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PROPOSED PLAN FOR OPERABLE UNIT 9 (OU 9) NSY PORTSMOUTH ME  
7/1/2013  
NSY PORTSMOUTH



# Proposed Plan Operable Unit 9 Portsmouth Naval Shipyard, Kittery, Maine

## THE CLEANUP PROPOSAL

This Proposed Plan has been prepared, in accordance with federal law and the Federal Facility Agreement for Portsmouth Naval Shipyard (PNS), to present the Navy's preferred approach for addressing contamination at Operable Unit (OU) 9, PNS, Kittery, Maine. OU9 consists of Site 34 (the Former Oil Gasification Plant, Building 62). **Polycyclic aromatic hydrocarbon (PAH)**-contaminated subsurface soil is present in an area north of Building 62, and ash with PAH contamination may be present beneath the floor of Building 62 Annex.

After careful study, the Navy, with concurrence from the United States Environmental Protection Agency (EPA) and Maine Department of Environmental Protection (MEDEP), proposes:

- Implementation of **land use controls (LUCs)** for the area north of Building 62 and Building 62 Annex.
- Performance of five-year reviews to ensure continued protectiveness.

LUCs for Building 62 Annex would prevent unacceptable industrial exposure to contamination under Building 62 Annex. LUCs would prevent residential exposure to contamination under Building 62 Annex and in the subsurface soil in the area north of Building 62.

This plan provides information on the remedial alternatives evaluated for contamination at OU9, the public comment period, the informational open house and public hearing, and how the final remedy for OU9 will ultimately be selected.

## LET US KNOW WHAT YOU THINK

### Mark Your Calendar!

#### PUBLIC COMMENT PERIOD

*JULY 16, 2013, TO AUGUST 14, 2013*

The Navy will accept comments on this Proposed Plan for OU9 during this comment period. You do not have to be a technical expert to comment. To provide formal comments, you may offer oral comments during the public hearing or provide written comments either at the informational open house, at the public hearing, or by fax or mail. Send written comments postmarked no later than August 14, 2013, to:

Ms. Danna Eddy  
Public Affairs Office (Code PAO100)  
Portsmouth Naval Shipyard,  
Portsmouth, New Hampshire 03804-5000  
Fax: (207) 483-1266

#### INFORMATIONAL OPEN HOUSE AND PUBLIC HEARING

*JULY 23, 2013*

The Navy invites you to attend an informational open house from 7:00 pm to 7:30 pm to learn more about the proposed OU9 cleanup plan and how it compares with other cleanup options for the site. The informational session will include posters describing the Proposed Plan, and an informal question and answer session. A formal public hearing for OU9 will be held from 8:00 to 8:20 pm, following the public hearing for OU7. During the public hearing for OU9 the Navy will receive comments from the public on the Proposed Plan for OU9. It is at this formal hearing that an official transcript of the comments will be recorded. The above activities will be held at Kittery Town Hall in Kittery, Maine.

*Federal and state environmental laws govern cleanup activities at federal facilities. A federal law called the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)**, better known as Superfund, provides procedures for investigation and cleanup of environmental problems. Under this law, the Navy is pursuing cleanup of designated sites at PNS to return the property to a condition that protects the community, workers, and the environment.*

## INTRODUCTION

This Proposed Plan provides information on the preferred approach for addressing contamination at OU9 at PNS and provides the rationale for this preference. In addition, this plan includes summaries of other cleanup alternatives evaluated for use at OU9. This document is issued by the Navy, as the lead agency for all investigations and cleanup programs ongoing at PNS, and EPA, with the concurrence of MEDEP. The Navy and EPA, in consultation with MEDEP, will select the final remedy for OU9 after reviewing and considering all information submitted during the 30-day public comment period and may modify the preferred alternative or select another response action presented in this plan based on new information or public comments. Therefore, the public is encouraged to review and comment on all of the alternatives presented in this Proposed Plan.

The Navy is issuing this Proposed Plan as part of its public participation responsibilities under Section 300.430(f)(2) of the **National Oil and Hazardous Substances Pollution Contingency Plan (NCP)**. The Proposed Plan summarizes information that can be found in greater detail in the **Remedial Investigation (RI)**, **Feasibility Study (FS)**, and other documents included in the PNS Information Repositories, located at the Rice Public Library in Kittery, Maine, and Portsmouth Public Library in Portsmouth, New Hampshire. The Navy and EPA encourage the public to review these documents to gain a more comprehensive understanding of the site and associated environmental activities. Please refer to the Next Steps section on Page 12 for contact information and hours of operation for these facilities.

The purposes of this Proposed Plan are to:

- Provide the public with basic background information about PNS and OU9. This information includes a description of the OU that was developed by reviewing past documents, investigating soil, and evaluating potential human and ecological impacts.
- Describe the cleanup options that were considered.
- Identify the Navy's preferred alternative for remedial action at OU9 and explain the reasons for that preference.
- Provide information on how the public can be involved in the remedy selection process.
- Solicit and encourage public review of the Proposed Plan.

After the public has had the opportunity to review and comment on this Proposed Plan, the Navy will summarize and respond to all significant comments received during the comment period in a Responsiveness Summary. The Navy and EPA, in consultation with MEDEP, will carefully consider all comments received and could even select a remedy different from that proposed in this plan, after appropriate additional opportunity for comment. Ultimately, the selected remedy for

### History of Site Investigations and Interim Actions

**1998 – Soil and Sediment Sampling:** Identified Site 34 as a potentially contaminated site when ash was observed on the northern side of Building 62. Samples were collected to support further investigation.

**1999 – Limited Ash Excavation:** Ash was excavated from a pile on the northern side of Building 62; however, excavation was terminated when the volume of ash encountered exceeded the estimated two 55-gallon drums.

**2003 – Site Screening Investigation (SSI):** Conducted soil (including ash) and sediment sampling to determine whether site operations may have impacted soil or sediment. Temporary monitoring wells were installed at several borings; however, groundwater was not present in soil, and the wells were subsequently abandoned. The SSI concluded that PAHs, antimony, lead, and mercury were the potential contaminants associated with ash, and that by removing the ash, the majority of potential risks to human receptors would be addressed.

