

N00102.AR.003306
NSY PORTSMOUTH
5090.3a

FINAL PROPOSED PLAN FOR OPERABLE UNIT 8 (OU 8) NSY PORTSMOUTH ME
11/1/2016
NAVFAC MID ATLANTIC



Proposed Plan Operable Unit 8 Portsmouth Naval Shipyard, Kittery, Maine

LET US KNOW WHAT YOU THINK

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) 8, PNS, Kittery, Maine. OU8 consists of Site 31 (Former West Timber Basin). **Metal and polycyclic aromatic hydrocarbon (PAH)**-contaminated surface and subsurface soil is present within the former timber basin area.

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)** to prevent unacceptable exposure to contaminated soil within OU8.
- Performance of five-year reviews to ensure continued protectiveness.

LUCs would prevent unacceptable industrial exposure to contamination in subsurface soil and allow for continued current site use. LUCs would also prevent hypothetical future residential and recreational exposure to contamination in soil at the site.

This plan provides information on the remedial alternatives evaluated for contamination at OU8, the public comment period, the informational open house and public hearing, and how the final remedy for OU8 will ultimately be selected.

Mark Your Calendar!

PUBLIC COMMENT PERIOD

NOVEMBER 15, 2016 TO DECEMBER 14, 2016

The Navy will accept comments on this Proposed Plan for OU8 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 **December 14, 2016**, 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

DECEMBER 14, 2016

The Navy invites you to attend an informational open house from **6:00 pm to 6:30 pm** to learn more about the proposed OU8 cleanup plan and how it compares with other cleanup options for the site. The informational session will include visual aids describing the Proposed Plan, and an informal question and answer session. A formal public hearing for OU8 will be held from **6:30 to 7:00 pm**, following the open house for OU8. During the public hearing for OU8 the Navy will receive comments from the public on the Proposed Plan for OU8. It is at this formal hearing that an official transcript of the comments will be recorded. The above activities will be held at **Kittery Community Center 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.*

TECHNICAL TERMS USED THROUGHOUT THIS PROPOSED PLAN ARE EXPLAINED IN THE GLOSSARY OF TERMS ON PAGE 14

INTRODUCTION

This Proposed Plan provides information on the preferred approach for addressing contamination at OU8 at PNS (**Land Use Controls [LUCs]** and five-year reviews) and provides the rationale for this preference. In addition, this plan includes summaries of other cleanup alternatives evaluated for potential use at OU8. 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 OU8 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) Report**, 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 and in the Navy's online Administrative Record File. 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 13 for contact information and website address for the online Administrative Record File.

The purposes of this Proposed Plan are to:

- Ø Provide the public with basic background information about PNS and OU8. This information includes a description of the OU that was developed by reviewing past documents, investigating soil and groundwater, and evaluating potential human and ecological impacts.
- Ø Describe the cleanup options that were considered.
- Ø Identify the Navy's preferred alternative for remedial action at OU8 and explain the reasons for that preference.
- Ø Provide information on how the public can be involved in the remedy selection process.
- Ø 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 OU8 will be documented in a **Record of Decision (ROD)**. The Responsiveness Summary will be issued with the **ROD**.

