,712	\$ 1,840,816	\$ 1,847,673
Total Present Worth Cost (total cost)	\$ 0	\$ 5,222,851	\$ 7,708,390	\$ 13,795,406	\$ 18,828,150
Modifying Criteria – May be used to modify recommended cleanup					
State Agency Acceptance – Do state environmental agencies agree with Navy's recommended alternative?	To be determined following the public comment period.				
Community Acceptance – What objections, modifications, or suggestions do the public offer during the public comment period?	To be determined following the public comment period.				
Notes:					
a - For purposes of cost estimation, all O&M costs represent 30-year time frames only. Actual total costs may be higher.					
b - Time estimate is for completion of Remedial Action, actual protectiveness will not be achieved until an additional six inches is naturally deposited which has not been estimated.					
c - EPA and the State of Rhode Island have stated that permanence is questionable based on the potential for sediment disturbance.					
d - The state of Rhode Island has already expressed concern with Alternatives 2, 3, and 4 indicating that these all would require restrictions on the potential future use of the port area.					
ARARs: Applicable or relevant and appropriate requirements LUCs: Land Use Controls O&M: Operation and Maintenance			● Meets ○ Partially Meets ⊘ Does not meet		

FIGURE 4
CONCEPTUAL SITE MODEL
NAVAL STATION NEWPORT
SITE 19, FORMER DERECKTOR SHIPYARD



Contaminants of Concern

- Benzo(a)pyrene, risk to human health through ingestion of shellfish
- HMW PAHs, risk to ecological receptors from exposure to bedded sediment
- Lead, risk to ecological receptors from exposure to resuspended sediment and ingestion of shellfish
- PCB's, risk to ecological receptors from exposure to bedded sediment and ingestion of shellfish
- Asbestos, potential for risk to workers if sediment beneath piers is removed and handled improperly.

Not to scale
 Not to be used for design



GLOSSARY OF TERMS

Administrative Record: The collection of documents supporting the decision for the proposed cleanup alternative. A copy of the Administrative Record is available for public review at the local information repository.

Applicable or Relevant and Appropriate Requirements (ARARs): Federal environmental and state environmental and facility siting statutes and regulations that must be complied with for each alternative. The ARARs vary depending on the alternative being proposed.

Chemicals of Concern: Chemicals identified in risk assessments as the primary drivers of unacceptable risks.

Chemicals of Potential Concern: Chemicals which are found at concentrations above federal and state risk-screening levels and, therefore, are included in further risk assessments.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A federal law passed in 1980 and amended in 1986 by the Superfund Amendments and Reauthorization Act (SARA). These laws created a system and funding mechanism for investigating and cleaning up abandoned and/or uncontrolled hazardous waste sites. The Navy's cleanup of sites regulated by CERCLA/SARA is funded by the Department of Defense under the Defense Environmental Restoration Fund.

Feasibility Study: A description and engineering study of the potential cleanup alternatives for a site.

Information Repository: A public file containing site information, documents of onsite activities, and general information about a site.

Installation Restoration Program: A Navy program created to identify, investigate, evaluate, and if necessary, clean-up sites to protect human health and the environment.

Land Use Control: A legal or administrative restriction that prevents access or certain uses of land.

Monitored Natural Recovery: Natural recovery is a process by which chemicals in the sediment are isolated over time through natural processes, such as deposition; effectively rendering the contaminated sediment inaccessible by receptors. Monitored Natural Recovery is an accepted practice to confirm and watch this process taking place over time to identify when cleanup goals are met.

Proposed Plan: A CERCLA document that summarizes the preferred cleanup remedy for a site and provides the public with information on how they can participate in the remedy selection process.

Record of Decision: A CERCLA legal, technical, and public document that explains the rationale and final cleanup decision for a site. It contains a summary of the public's involvement in the cleanup decision.

Remedial Action Objectives: Goals that are set to protect human health and the environment, and provide the basis to select cleanup methods.

Remedial Investigation: A step in the CERCLA process that is completed to gather sufficient information to support selection of a cleanup approach to a site. The Remedial Investigation involves site characterization or the collection of data and information necessary to characterize the nature and extent of contamination at a site. The Remedial Investigation also determines whether or not the contamination presents a significant risk to human health or the environment.

Responsiveness Summary: A document containing the responses to the public comments on the Proposed Plan. This summary is issued as part of the Record of Decision.

Restoration Advisory Board: A forum for the exchange of information and partnership among citizens, community representatives, the Navy, and regulatory agencies for the environmental cleanup programs at NAVSTA Newport.

For More Information...

Contacts

If you have general questions about the restoration program at NAVSTA Newport, please contact:

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Information Repository

Documents relating to environmental cleanup activities for the NAVSTA Newport property are available for public review using the Navy Administrative Record file searching tools at the following information repository:

Go to:
<http://go.usa.gov/DyNw>
click on "Administrative Records"
then "Administrative Record File"
and search documents for
"Derecktor"

or

<http://www.rabnewportri.org/>
and click on the link for the
"NAVFAC Website"

Affix
Postage

Ms. Lisa Rama
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690 Peary Street
Naval Station Newport
Newport, RI 02841

(Fold on dotted line, staple, stamp, and mail)