**2004 – Ash Extent Evaluation:** The visual presence of ash was used to determine the approximate extent of ash to support a removal action.

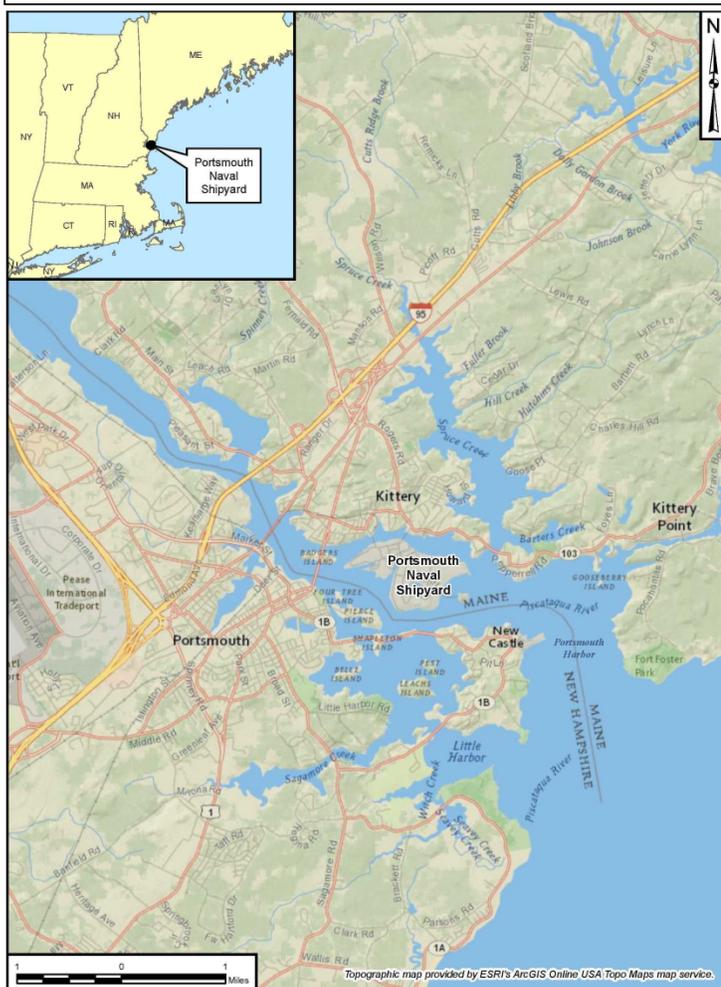
**2007 – Removal Action:** Included removal of ash across most of the site. Ash was excavated and the excavation backfilled with fill from an off-base borrow source. Although minor ash is present in the grassy area northeast of Building 62, no excavation was conducted to preserve large oak trees in this area.

**2009 and 2010 – RI:** Conducted to determine the nature and extent of contamination and to evaluate potential risks to human receptors after the 2007 removal action. An unexpected pocket of ash and burnt material was discovered north of Building 62, in the subsurface beneath the excavated area. Tar and ash suspected to be under Building 62 were not found. PAHs were the main contaminants associated with the ash. Antimony, lead, and mercury were detected at low concentrations. The RI concluded that with the removal of the majority of ash in 2007, there was no longer a risk for migration of contamination at OU9 to offshore sediment. Sediment contamination from past releases to the offshore area is being addressed as part of OU4 (offshore OU).

**2012 – FS:** Conducted to develop and evaluate potential cleanup alternatives for OU9.

OU9 will be documented in a **Record of Decision (ROD)**. The Responsiveness Summary will be issued with the ROD.

**Figure 1 - Site Vicinity Map**



gasification operations from the 1870s to the early 1900s. From 1915 to 1930, Building 62 was used as a blacksmith shop by the Shipyard Public Works Department, during which time the building was gutted by a fire (1919). The primary source of contamination at OU9 is ash from past oil gasification and blacksmithing operations. From 1930 to the present, Building 62 has been used for temporary storage of non-hazardous material. From the 1960s to 1985, pesticides, insecticides, and/or herbicides were stored in Building 62. Building 62 Annex was built in the 1940s for temporary storage of non-hazardous materials. Building 63, located within the OU9 boundary, was constructed in 1874 as a Cart and Wheel Shed and later used for Public Works storage. Building 63 was demolished in 2005, and the foundation was removed in 2007. A thin layer of ash was found under the foundation of Building 63, which was removed as part of the 2007 removal action.

### **What is the current and future land use at the site?**

The current land use for OU9 is industrial. Building 62 and Building 62 Annex are used for temporary storage of non-hazardous materials. Outside of these buildings, OU9 is covered with pavement, crushed stones, and grass north and east of Building 62, with some trees and shrubs in the far northeastern portion. Adjacent to OU9 are other buildings in areas east, south, and west of Building 62 and Building 62 Annex. Future land use is anticipated to remain the same as current land use.

## **SITE CHARACTERISTICS**

### **What does OU9 look like?**

OU9 is an industrial area that includes Building 62 and Building 62 Annex. The majority of OU9 is relatively flat, with a gentle slope from the south of the site toward the area north of Building 62. Former Building 63 was located east of Building 62. Areas west and south of Building 62 are paved, and areas north and east of Building 62 are covered with crushed stones, grass, or other vegetation. There is a steep slope to the water's edge at the shoreline of the Piscataqua River Back Channel. Figure 3 shows the conceptual site model for OU9.

### **What is the size of OU9?**

OU9 is approximately 1 acre in size. Excluding Building 62 (3,300 square feet), Building 62 Annex (3,500 square feet), and the grassy area with trees (4,100 square feet), most of the site was included in the 2007 removal action.