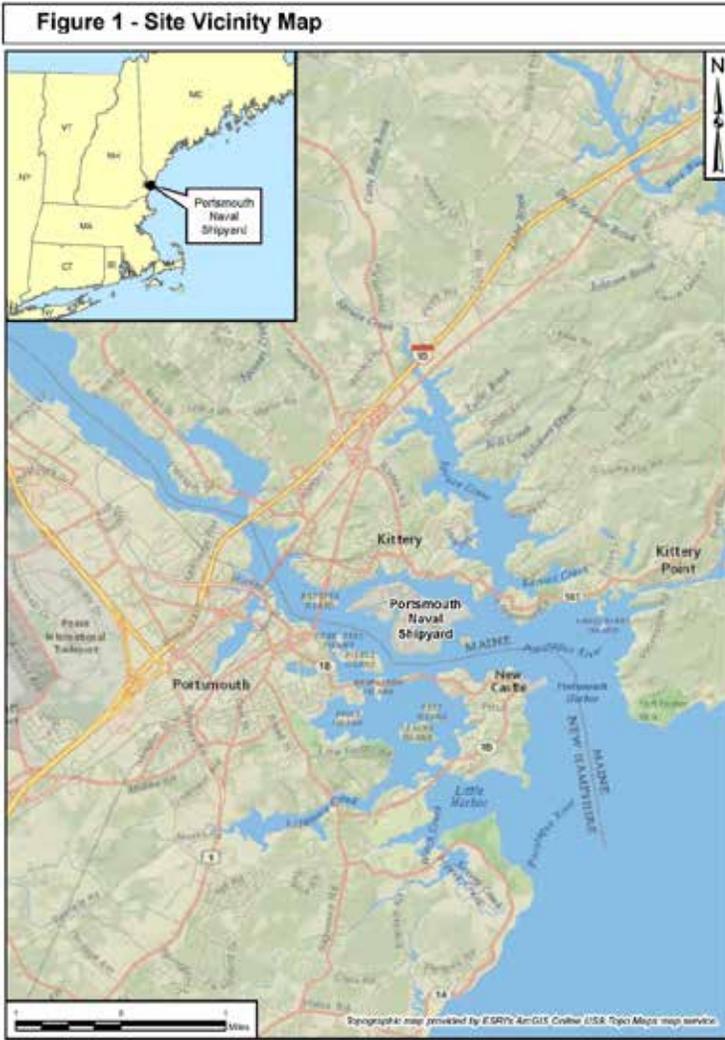
History of Site Investigations

1998 – Site Screening Investigation (SSI): Conducted to determine whether further action (e.g., an RI) or no further action was required for the site. Soil and groundwater samples were collected and the SSI concluded that additional investigation was necessary for OU8. The results were used in the RI for OU8

1999 through 2010 – Interim Offshore Monitoring for OU4: The results of sediment samples collected offshore of OU8 were used to show that the offshore area had no adverse impacts from potential past releases from OU8. No further action was the selected remedy for the offshore area of OU8 as documented in the 2013 ROD for OU4.

2015 – RI Field Work: Soil and groundwater samples were collected to support delineation of the nature and extent of contamination and evaluate potential risks to human receptors as part of the RI for OU8.

2016 – RI/FS: Summarized the results of previous investigations for OU8, determined the nature and extent of contamination, evaluated potential risks to human receptors, and developed and evaluated potential cleanup alternatives for OU8. Potential ecological risks were not evaluated because OU8 is in an industrial area with no ecological habitats. The report concluded that migration of groundwater from OU8 to the offshore would not adversely impact the offshore area in the future, based on OU4 data collected offshore and evaluation of groundwater data from the 1998 and 2016 investigations.



side of the Shipyard, and by 1913, wet storage of timber in the West Timber Basin had ceased and was conducted in the new timber basin. Around 1917, the former West Timber Basin's granite block quay wall was enclosed, and the former timber basin was filled from approximately 1917 to 1940 to allow use for various industrial activities in support of Shipyard operations. Past industrial activities included a metal washing plant (1917 to 1920), cleaning of steel plates (1920 to 1940), and a metal plate yard (1940s to late 1990s). Subsequently the site was used for equipment storage and temporary facilities. Additions to Buildings 92 and 174 extend into the OU8 boundary.

Materials used to fill the former timber basin included rocks, soil, bricks, metal debris, cinders, wood, gravel, and other debris. Some of the by-products of operations may have been discarded into the former West Timber Basin, including metals, ash, and skimmings. Fill material was generally found from ground surface (below the pavement) to between approximately 10 to 20 feet below ground surface (bgs).

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

The current land use for OU8 is industrial. Buildings 92 and 174 are partially within the site boundary, and the remaining area is covered with pavement and used for office trailers, temporary buildings, and equipment storage. Future land use is anticipated to remain the same as current land use.

SITE CHARACTERISTICS

What does OU8 look like?

OU8 is located within an industrial area that includes portions of Building 92 and 174. The site boundary is defined by the boundary of the former timber basin and area where site operations occurred. The area is relatively flat, and the crane tracks and Dry Dock No. 1 are outside of the southern boundary of OU8 and Dry Dock No. 3 is outside the northwestern boundary. The entire area of OU8 is either covered by buildings or paved. The Back Channel of the Piscataqua River is north of OU8. Figure 3 shows the conceptual site model for OU8.

What is the size of OU8?

OU8 is approximately 4 acres in size. The majority of the site is paved and less than a quarter of the site is covered by portions of Buildings 92 and 174.

How much and what types of chemicals are present?

