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NAS CECIL FIELD, FL  
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AMENDED PROPOSED PLAN FOR OPERABLE UNIT 5 (OU 5) SITE 15 BLUE 10  
ORDNANCE DISPOSAL AREA NAS CECIL FIELD FL  
4/1/2008  
TETRA TECH NUS INC



# INSTALLATION RESTORATION PROGRAM

April 2008



## Amended Proposed Plan for Operable Unit 5, Site 15 Naval Air Station Cecil Field Jacksonville, Florida

### Introduction

This Amended Proposed Plan identifies the Preferred Alternative for cleaning up contaminated soil at **Operable Unit (OU) 5**, Site 15, Blue 10 Ordnance Disposal Area, located in the northern portion of Naval Air Station (NAS) Cecil Field known as the Yellow Water Weapons Area (see Figure 1). In addition, this document includes summaries of the other cleanup alternatives evaluated at this site. This Proposed Plan is issued by the United States Navy, the lead agency for site activities, and the United States Environmental Protection Agency (U.S. EPA), in consultation with the Florida Department of Environmental Protection (FDEP). The Navy and U.S. EPA, in consultation with FDEP, will select a final remedy for Site 15 after reviewing and considering all information submitted during the public comment period.

This Amended Proposed Plan was required because of a change in the Preferred Alternative as presented in the Site 15 Proposed Plan dated May 2007. It was therefore also necessary to amend the **Feasibility Study (FS)**. Revisions to the **FS** dated April 2007, as presented in an Amended **FS**, were required because pre-excavation sampling at the site resulted in updated estimates of the amount of lead-contaminated soil that would require disposal as hazardous waste. Based on these revised estimates and the associated increased costs, an alternative evaluating on-site **solidification/**

**stabilization** of lead-contaminated soil prior to off-site disposal was added to the alternatives originally evaluated in the **FS**.

The Preferred Alternative for Site 15 cleanup, based on the Amended **FS**, is Alternative 3C, Excavation to Meet Recreational **Remedial Action Objectives (RAOs)**, On-Site **Solidification/Stabilization**, Off-Site Treatment and Disposal, and **Land Use Controls**.

The Navy and U.S. EPA, in consultation with FDEP, may modify the Preferred Alternative that constitutes the proposed cleanup plan or may select another response action presented in this Proposed Plan based on new information or public comments. Therefore, the public is encouraged to review and comment on all alternatives presented in this Proposed Plan.

The Navy is issuing this Amended 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)**. This document highlights the key information from the **Remedial Investigation (RI)**, **FS**, and **Amended FS** Reports, but is not a substitute for these documents. More complete information can be found in the **RI**, **FS**, and Amended **FS** Reports and other documents within the **Administrative Record** located at the Information Repository (see page 16 for details).