### **How much and what types of chemicals are present?**

PAHs that may cause cancer (carcinogenic PAHs), including benzo(a)pyrene and related compounds, are the contaminants associated with ash from past operations at OU9. The majority of the ash and associated contaminated soil were removed during the 2007 removal action. During the RI conducted after

## **SITE BACKGROUND**

PNS is a military facility with restricted access located on an island in the Piscataqua River. The Piscataqua River is a tidal estuary that forms the southern boundary between Maine and New Hampshire. PNS was established as a government facility in 1800 and it served as a repair and building facility for ships during the Civil War. The first government-built submarine was designed and constructed at PNS during World War I. A large number of submarines have been designed, constructed, and repaired at this facility since 1917. PNS continues to service submarines as its primary military focus. Figure 1 shows the location of PNS, and Figure 2 shows the layout of OU9.

### **Where is OU9 within the Shipyard?**

OU9 is located in the northwestern portion of PNS, east of the access bridge from the mainland to PNS (at Gate 1).

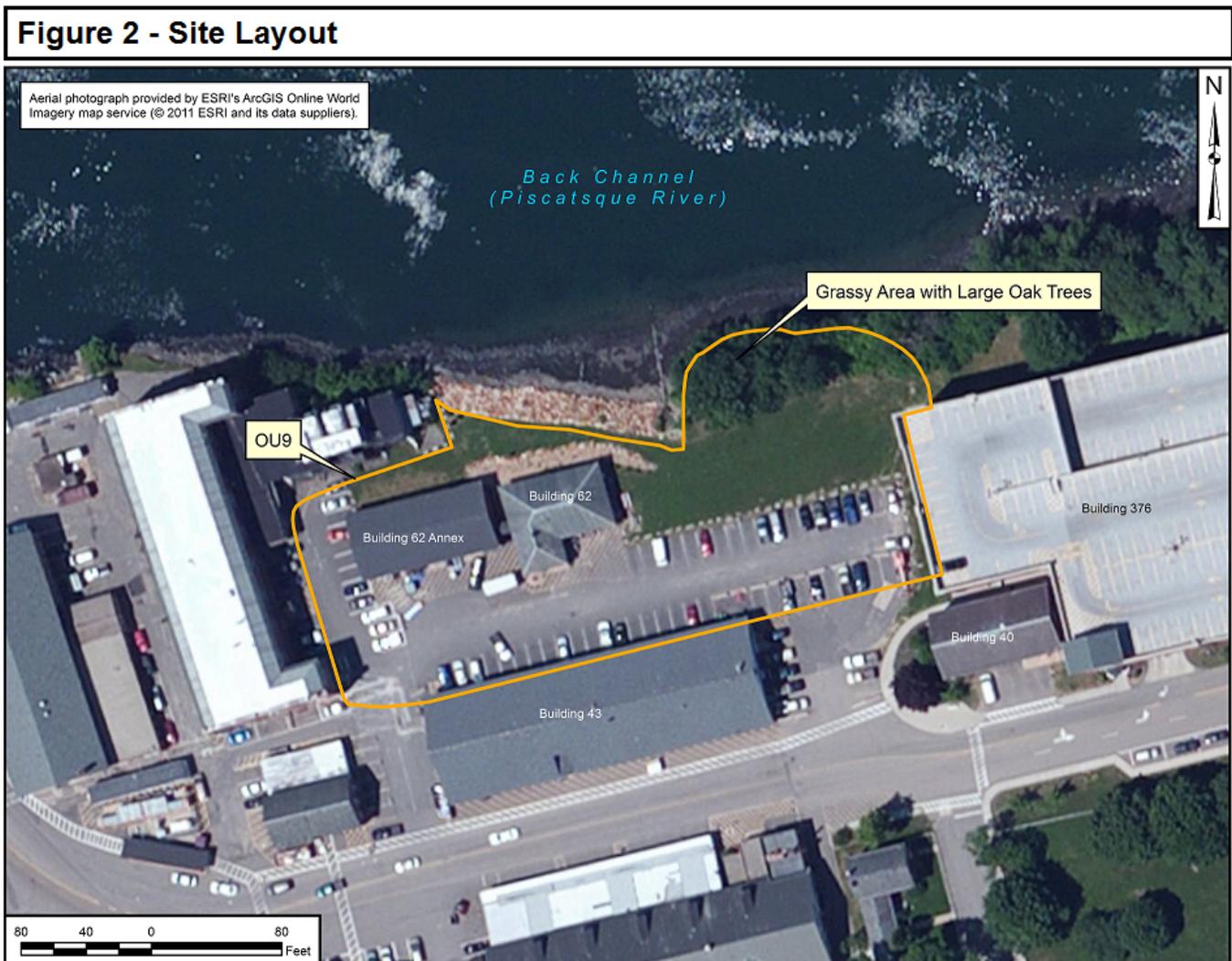
### **For what was OU9 used?**

The majority of the OU9 area has been used for industrial activities since the late 1800s. Industrial activities at OU9 included oil gasification plant operations, blacksmith operations, and storage. Coal was used to provide heat for oil