PAHs that may cause cancer (carcinogenic PAHs), including benzo(a)pyrene and related compounds, and metals (including antimony, arsenic, cobalt, copper, iron, lead, manganese, and mercury) are the **chemicals of concern (COCs)** at OU8. During site investigations, cinders, slag, and ash material were found in the subsurface in the majority of soil borings. In general, chemical concentrations greater than conservative levels (i.e., residential risk-based screening levels) that indicate a potential for human health risks are found across the site in the surface

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 OU8.

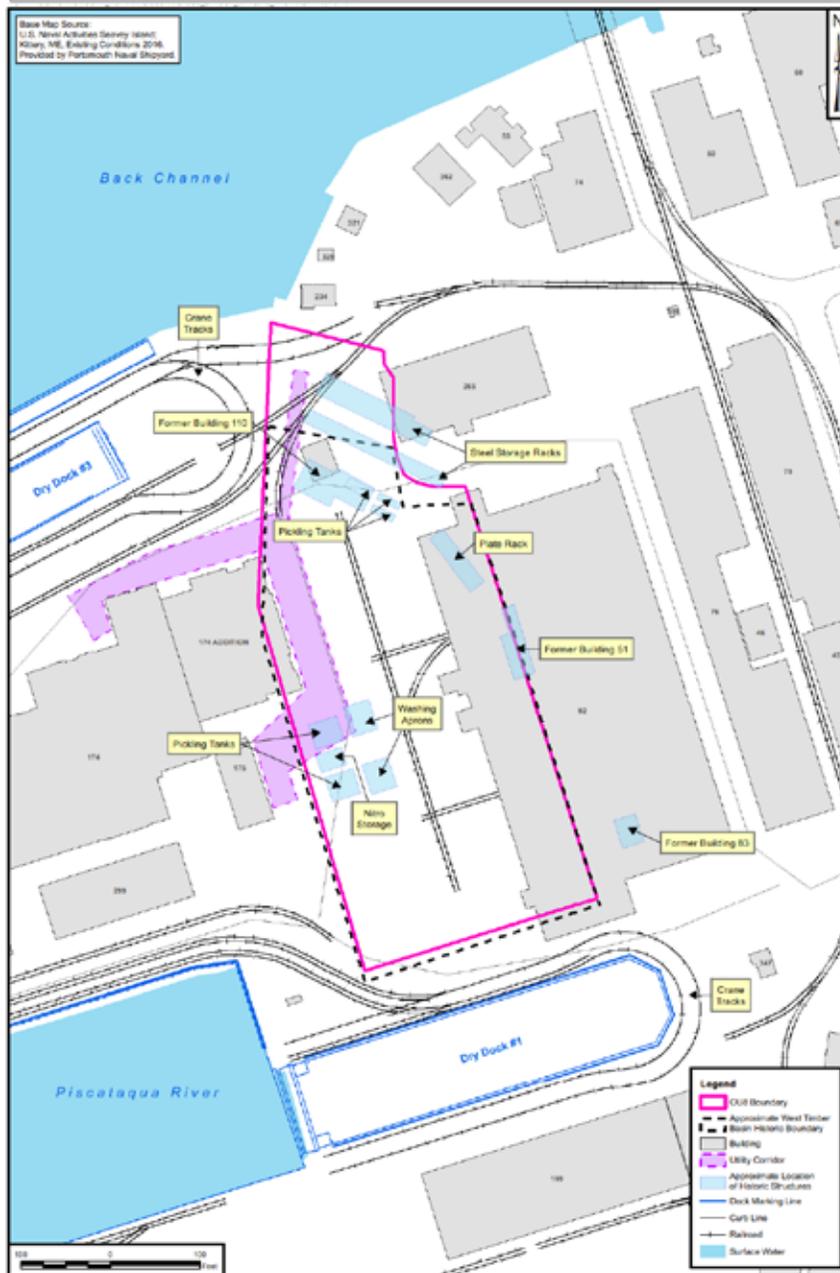
Where is OU8 within the Shipyard?

OU8 is located in the western portion of PNS in the Controlled Industrial Area (CIA).

For what was OU8 used?