### The Preferred Alternative

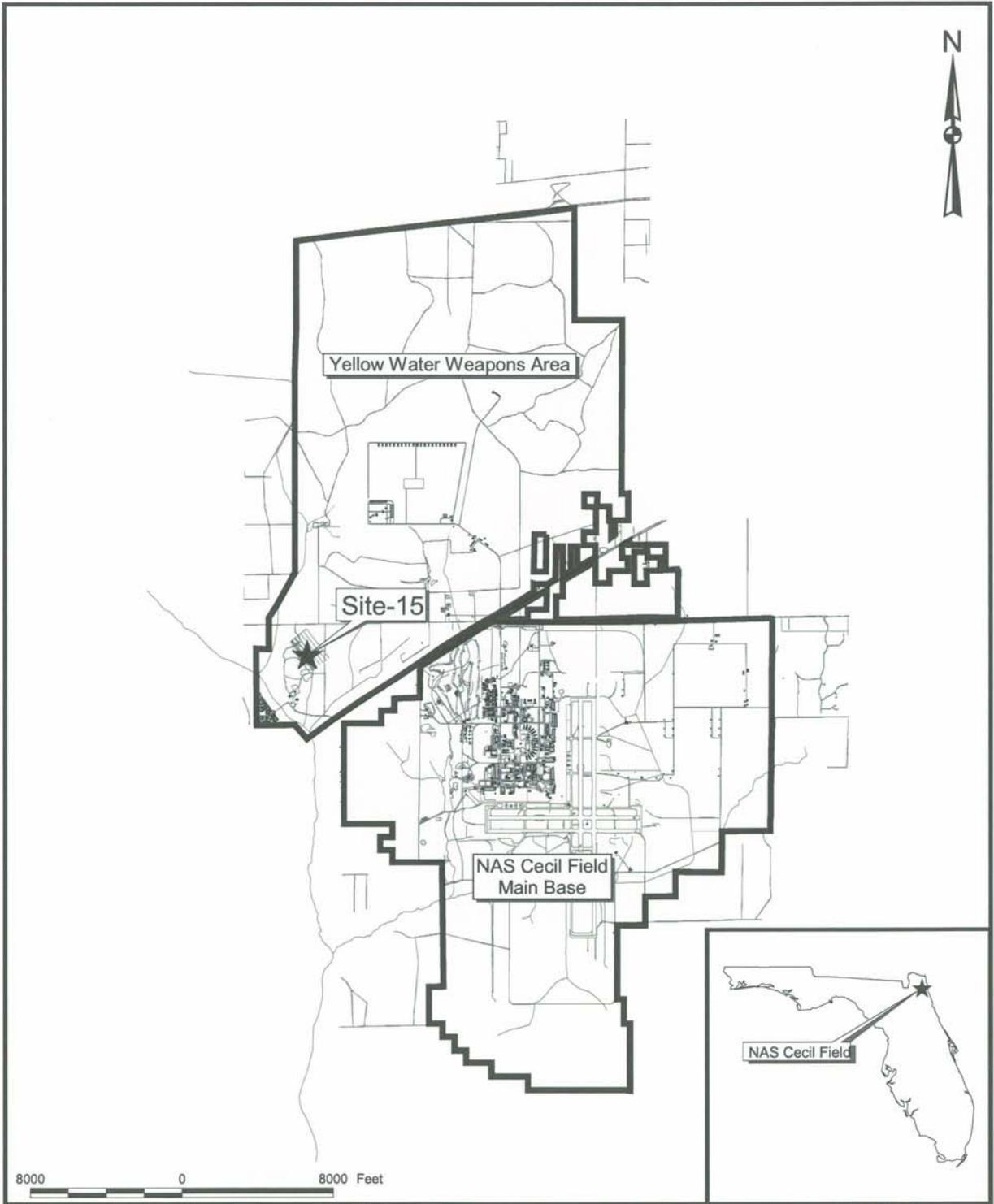
To address contaminated soil at Site 15, the Navy and U.S. EPA, in consultation with the Florida Department of Environmental Protection (FDEP), propose Alternative 3C, which includes the following:

- A total of approximately 11,850 yd<sup>3</sup> of contaminated soil would be excavated from 22 areas of Site 15 where concentrations of **chemicals of concern (COCs)** are greater than recreational **cleanup goals**. Analytical testing would be conducted, and non-hazardous soil would be disposed off site at a non-hazardous landfill and hazardous soil would be subjected to on-site solidification/stabilization and then properly disposed off site.

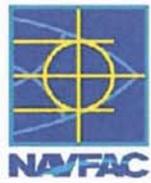
- **Land use controls (LUCs)** would be implemented to allow only **low-intensity recreational use** of the site and to prevent **medium- and high-intensity recreational uses** and commercial/industrial and residential development. **LUCs** would also prohibit excavation of soil at the site unless prior written approval is obtained from the navy, U.S. EPA, and FDEP. Continued implementation of these **LUCs** would be verified by regular site inspections.

A confirmation groundwater sample will be collected after the soil excavation is completed to verify that no adverse impacts to the aquifer occurred during cleanup activities.