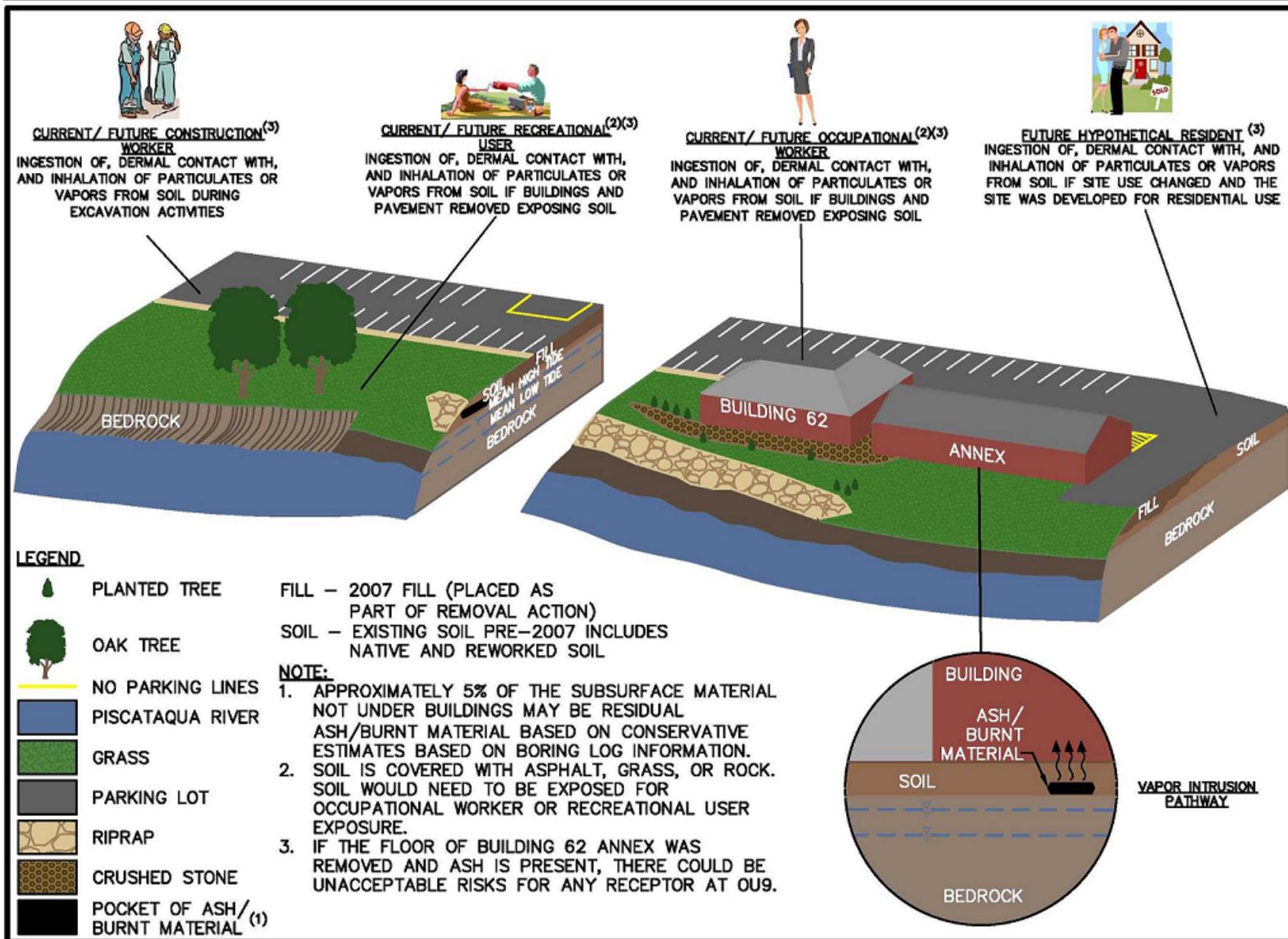
the removal action, small isolated pockets of ash/burnt material were found in subsurface soil beneath the excavated area. Minor amounts of ash/burnt material were also found in subsurface soil in the unexcavated grassy area with trees, and there are minor amounts of ash/burnt material under some utilities at the site. An estimated 5 percent of the overburden (subsurface material overlying bedrock) at OU9, excluding overburden under buildings, contains ash/burnt material. The majority of this material is in the subsurface in an approximate 175-square-foot area north of Building 62, by a main water line. No contamination was found beneath the floor of Building 62. The soil beneath Building 62 Annex has not been investigated; however, based on site use and the presence of ash beneath former Building 63, ash is presumed to be present beneath the floor of Building 62 Annex.

## SCOPE AND ROLE OF THE OU9 RESPONSE ACTION

OU9 is one of several OUs at PNS identified for assessment and cleanup under CERCLA. Each of these OUs is undergoing the CERCLA cleanup process independently of the others. The Proposed Plan for OU9 is not expected to have an impact on the strategy or progress of cleanup for the other OUs at PNS. Proposed Plans and signed RODs have been prepared for OU1, OU2, and OU3. A Proposed Plan for OU4 has been prepared, and a ROD will be signed. A Proposed Plan for OU7 is being prepared. One OU (OU8) is under investigation.



# Figure 3 - Conceptual Site Model



## SUMMARY OF SITE RISKS

As part of OU9 investigation activities, the Navy completed a risk assessment after the 2007 removal action to evaluate current and future potential for adverse human health effects caused by exposure to site contaminants. The results of the risk assessment are described below. Potential for adverse ecological effects from exposure to site contaminants was not evaluated as part of a risk assessment because OU9 is currently and has historically been an industrial area with no significant habitats for ecological exposure.

### Human Health Risks

The **Human Health Risk Assessment (HHRA)** estimates the baseline risk, which is the likelihood of health problems occurring if cleanup actions were not taken at the site. The HHRA evaluated current and future potential for adverse human health effects from exposure to site contaminants in soil not covered by buildings at OU9. Ash material presumed to be present under the floor of Building 62 Annex was considered separately. To estimate the baseline risk to humans using the EPA HHRA methodology, a four-step process was used.

#### Step 1 – Identify Chemicals of Potential Concern (COPCs)

**COPCs** are chemicals found at the site at concentrations greater than risk-based screening criteria (and for select organic compounds and **metals**, greater than facility **background** levels). The COPCs were further evaluated in Steps 2 through 4 of the risk assessment.

#### Step 2 – Conduct an Exposure Assessment

In this step, the many ways that people could come into contact with soil at OU9 were considered. Both current and future exposure scenarios were identified based on site conditions and uses. Commercial/industrial (construction and occupation workers), recreational, and hypothetical residential exposure scenarios were considered.

There is potential construction worker exposure to surface and subsurface soil during excavation activities. Although there are current commercial/industrial activities at the site (i.e., storage of materials), there are no current occupational exposures to soil because the site is covered by pavement and vegetation. Based on site conditions, there are also no current recreational activities (e.g., picnicking) that would result in exposures to soil. Occupational workers and recreational users might be exposed to surface and subsurface soil in the future if soil was exposed or brought to the surface during construction activities. Hypothetical future residential exposure to surface and subsurface soil at the site was considered if the site use changed and the site was developed for residential use. Exposure to soil for the HHRA was evaluated based on the assumption that people may come in contact with soil through touching (dermal contact), ingesting, and breathing in soil

particles (as dust) or breathing vapors emanating from soil (inhalation).