Naval warships built at PNS throughout the 19th Century were constructed with wood, and wet storage and seasoning (drying) of the wood were conducted in the West Timber Basin. A new timber basin was constructed beginning in 1910 on the eastern

FIGURE 2 - Site Layout



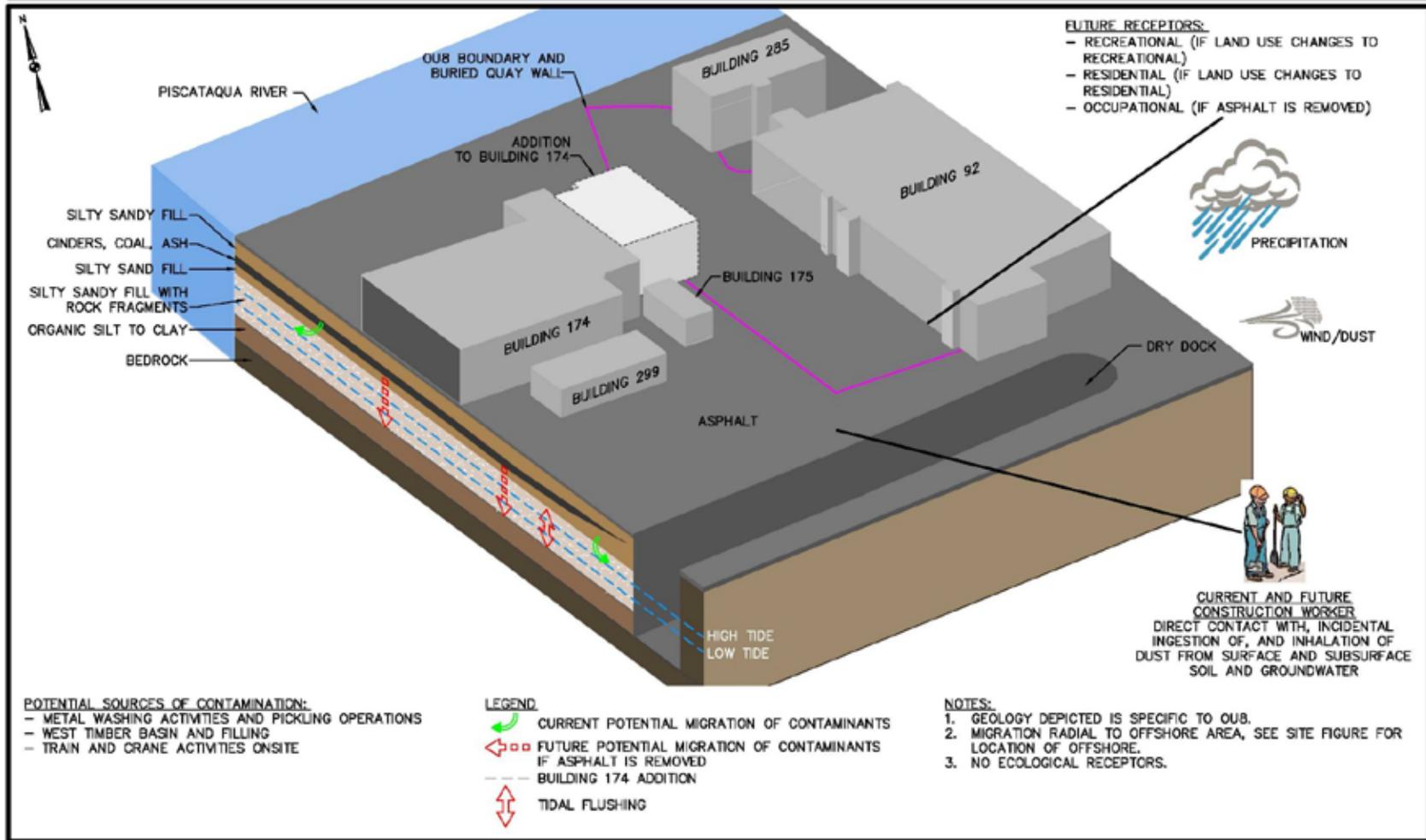
and subsurface soil. Chemical concentrations in surface soil were generally less than industrial risk-based screening levels, whereas chemical concentrations in subsurface soil (deeper than 2 feet bgs) across most of the area were greater than screening levels. Lead and other metals concentrations in the subsurface in two portions of the site had elevated concentrations compared to concentrations in subsurface soil in the rest of the site. Chemical concentrations in groundwater were generally low (less than risk-based screening levels) for all analytes, and present no risk to current site users.

SCOPE AND ROLE OF THE OU8 RESPONSE ACTION

OU8 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 OU8 is not expected to have an impact on the strategy or progress of cleanup for the other OUs at PNS. Proposed Plans have been prepared and RODs have been signed for OU1, OU2, OU3, OU4, OU7, and OU9. OU8 is the final site at PNS to have a Proposed Plan prepared, and a ROD will be prepared upon approval and community acceptance of this Proposed Plan.