**Bolded terms throughout this Proposed Plan are explained in the Glossary of Terms presented on pages 14 and 15.**



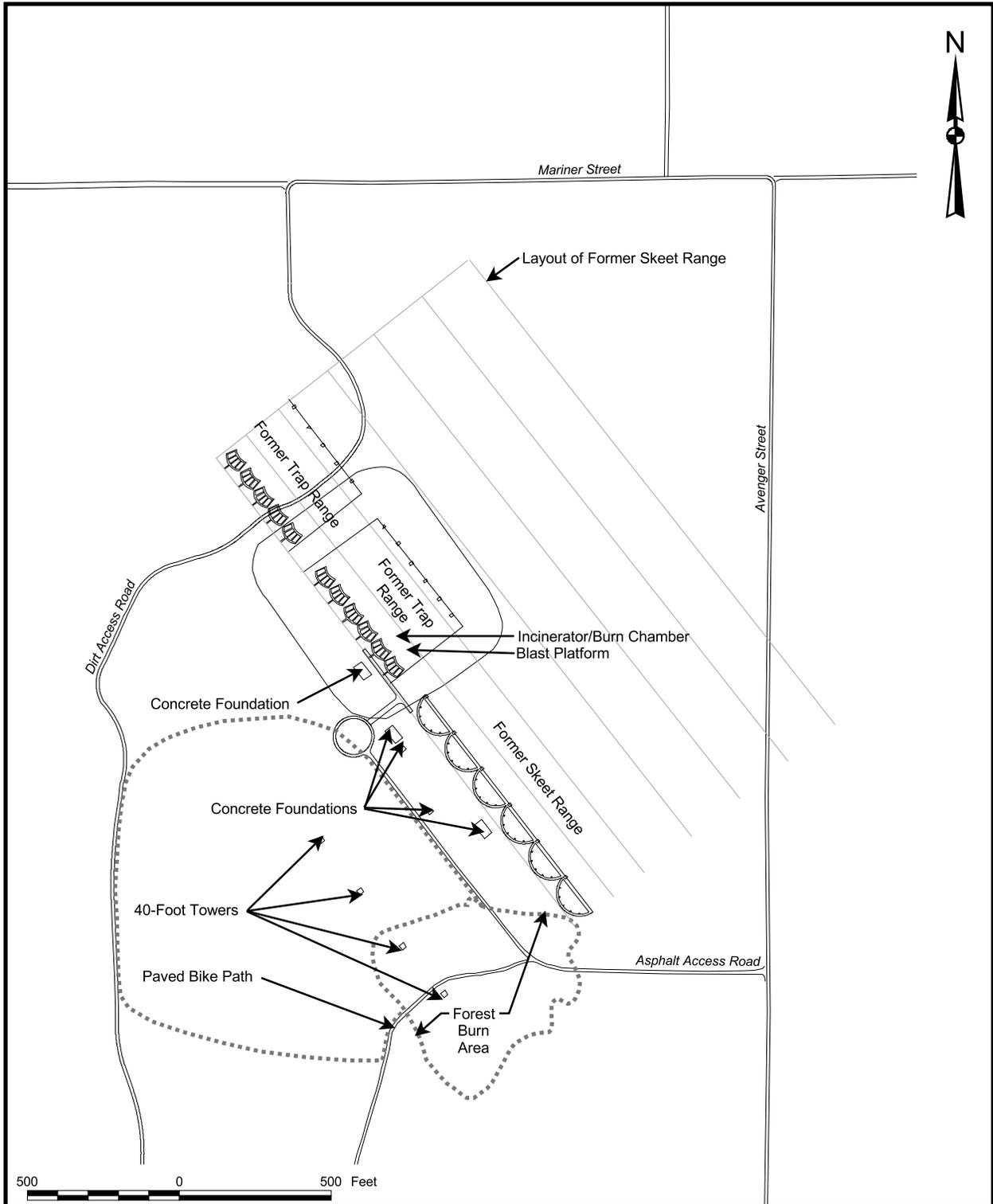
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COST/SCHEDULE-AREA	
SCALE AS NOTED	