#### Step 3 – Complete a Toxicity Assessment

At this step, possible harmful effects from exposure to the individual COPCs were evaluated. Generally, these chemicals are separated into two groups, carcinogens (chemicals that may cause cancer) and non-carcinogens (chemicals that may cause adverse effects other than cancer). COPCs identified for OU9 were carcinogenic PAHs and mercury (non-carcinogenic).

#### Step 4 – Characterize the Risk

The results of Steps 2 and 3 were combined to estimate the overall risk from exposure to chemicals at OU9. The terms used to define the estimated risk are explained in the text box, **What is the Potential Risk to Me?**, below. **Chemicals of concern (COCs)** are identified based on the risk characterization.

#### What is the Potential Risk to Me?

In evaluating risks to people, risk estimates for 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 getting cancer over an estimated lifetime of 70 years. This can also be expressed as  $1 \times 10^{-4}$ . The EPA acceptable risk range for carcinogens is within  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$  or a one in a million to a 1 in 10,000 increased chance of getting cancer. Cleanup would be considered for calculated risks greater than the acceptable risk range.

For non-carcinogens, exposures are first estimated and then compared to a reference dose (RfD). The RfD is developed by EPA 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 (non-cancer) health effects. This measure is known as a hazard index and is the ratio of daily intake of a chemical from onsite exposure divided by the RfD. A hazard index greater than 1 suggests that adverse effects are possible.

The results of the OU9 HHRA for people potentially exposed to soil and ash not under buildings at OU9 indicated that non-carcinogenic hazard indices were less than the target goal of 1 for all exposures evaluated. Cancer risk estimates exceeded the target risk range for hypothetical future residential exposure to subsurface soil, and the risks were attributed to carcinogenic PAHs in an area north of Building 62. Cancer risk estimates for surface soil were less than the target risk range.

Exposure to ash material contaminated with carcinogenic PAHs presumed to be present under the floor of Building 62 Annex would pose an unacceptable risk to people if the material was exposed. Specific PAHs that could be released as vapors from soil and move into the air inside buildings (referred to as vapor intrusion) have not been detected in ash at OU9 at concentrations that would pose unacceptable risk due to vapor intrusion. Therefore, if ash is present under the floor of Building 62 Annex, it is not expected to pose unacceptable risks to people working in the building due to vapor intrusion. .

### Why is action needed at the site?

PAH-contaminated subsurface soil in an area north of Building 62 and ash presumed to be under Building 62 Annex remain that could result in unacceptable human health risks if action is not taken to prevent future exposure to the contamination.

It is the current judgment of the Navy and EPA, in consultation with MEDEP, that a response action is necessary to protect public health and welfare from actual or threatened releases of these hazardous substances into the environment, and that the preferred alternative is the appropriate remedial alternative for this purpose.

## REMEDIAL ACTION OBJECTIVES

**Remedial action objectives (RAOs)** are the goals that a cleanup plan should achieve. They are established to protect human health and the environment and to comply with all pertinent federal and state regulations. The following RAOs were developed for OU9 based on its current and reasonably anticipated future use:

- Prevent hypothetical future residential exposure through ingestion of, dust inhalation of, and dermal contact with subsurface soil containing carcinogenic PAH concentrations exceeding the residential **cleanup level**.
- Prevent potential future exposure to carcinogenic PAHs in ash that may be present under the floor of Building 62 Annex.

One site-specific risk-based OU9 cleanup level was developed in the FS for carcinogenic PAHs, which were evaluated collectively in terms of a **benzo(a)pyrene toxicity equivalency quotient (BAP TEQ)**. The proposed site-specific risk-based cleanup level for carcinogenic PAHs based on the BAP TEQ for residential exposure at OU9 is 1.5 parts per million (ppm), and it is based on average exposure.

## SUMMARY OF REMEDIAL ALTERNATIVES

Remedial alternatives, or cleanup options, were identified in the OU9 FS. These alternatives are different combinations of plans to restrict access and to contain, remove, or treat contamination to protect human health. With the exception of

Alternative 1 (No Action), all alternatives would attain the RAOs. The alternatives evaluated in the OU9 FS included:

- Alternative 1 - No Action
- Alternative 2 – LUCs
- Alternative 3 – Excavation and LUCs
- Alternative 4 – Treatment and LUCs

### No Action

A “no action” alternative, where no cleanup remedies would be applied at the site, was evaluated for OU9 as required under CERCLA, and it serves as a baseline for comparison with other alternatives. OU9 would be left as it is today under the no action alternative.

### LUCs

Alternative 2 would consist of implementing LUCs (institutional or administrative controls and/or engineering or physical controls) to prevent residential land use of the area north of Building 62, where elevated PAH concentrations in subsurface soil are associated with potentially unacceptable risk based on residential exposure. LUCs would also be implemented to prevent residential use of Building 62 Annex and to prevent unrestricted industrial exposure to the subsurface beneath the floor of Building 62 Annex. LUCs would specify requirements for management of excavated soil as part of any future construction activities within the LUC boundary. Five-year reviews would be required to evaluate the continued adequacy of the remedy.

### Excavation and LUCs

Alternative 3 would consist of excavation and offsite disposal of PAH-contaminated subsurface soil in the area north of Building 62. Excavation would extend to a depth of 8 feet below ground surface where ash/burnt material exceedances of the proposed cleanup level were found. Precautions would be taken for excavation near the shoreline and around utilities (main water line) in the area. Following excavation, the excavation area would be backfilled to established preconstruction grades, elevations, and surface types. Contamination under Building 62 Annex would not be removed. LUCs would be implemented to prevent residential use of Building 62 Annex and to prevent unrestricted industrial exposure to the subsurface beneath the floor of Building 62 Annex. LUCs would specify requirements for management of excavated soil as part of any future construction activities within the LUC boundary. Five-year reviews would be required to evaluate the continued adequacy of the remedy.