TECHNICAL TERMS USED THROUGHOUT THIS PROPOSED PLAN ARE EXPLAINED IN THE GLOSSARY OF TERMS ON PAGE 14

FIGURE 3 – CONCEPTUAL SITE MODEL



TECHNICAL TERMS USED THROUGHOUT THIS PROPOSED PLAN ARE EXPLAINED IN THE GLOSSARY OF TERMS ON PAGE 14

SUMMARY OF SITE RISK

As part of OU8 investigation activities, the Navy completed a risk assessment 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 the risk assessment because OU8 is currently and has historically been an industrial area with no significant habitats for ecological exposure, and it was determined that there were no adverse effects in the offshore related to OU8 activities.

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 OU8 HHRA evaluated current and future potential for adverse human health effects from exposure to site contaminants in groundwater and in soil not covered by buildings at OU8. 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 and groundwater at OU8 were considered. Both current and future exposure scenarios were identified based on site conditions and uses. Commercial/industrial (construction and occupational workers), hypothetical recreational, and hypothetical residential exposure scenarios were considered.

There is potential construction worker exposure to surface and subsurface soil and groundwater during excavation activities. Although there are current commercial activities at the site (i.e., offices and equipment storage), there are no current occupational exposures to soil because the site is covered by pavement and buildings. Occupational workers might be exposed to subsurface soil in the future if soil was exposed or brought to the surface during construction activities. Hypothetical future residential and recreational exposure to surface and subsurface soil at the site was considered if the site use changed and the site was developed for residential or recreational use. For the HHRA, exposure to soil 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).

Groundwater at OU8 is too saline (i.e., the salt content is too high) to be used as a drinking water supply; therefore, use of groundwater for drinking by hypothetical future residents at the site was not evaluated in the OU8 HHRA. Construction worker exposure to groundwater was evaluated based on the assumption that workers may come into contact with groundwater through dermal (skin) contact and inhaling vapors from groundwater during subsurface excavation or utility line repair activities.

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). Lead is not evaluated in the same manner as most other chemicals and therefore was assessed separately.

Step 4 – Characterize the Risk

The results of Steps 2 and 3 were combined to estimate the overall risk from exposure to chemicals at OU8. The terms used to define the estimated risk are explained in the text box, *What is the Potential Risk to Me?*, on the next page. COCs are identified based on the risk characterization.

The results of the OU8 HHRA for people potentially exposed to soil indicated that risks were acceptable for construction and occupational workers and recreational users exposed to surface soil and construction workers exposed to groundwater.

Estimated non-cancer hazards were greater than EPA's acceptable level for construction and occupational workers (referred to collectively as industrial workers) and hypothetical future residential and recreational users exposed to subsurface soil at OU8. Unacceptable non-cancer hazards were due mainly to antimony for industrial and recreational users and due mainly to antimony, cobalt, copper, iron, manganese, and mercury for residential users. Estimated cancer risks were only greater than EPA's target risk range for hypothetical future residents exposed to surface and subsurface soil at OU8. Unacceptable cancer risks in surface soil were due mainly to carcinogenic PAHs and in subsurface soil were due mainly to carcinogenic PAHs and arsenic. Adverse effects estimated for lead in subsurface soil were greater than EPA's acceptable level for construction worker and hypothetical future residential exposure. Because of elevated concentrations of lead in two portions of the site, the HHRA concluded that potential adverse effects may be associated with lead in subsurface soil for occupational worker and hypothetical future recreational user exposure.

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 1×10^{-4} . The EPA acceptable risk range for carcinogens is within 1×10^{-6} to 1×10^{-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.

Exposure to lead is evaluated by using blood-lead concentration as a biomarker. Environmental exposures to lead are modeled using the EPA's Integrated Exposure Uptake Biokinetic (IEUBK) Model and EPA's Technical Review Workgroup (TRW) Adult Lead Model to predict blood-lead levels associated with those exposures. The goal of the EPA is to limit the risk of exceeding a 10 microgram per deciliter ($\mu\text{g}/\text{dL}$) blood-lead concentration to 5 percent of the population.

Based on the potential site risks, the COCs for industrial workers and hypothetical future recreational users are antimony and lead in subsurface soil, and the COCs for hypothetical future residents are carcinogenic PAHs in surface soil and antimony, arsenic, cobalt, copper, iron, lead, manganese, mercury, and carcinogenic PAHs in subsurface soil.

Why is action needed at the site?