GENERAL LOCATION MAP  
OU 5, SITE 15  
PROPOSED PLAN  
NAS CECIL FIELD  
JACKSONVILLE, FLORIDA

CONTRACT NUMBER 7653	
APPROVED BY	DATE
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DRAWING NO. FIGURE 1	REV 0

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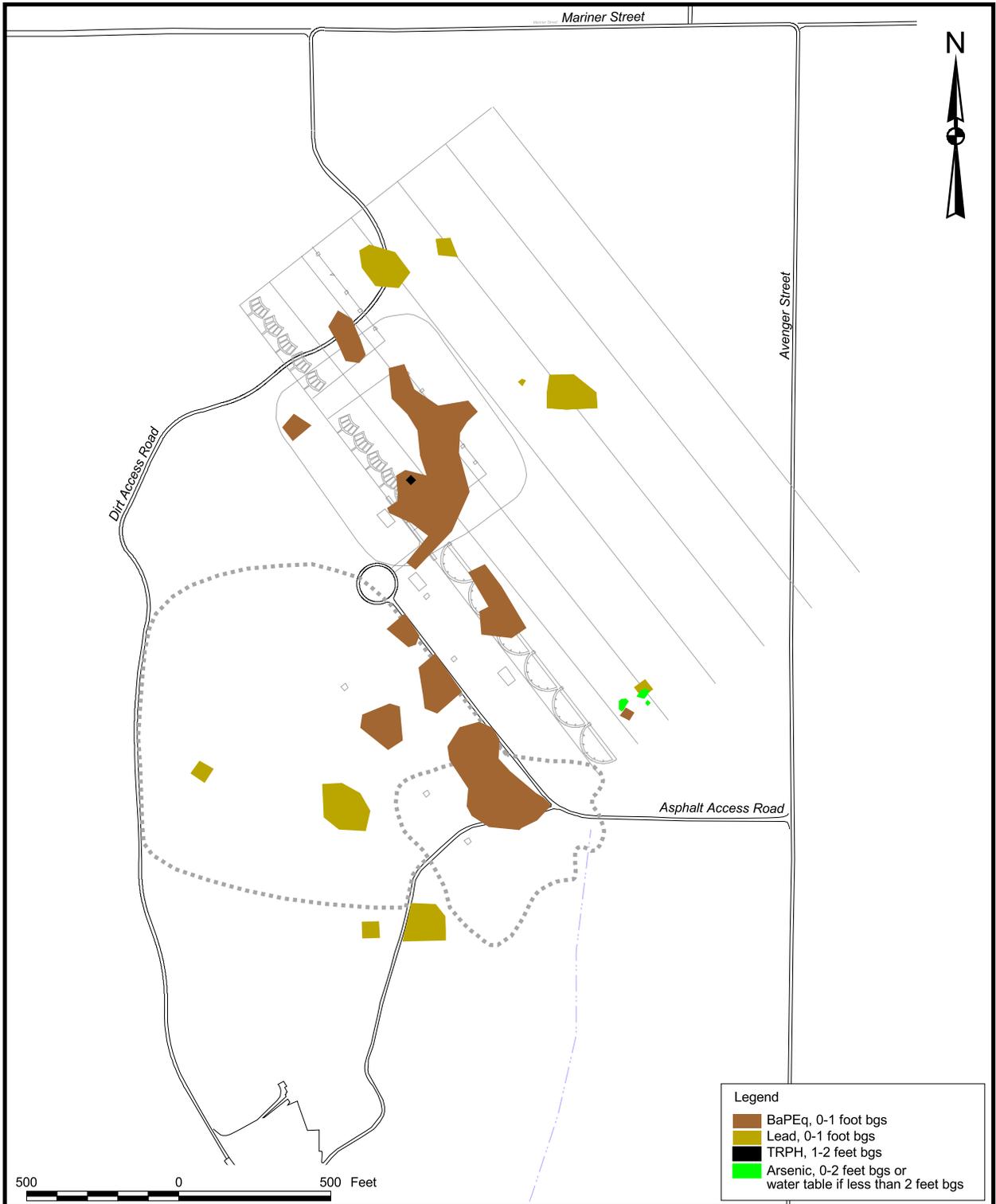
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COST/SCHEDULE-AREA	
SCALE AS NOTED	



SITE PLAN  
OU 5, SITE 15  
PROPOSED PLAN  
NAS CECIL FIELD  
JACKSONVILLE, FLORIDA

CONTRACT NUMBER 7653	
APPROVED BY	DATE
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Legend	
<span style="display:inline-block; width:15px; height:15px; background-color:brown;"></span>	BaPEq, 0-1 foot bgs
<span style="display:inline-block; width:15px; height:15px; background-color:yellow;"></span>	Lead, 0-1 foot bgs
<span style="display:inline-block; width:15px; height:15px; background-color:black;"></span>	TRPH, 1-2 feet bgs
<span style="display:inline-block; width:15px; height:15px; background-color:limegreen;"></span>	Arsenic, 0-2 feet bgs or water table if less than 2 feet bgs

DRAWN BY MJJ	DATE 03May05
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COST/SCHEDULE-AREA	
SCALE AS NOTED	



RECREATIONAL REUSE LIMITS OF EXCAVATION  
OU 5, SITE 15  
PROPOSED PLAN  
NAS CECIL FIELD  
JACKSONVILLE, FLORIDA

CONTRACT NUMBER 7653	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 3	REV 0

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The Navy, U.S. EPA, and FDEP encourage the public to review these documents to gain a more comprehensive understanding of the site and **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)** activities that have been conducted at the site.