## Treatment with LUCs

Alternative 4 would consist of treatment of PAH-contaminated subsurface soil in the area north of Building 62 using **in-situ chemical oxidation (ISCO)**. The treatment system would inject ozone gas into the subsurface in the area with elevated PAH concentrations to reduce concentrations to acceptable levels. Precautions would be taken around utilities (main water line) in the treatment area. Contamination under Building 62 Annex would not be removed. LUCs would be implemented to prevent residential use of Building 62 Annex and to prevent unrestricted industrial exposure to the subsurface beneath the floor of Building 62 Annex. LUCs would specify requirements for management of excavated soil as part of any future construction activities within the LUCs boundary. Five-year reviews would be required to evaluate the continued adequacy of the remedy.

## EVALUATION OF ALTERNATIVES

EPA has established nine criteria for use in comparing the advantages/disadvantages of cleanup alternatives. These criteria fall into three groups, threshold criteria, primary balancing criteria, and modifying criteria. These nine criteria are explained in the text box, **What are the Nine Evaluation Criteria?**, below. A detailed analysis of alternatives can be found in the FS. The evaluated alternatives are compared based on seven of the nine criteria in Table 1. The two modifying criteria, State Agency and Community Acceptance, are evaluated following the public comment period.

### What are the Nine Evaluation Criteria?

The following is a summary of the nine criteria used to evaluate the remedial alternatives. The first two criteria are considered threshold criteria, and any alternative selected must meet them. The next five criteria are the balancing criteria. The last two criteria, state (MEDEP) and community acceptance, will be addressed after the public comment period on this Proposed Plan.

1. **Overall Protection of Human Health and the Environment** determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.
2. **Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)** evaluates whether the alternative meets federal and state environmental statutes, regulations, and other requirements that pertain to the site, or whether a waiver is justified.
3. **Long-Term Effectiveness and Permanence** considers the ability of an alternative to maintain protection of human health and the environment.
4. **Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment** evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.
5. **Short-Term Effectiveness** considers the length of time needed to implement an alternative and the risks the alternative poses to workers, residents, and the environment during implementation.
6. **Implementability** considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.
7. **Cost** includes estimated capital and annual operations and maintenance costs, as well as present worth cost. Present worth cost is the total cost of an alternative over the time in terms of today's dollar value. The alternative should provide the necessary protection for a reasonable cost. Cost estimates are expected to be accurate within a range of +50 to -30 percent.
8. **State/Support Agency Acceptance** considers whether the state agrees with EPA's analyses and recommendations, as described in the FS and Proposed Plan.
9. **Community Acceptance** considers whether the local community agrees with the Navy and EPA's analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

**TABLE 1: COMPARISON OF OU9 REMEDIAL ALTERNATIVES**

CRITERION	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4
<b>Estimated Time Frame (months)</b>				
Designing and Constructing the Alternative	NA	12	12	12 to 18
Achieving the Cleanup Objectives	NA	12	13	13 to 19
<b>Criteria Analysis</b>				
<b>Threshold Criteria</b>				
Protects Human Health and the Environment ➤ Will it protect you and plant and animal life on and near the site?	○	●	●	●
Meets federal and state regulations ➤ Does the alternative meet federal and state environmental statutes, regulations and requirements?	NA	●	●	●
<b>Primary Balancing Criteria</b>				
Provides long-term effectiveness and is permanent ➤ Will the effects of the cleanup last?	○	●	●	●
Reduces mobility, toxicity, and volume of contaminants through treatment ➤ Are the harmful effects of the contaminants, their ability to spread, and the amount of contaminated material present reduced?	○	○	○	●
Provides short-term protection ➤ How soon will the site risks be reduced? ➤ Are there hazards to workers, residents, or the environment that could occur during cleanup?	NA	●	●	●
Can it be implemented ➤ Is the alternative technically feasible? ➤ Are the goods and services necessary to implement the alternative readily available?	NA	●	●	●
Cost (\$) ➤ Upfront costs to design and construct the alternative (capital costs) ➤ Operating and maintaining any system associated with the alternative (O&M costs) ➤ Periodic costs associated with the alternative (periodic costs) ➤ Total cost in today's dollars [30-year <b>Net Present Worth</b> (NPW) cost]	\$0	\$15,000 capital  30-year NPW: \$197,000	\$423,000 capital  30-year NPW: \$605,000	\$336,000 capital  30-year NPW: \$538,000
<b>Modifying Criteria</b>				
State Agency Acceptance ➤ Does MEDEP agree with the Navy's recommendation?	To be determined after the public comment period on the Proposed Plan.			
Community Acceptance ➤ What objections, suggestions, or modifications does the public offer during the comment period?	To be determined after the public comment period on the Proposed Plan.			
Relative comparison of the nine balancing criteria and each alternative: ● – Good , ● – Average, ○ – Poor; NA – Not applicable				

## PREFERRED ALTERNATIVE

Based on information available at this time, the Navy recommends Alternative 2 as the preferred alternative to address contamination at OU9 and to provide long-term risk reduction. The Navy believes that Alternative 2 meets the threshold criteria and provides the best balance of tradeoffs among the balancing criteria (see Table 1). The Navy proposes that this be the final remedy for OU9.

The Navy expects the preferred alternative to satisfy the following statutory requirements of CERCLA Section 121(b): (1) be protective of human health and the environment; (2) comply with ARARs; (3) be cost-effective; and (4) utilize permanent solutions to the maximum extent practicable. The Navy may decide to change its preferred alternative in response to public comment or new information. After the end of the public comment period on this Proposed Plan, the Navy, with the concurrence of EPA and after consultation with MEDEP, will document its selected remedy in a ROD.