As a result of past activities at OU8, metals and carcinogenic PAHs are present in soil at concentrations that could result in unacceptable human health risks if action is not taken to prevent current and/or 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 OU8 based on its current and reasonably anticipated future use:

- Ø Prevent residential exposure through ingestion of, inhalation of dust from, and dermal contact with surface soil containing carcinogenic PAHs at concentrations exceeding residential cleanup levels and with subsurface soil containing antimony, arsenic, cobalt, copper, iron, lead, manganese, mercury, and carcinogenic PAHs at concentrations exceeding residential cleanup levels.
- Ø Prevent recreational exposure through ingestion of, inhalation of dust from, and dermal contact with subsurface soil containing antimony and lead at concentrations exceeding recreational cleanup levels.
- Ø Prevent industrial worker (construction and occupational) exposure through ingestion of, inhalation of dust from, and dermal contact with subsurface soil with antimony and lead at concentrations exceeding industrial cleanup levels.

OU8 cleanup levels were developed in the **RI/FS** Report for the identified COCs. The cleanup levels developed for carcinogenic PAHs were evaluated collectively in terms of a **benzo(a)pyrene toxicity equivalency quotient (BAP TEQ)**. The proposed cleanup level are listed in Table 1 and are based on average exposure. Cleanup levels for industrial workers are protective of construction and occupational workers. The lead cleanup level for hypothetical residential exposure is a regulatory-based criterion. Cleanup levels for lead for other receptors and for the other COCs are site-specific risk-based concentrations developed to meet the RAOs.

Concentrations of antimony and lead in subsurface soil mainly exceeded industrial worker and hypothetical future recreational user cleanup levels in two areas within the paved portion of the site. Concentrations of COCs for hypothetical future residential exposure had exceedances throughout the site. Samples were not collected under portions of Buildings 92 and 174 within the site boundary; however, based on the timing of filling across the site, it was assumed that COC concentrations exceeded cleanup levels for all receptors for development of remedial alternatives.

SUMMARY OF REMEDIAL ALTERNATIVES

Remedial alternatives, or cleanup options, were identified in the OU8 RI/FS Report to meet the RAOs. 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 FS included:

- Ø Alternative 1 - No Action
- Ø Alternative 2 – LUCs
- Ø Alternative 3 – Limited Excavation and LUCs

No Action

A “no action” alternative, where no cleanup remedies would be applied at the site, was evaluated for OU8 as required under CERCLA, and it serves as a baseline for comparison with other alternatives. OU8 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) within the LUC boundary to prevent hypothetical future user (residential and recreational) land uses and prevent unrestricted industrial exposure to subsurface soil within the LUC boundary, based on areas of elevated concentrations in soil associated with potentially unacceptable risk. The LUC boundary would include the entire OU8 area, including portions under Buildings 92 and 174. LUCs would also 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.

Limited Excavation and LUCs

Alternative 3 would consist of excavation and offsite disposal of lead- and antimony-contaminated soil from two areas within the OU8 to eliminate unacceptable industrial risks in the paved portion of the site and LUCs to prevent unrestricted industrial exposure to contaminated material beneath portions of Buildings 92 and 174 within the OU8 boundary. Two areas with the greatest lead and antimony contamination encompassing approximately 36,090 square feet would be excavated to depths of 10 feet bgs. The excavation would reduce subsurface soil risks to acceptable levels for industrial exposure in the paved area of OU8. Precautions would be taken for excavation near the buildings, crane tracks, and around utilities in the area. Following excavation, the excavation areas would be backfilled to established preconstruction grades, elevations, and surface types. Contamination under Building 92 and 174 would not be removed; therefore, LUCs would be implemented to prevent

TABLE 1 OU8 PROPOSED CLEANUP LEVELS			
RECEPTOR	MEDIUM	COC	CLEANUP LEVEL (PPM)
INDUSTRIAL WORKER	SUBSURFACE SOIL	ANTIMONY	240
		LEAD	2,000
HYPOTHETICAL FUTURE RECREATIONAL USER	SUBSURFACE SOIL	ANTIMONY	220
		LEAD	4,600
HYPOTHETICAL FUTURE RESIDENT	SURFACE SOIL	CARCINOGENIC PAHS	1.6
	SUBSURFACE SOIL	ANTIMONY	31
		ARSENIC	34
		COBALT	23
		COPPER	1,600
		IRON	27,000
		LEAD	400
		MANGANESE	900
		MERCURY	12
CARCINOGENIC PAHS	0.79		

unrestricted industrial exposure to soil beneath the portions of Buildings 92 and 174 within OU8.