## Facility and Site Background

NAS Cecil Field (U.S. EPA ID FL5 170 022 474) was established in 1941 and provided facilities, services, and material support for naval operations. It was added to the **National Priorities List (NPL)** in 1989. In July 1993, the Base Realignment and Closure (BRAC) Commission recommended the closure of the Air Station. On September 30, 1999, the Base was closed, and the majority of the flightline was transferred to the Jacksonville Aviation Authority. In September 2000, most of the remainder of NAS Cecil Field was transferred to the City of Jacksonville. As of 2006, 16,707 of the total 17,200 acres have been transferred. Investigation and cleanup at **OU 5, Site 15**, is part of a comprehensive environmental investigation and cleanup currently being performed at NAS Cecil Field under **CERCLA** authority pursuant to the Federal Facility Agreement (FFA) for NAS Cecil Field dated October 23, 1990.

In April 2007, the Navy's Remedial Action Contractor conducted a site visit to assess the potential to encounter munitions and explosives of concern (MEC) at Site 15. It was determined based on the results of that site visit that MEC clearance would be required

prior to remedial actions at the site; therefore, a separate munitions response is being undertaken at the site apart from the proposed **CERCLA** response.

## Site Characteristics

**OU 5, Site 15, Blue 10 Ordnance Disposal Area**, is located in the southwestern part of the Yellow Water Weapons Area, west of Avenger Street. Site 15 is approximately 85 acres of heavily forested terrain, primarily with slash pine and understory vegetation, which slopes gently to the west, southwest, and south. The site includes a paved access road, oriented northwest to southeast, an incinerator/burn chamber, a blast platform, miscellaneous concrete foundations, four 40-foot towers, and the forest burn area (see Figure 2). In the early 1940s and mid-1950s, the site was used as a trap and skeet shooting range. From the mid-1960s through 1977, a small part of the site, consisting of a burn chamber and a static firing stand, was used for the disposal of small arms munitions up to 20 millimeters, flares, Mark IV signal cartridges, rocket ignitors, cartridge activated devices, and 2.75-inch and 5-inch rockets. An estimated 350 tons of ordnance were disposed at the site.

These activities have resulted in contamination of surface soil with **polynuclear aromatic hydrocarbons (PAHs)**, which were evaluated collectively as **benzo(a)pyrene equivalents (BaPEqs)**, metals (arsenic and lead), and **total recoverable petroleum hydrocarbons (TRPH)** (see Figure 3). It is estimated that approximately 11,850 cubic yards (yd<sup>3</sup>) of soil have contaminant

### Summary of Site Investigations

The following is a brief history of environmental investigations and remediation at Site 15:

- 1985 - Initial Assessment Study (IAS) of Naval Air Station Cecil Field.
- 1988 - **Resource Conservation and Recovery Act (RCRA)** Facilities Investigation (RFI) Report.
- 1994 - **RI** and **FS** Sampling and Analysis Plan for **OUs 3, 4, 5, and 6**.
- 1996 through 2005 - Supplemental soil sampling; 13 rounds.
- 2002/2003 - Groundwater investigation and data collection for groundwater no further action (NFA) technical memorandum.
- 2003 - Wetland delineation study to identify areas meeting the federal and state definitions of wetlands.
- 2003/2004 - Geostatistical Assessment Report to develop more accurate estimates of the areas and volumes of soil requiring remediation based on human health and ecological criteria.
- 2005 - Supplemental sampling to investigate the potential for dioxins to be present in soil immediately beyond the area earmarked for excavation around the burn chamber and the static rocket stand as well as to investigate the potential for perchlorate to be present in groundwater in the same area. Analytical results for these samples showed no exceedances of regulatory criteria.
- 2005 to 2006 - Supplemental groundwater sampling was performed to investigate past exceedances of 4,4'-DDE and RDX. The exceedances were not confirmed.
- 2005 to 2007 - Supplemental groundwater sampling was performed to investigate past exceedances of arsenic. The exceedances were not confirmed.
- April 2007 - Soil sampling resulted in the discovery of unexploded ordnance (UXO) and in significant revisions to the estimated amount of lead-contaminated soil that would be considered hazardous when excavated.