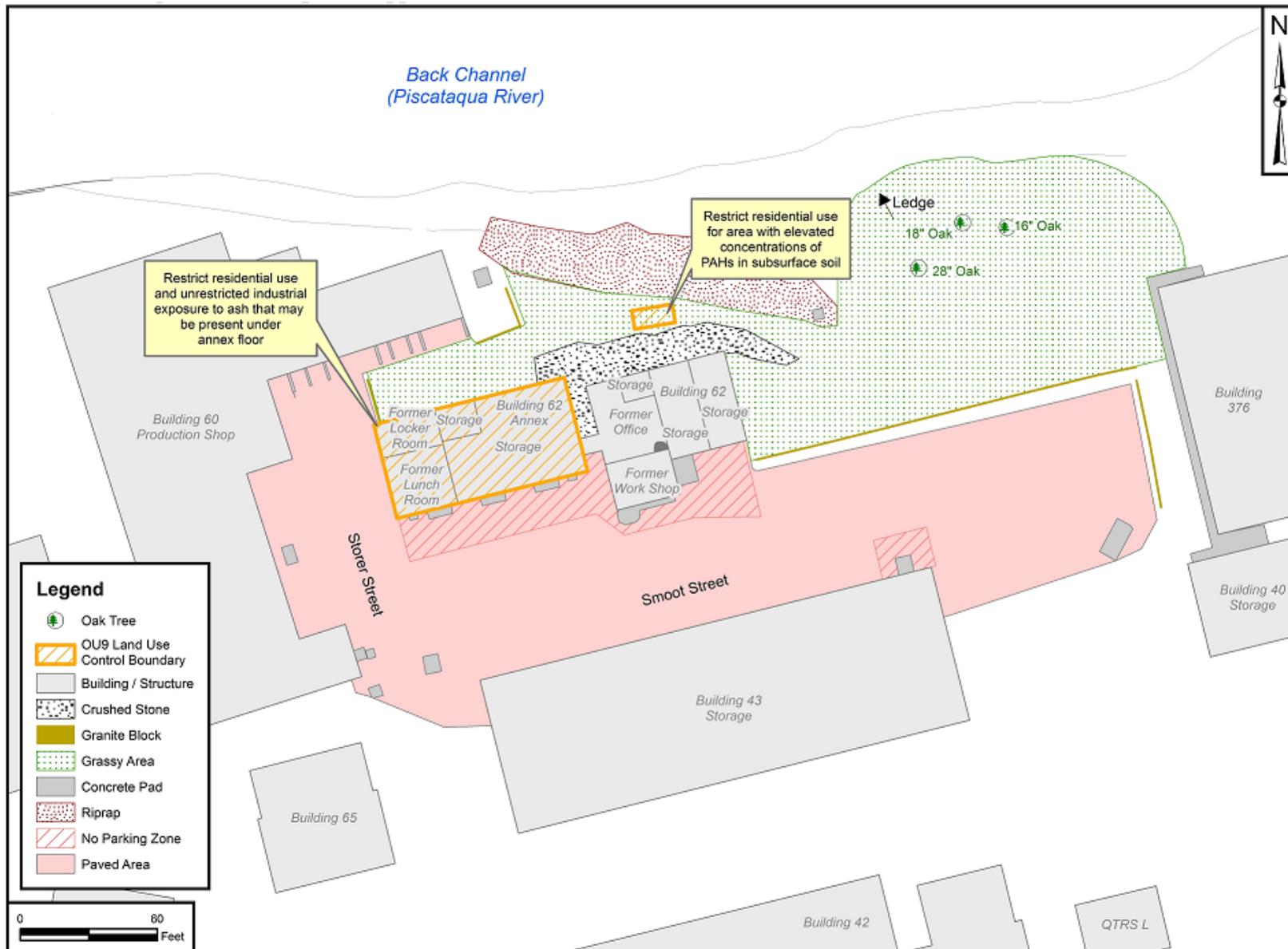
The proposed alternative would include LUCs and five-year reviews. LUCs would be implemented within the LUC boundary, as shown on Figure 4, and would prevent residential land use of the area north of Building 62, where elevated PAH concentrations in subsurface soil are associated with potentially unacceptable risk based on residential exposure. LUCs would also be implemented to prevent residential use of Building 62 Annex and to prevent unrestricted industrial exposure to the subsurface beneath the floor of Building 62 Annex. LUCs would also specify requirements for management of excavated soil as part of any future construction activities within the LUC boundary. LUCs would be implemented via a LUC Remedial Design (RD) to document the LUCs, identify inspection requirements, and document responsible parties. LUCs would be required as long as COC concentrations exceed levels that allow for unlimited use and unrestricted exposure. Reviews would be conducted every 5 years to ensure that the remedy remains protective.

Alternative 2 is preferred over the other alternatives because it provides the Navy's preferred balance between long-term effectiveness for current and planned industrial use of the site, implementability, and cost. OU9 is in an industrial area that has no current or planned future residential use; therefore, LUCs would be effective to prevent residential exposure. There are no current plans to remove Building 62 Annex; therefore, LUCs would be effective to prevent exposure to contamination under the floor of the building. Potential risks from exposure to subsurface soil not beneath Building 62 Annex for current site users are acceptable; therefore, LUCs are not required to restrict current access to this portion of OU9.

Alternative 2 is more implementable than Alternatives 3 and 4. For the increased short-term effectiveness concerns,

implementability concerns, and costs associated with excavation or in-situ treatment, Alternatives 3 and 4 do not provide significantly more long-term effectiveness than Alternative 2. All three alternatives would require LUCs and five-year reviews to meet the RAOs. Therefore, the additional concerns and costs associated with excavation or treatment of subsurface contamination to reduce risks to acceptable levels for residential land use of the area north of Building 62 are not warranted for OU9.

**Figure 4 - Alternative 4 LUC Boundaries**



TECHNICAL TERMS USED THROUGHOUT THIS PROPOSED PLAN ARE EXPLAINED IN THE GLOSSARY OF TERMS ON PAGE 13

## FIVE-YEAR REVIEW REQUIREMENTS

Because contamination would remain at OU9 in excess of levels that allow for unlimited use and unrestricted exposure, reviews of the continued protectiveness of the remedy would be needed every 5 years as part of the preferred remedy. Five-year reviews would confirm that the remedy remains protective of human health and the environment. Five-year reviews would be conducted as long as COC concentrations at the site exceed levels that allow for unlimited use and unrestricted exposure.

## COMMUNITY PARTICIPATION

The public is encouraged to participate in the decision-making process for the cleanup of OU9 by reviewing and commenting on this Proposed Plan during the public comment period, which is from July 16 to August 14, 2013.

### What Do You Think?

You do not have to be a technical expert to comment. If you have a comment, the Navy wants to hear it before beginning the cleanup.