LUCs would restrict hypothetical future user land uses to prevent exposure to contaminated soil across OU8. LUCs would also 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.

EVALUATION OF ALTERNATIVES

EPA has established nine criteria for use in comparing the advantages and 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 2. 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 (O&M) costs, as well as present worth cost. Present worth cost is the total cost of an alternative over 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 2: COMPARISON OF OU8 REMEDIAL ALTERNATIVES

CRITERION	ALTERNATIVE 1 NO ACTION	ALTERNATIVE 2 LUCs	ALTERNATIVE 3 LIMITED EXCAVATION AND LUCs
Estimated Time Frame (months)			
Designing and Constructing the Alternative	NA	12	22
Achieving the Cleanup Objectives	NA	12	22
Criteria Analysis			
Threshold Criteria			
Protects Human Health and the Environment ☐ Will it protect you and plant and animal life on and near the site?	i	I	I
Meets federal and state regulations ☐ Does the alternative meet federal and state environmental statutes, regulations and requirements?	NA	I	I
Primary Balancing Criteria			
Provides long-term effectiveness and is permanent ☐ Will the effects of the cleanup last?	i	£	I
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?	i	i	i
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	I	£
Can it be implemented ☐ Is the alternative technically feasible? ☐ Are the goods and services necessary to implement the alternative readily available?	NA	I	i
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 Net Present Worth (NPW) cost]	\$0	\$15,000 capital 30-year NPW: \$197,000	\$13,702,000 capital 30-year NPW: \$13,884,000
Modifying Criteria			
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: I – Good, £ – Average, i – Poor; NA – Not applicable			

TECHNICAL TERMS USED THROUGHOUT THIS PROPOSED PLAN ARE EXPLAINED IN THE GLOSSARY OF TERMS ON PAGE 14

PREFERRED ALTERNATIVE

Based on information available at this time, the Navy recommends Alternative 2, LUCs, as the preferred alternative to address contamination at OU8 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 2). The Navy proposes that this be the final remedy for OU8.

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 for OU8 in a ROD.