### What is a Formal Comment?

Federal regulations make a distinction between “formal” comments received during the 30-day comment period and “informal” comments received outside this comment period. Although the Navy uses comments throughout the cleanup process to help make cleanup decisions, it is required to respond to formal comments.

Your formal comments will become part of the official record for OU9. This is a crucial element in the decision-making process for the site. The Navy will consider all significant comments received during the comment period prior to making the final cleanup decision for the site. Written comments will be included in the Responsiveness Summary contained in the ROD.

Formal comments can be made in writing or made orally. To make a formal comment on the Proposed Plan, you may:

- Offer oral comments during the public hearing on July 23, 2013.
- Provide written comments at the informational open house, at the public hearing, or by fax or mail. Comments must be postmarked no later than August 14, 2013.

A tear-off mailer is provided as part of this document for your convenience.

## NEXT STEPS

The Navy will consider and address all significant public comments received during the comment period. The responses to written comments will be included in the Responsiveness Summary in the ROD, which will document the final CERCLA remedy selected by the Navy and EPA, in consultation with MEDEP, for OU9. After the ROD is signed, it will be made available to the public at the Information Repositories.

### To Comment Formally:

**Send Written Comments** postmarked no later than August 14, 2013, to:

Ms. Danna Eddy  
Public Affairs Office (Code 100PAO)  
Portsmouth Naval Shipyard  
Portsmouth, NH 03804-5000

**Fax Comments** by August 14, 2013, to the attention of:

Ms. Danna Eddy  
Public Affairs Office (Code 100PAO)  
Portsmouth Naval Shipyard  
Fax: (207) 438-1266

### For More Detailed Information, You May Go to the Public Information Repositories or Public Website

The Proposed Plan was prepared to help the public understand and comment on the preferred cleanup alternative for this site and provides a summary of a number of reports and studies.

#### Information Repositories

Rice Public Library  
8 Wentworth Street  
Kittery, Maine 03904  
Telephone: (207) 439-1553

Portsmouth Public Library  
175 Parrott Avenue  
Portsmouth, New Hampshire 03801  
Telephone: (603) 427-1540

Public Website  
<http://go.usa.gov/vvb>

## GLOSSARY OF TERMS

*This glossary defines the bolded terms used in this Proposed Plan. The definitions in this glossary apply specifically to this Proposed Plan and may have other meanings when used in different circumstances*

**Applicable or Relevant and Appropriate Requirements (ARARs):** The federal, state, and local environmental rules, regulations, and criteria that must be met by the selected cleanup action under CERCLA.

**Background:** Concentrations of chemicals that would be found in the environment even if there had been no man-made sources or releases of chemicals at the site.

**Benzo(a)pyrene toxicity equivalency quotient (BAP TEQ):** The calculated concentration of carcinogenic PAHs relative to the toxicity associated with an equivalent concentration of benzo(a)pyrene.

**Chemical of Concern (COC):** Chemicals of potential concern (COPCs) that through further evaluation in human health risk assessments are determined to present a potential adverse effect on human health and the environment.

**Cleanup Level:** A numerical concentration agreed upon by the Navy and EPA, in consultation with MEDEP, as having to be reached for a certain COC to meet one or more of the RAOs. A cleanup level may be regulatory-based criterion, a risk-based concentration, or even a background value.

**Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA):** A federal law also known as "Superfund." This law was passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act. This law created a tax on the chemical and petroleum industries and provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment.

**Feasibility Study (FS):** A report that presents the description and analysis or evaluation of potential cleanup alternatives for a site. The report also provides other remedial options screened out in the FS because they were not considered to be applicable for the site conditions.

**Human Health Risk Assessment (HHRA):** An evaluation of current and future potential for adverse human health effects from exposure to site contaminants.

**In-situ chemical oxidation (ISCO):** Treatment conducted in place, without having to excavate soil, using specific chemicals (oxidants) to help change harmful contaminants into less toxic ones. ISCO can be used to treat many types

of contaminants, including PAHs. The four major oxidants that may be used for ISCO are permanganate, persulfate, hydrogen peroxide, and ozone. During treatment, testing of soil may be conducted to ensure that ISCO is working to treat site contaminants.

**Land use controls (LUCs):** Engineered and non-engineered measures formulated and enforced to regulate current and future land use options. Engineered measures include fencing and posting. Non-engineered measures typically consist of administrative restrictions that prohibit residential land use and/or groundwater use.

**Metals:** Metals are naturally occurring elements. Some metals, such as lead and mercury, can have toxic effects. Other metals, such as iron, are essential to the metabolism of humans. Metals are classified as inorganic because they are of a mineral origin.

**National Oil and Hazardous Substances Pollution Contingency Plan (NCP):** More commonly called the National Contingency Plan, it is the federal government's blueprint for responding to both oil spills and hazardous substance releases. Following the passage of Superfund (CERCLA) legislation in 1980, the NCP was broadened to cover releases at hazardous waste sites requiring emergency removal actions. A key provision involves authorizing the lead agency to initiate appropriate removal action in the event of a hazardous substance release.

**Net Present Worth (NPW):** A costing technique that expresses the total of initial capital expenditure and long-term operation and maintenance costs in terms of present-day dollars.

**Polycyclic aromatic hydrocarbons (PAHs):** High molecular weight, relatively immobile, and moderately toxic solid organic chemicals that include multiple benzenic (aromatic) rings in their chemical formula. PAHs are normally formed during the incomplete combustion of coal, oil, gas, garbage, or other organic substances. Typical PAHs include anthracene, phenanthrene, and benzo(a)pyrene.

**Record of Decision (ROD):** An official document that describes the selected cleanup action for a specific site. The ROD documents the cleanup selection process and is issued by the Navy following the public comment period.

**Remedial action objective (RAO):** A cleanup objective agreed upon by the Navy and EPA, in consultation with MEDEP. One or more RAOs are typically formulated for each environmental site.

**Remedial Investigation (RI):** An in-depth study designed to gather data needed to determine the nature and extent of contamination and risks at a Superfund site. Information

supports establishing site cleanup criteria, identifying preliminary alternatives for remedial action, and technical and cost analyses of alternatives.



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