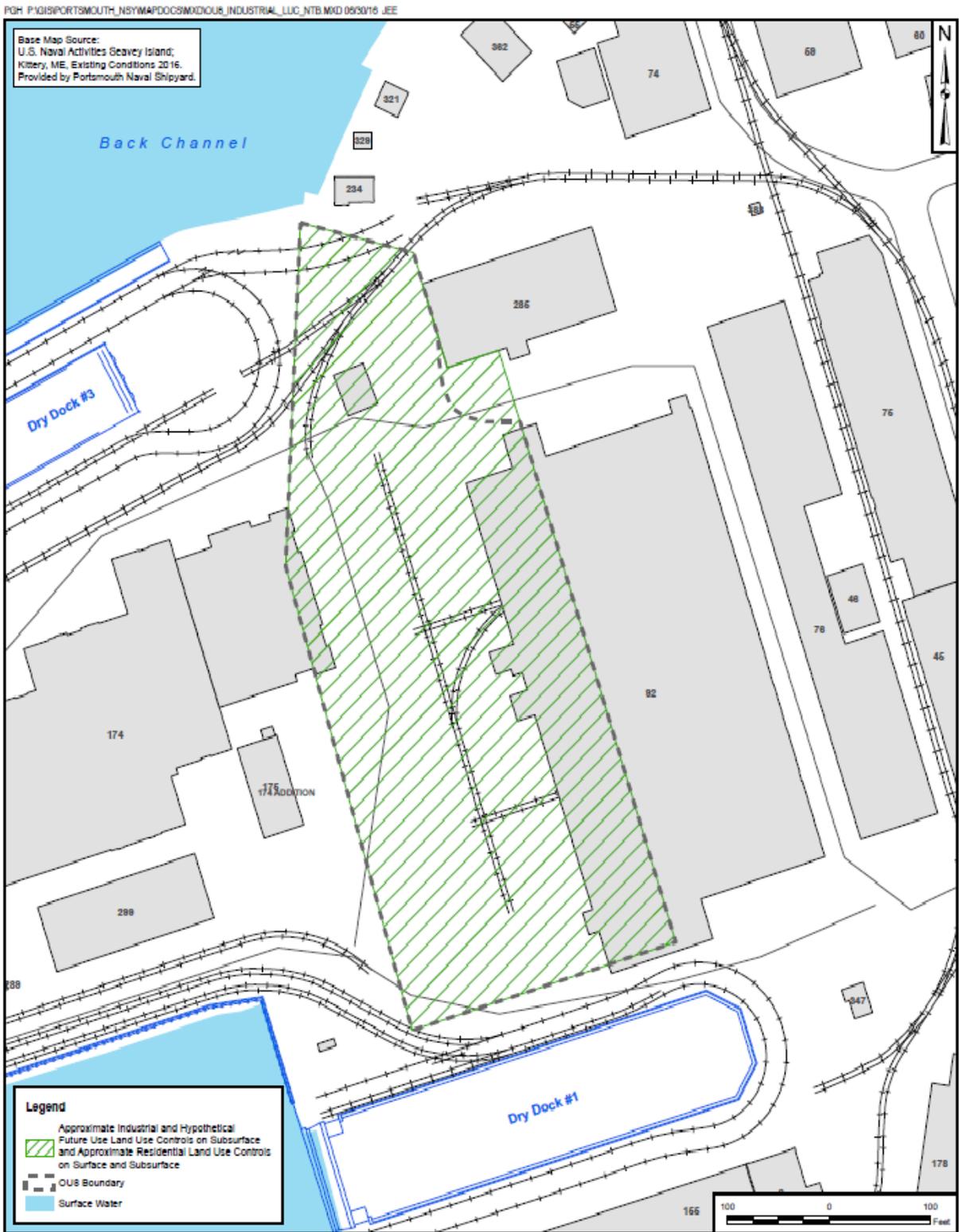
The proposed alternative would include LUCs and five-year reviews. LUCs would be implemented within the LUC boundary, as shown on Figure 4, and would prohibit residential and recreational land use of the site and prevent unrestricted industrial exposure to subsurface soil by requiring the continued maintenance of pavement at the site and prohibiting modification of the portions of Buildings 92 and 174 within the site boundary unless additional action is taken to prevent unacceptable exposure to contamination in soil. 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. OU8 is in an industrial area that has no current or planned future residential or recreational use; therefore, LUCs would be effective to prevent residential exposure to surface and subsurface soil contamination and recreational exposure to subsurface soil. There are no unacceptable risks for industrial exposure to surface soil at OU8 and requiring the continued presence of pavement would provide a barrier to prevent unrestricted exposure to subsurface soil. There are no current plans to remove Buildings 92 or 174; therefore, LUCs would be effective to prevent exposure to contamination that may be present under the buildings.

Requirements for management of excavated soil as part of any future construction projects are standard requirements implemented by the Shipyard and are used to ensure potentially contaminated material is managed and disposed of properly.

Alternative 2 is more implementable than Alternative 3 because excavation and offsite disposal as provided under Alternative 3 would disrupt any mission-critical Shipyard operations within and adjacent to OU8. Excavation and offsite disposal under Alternative 3 also has increased short-term effectiveness concerns over Alternative 2 associated with inherent risks for excavation activities. As shown on Table 2, estimated costs for Alternative 3 are also much greater than estimated costs for Alternative 2. For the increased short-term effectiveness concerns, implementability concerns, and costs associated with excavation, Alternative 3 does not provide significantly more long-term effectiveness than Alternative 2. Both alternatives would require LUCs and five-year reviews to meet the RAOs. Therefore, the additional concerns and costs associated with excavation of subsurface contamination to reduce risks to acceptable levels for unrestricted industrial use of the area of the site not covered by Buildings 92 and 174 are not warranted for OU8.

Figure 4 - Land Use Controls Boundary



TECHNICAL TERMS USED THROUGHOUT THIS PROPOSED PLAN ARE EXPLAINED IN THE GLOSSARY OF TERMS ON PAGE 14

FIVE-YEAR REVIEW REQUIREMENTS

Because contamination would remain at OU8 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 OU8 by reviewing and commenting on this Proposed Plan during the public comment period, which is from November 15, 2016 to December 14, 2016.

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 OU8. 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:

- Ø Offer oral comments during the public hearing on December 14, 2016.
- Ø Provide written comments at the informational open house, at the public hearing, or by fax or mail. Comments must be postmarked no later than December 14, 2016.

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 OU8. 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 December 14, 2016, to:

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

Fax Comments by December 14, 2016, 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 with online Administrative Record File
<http://go.usa.gov/DyRH>

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 (cancer-causing) 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.

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.

FOLD HERE

PLACE
STAMP
HERE

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