concentrations in excess of the values determined to be acceptable for **low-intensity recreational use** of the site. Site 15 activities have also resulted in contamination of surface soil that poses an ecological risk because of **PAHs** and lead. However, site-specific **ecological target levels** are less restrictive than the human health risk levels, and these risks would therefore be adequately addressed under the human health risk cleanups evaluated.

## Scope and Role of Operable Unit

Final **Record of Decisions (RODs)** have been approved for **OU 1** through **OU 4**; **OU 5**, Site 14 and Site 49; **OU 6** through **OU 8**; **OU 9**, Sites 36, 37, 57, and 58; **OU 10**, Site 21 and Site 25; **OU 11**, Site 45, and **OU 12**, Sites 32, 42, 44 and Old Golf Course. A decision document for **OU 9**, Site 59, is in progress.

Implementation of the preferred alternative will allow low-intensity recreational reuse of the site, in accordance with the NAS Cecil Field Master Plan, which calls for reuse of the site as part of a natural and recreational corridor. This is also in accordance with the overall cleanup strategy for Cecil Field, which involves restoring the facility for beneficial reuse.

## Summary of Site Risks

### Human Health Risks

Potential human health risks at Site 15 were evaluated through a **PRE**, which is a screening-level evaluation of potential risks from site contaminants to human receptors at the site. Although a site may have numerous hypothetical receptors, the **PRE** uses the most sensitive receptor for risk calculations, in this case potential future site residents. Residential exposure to surface and subsurface soil at the site was determined to result in unacceptable human health risks as described below.

Surface soil **COCs** were identified as **BaPEqs**, lead, antimony, arsenic, and **TRPH**. For the **PRE**, carcinogenic (cancer-causing) chemicals (**BaPEqs** and arsenic) were evaluated separately from non-carcinogenic chemicals (antimony and **TRPH**). For lead, risks were evaluated by comparing the maximum detected concentration to the FDEP residential Soil Cleanup Target Level. The total carcinogenic risk for potential future residents was  $9.8 \times 10^{-3}$ , which exceeds FDEP's target risk range of  $1 \times 10^{-6}$  and U.S. EPA's target risk range of  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ . These risks are probabilities expressed in scientific notation (e.g.,  $1 \times 10^{-6}$ ). A cancer risk of  $1 \times 10^{-6}$  indicates that an individual exposed to carcinogens at the site under the defined residential exposure assumptions would have a 1 in 1,000,000 chance of developing cancer

as a result of site-related exposure. The total non-carcinogenic risk, expressed as a Hazard Quotient (HQ), was 91.4, which exceeds the FDEP and U.S. EPA target HQ of 1.0. This HQ is the ratio a calculated exposure level based on site concentrations to a reference dose (RfD) to which an individual can be exposed without expected harmful effects. For lead, the maximum concentration exceeded the residential SCTL, indicating the potential for unacceptable risks. For subsurface soil, the only **COC** was **BaPEqs**. The carcinogenic risk estimated for future residential exposure to **BaPEqs** in subsurface soil was  $4.9 \times 10^{-4}$ , which exceeds the target risk values for FDEP and U.S. EPA.

For groundwater, no chemicals were detected at concentrations greater than federal Maximum Contaminant Levels (MCLs) or FDEP Groundwater Cleanup Target Levels (GCTLs). Therefore, no unacceptable human health risk is associated with groundwater. In surface water, lead was detected at concentrations greater than its FDEP surface water cleanup target level. However, the presence of surface water at the site is intermittent, and surface water contamination was determined in the **PRE** not to pose an unacceptable risk to human health. Sediment risks were accounted for as part of the soil risk evaluation.

### Ecological Risks

The **ecological risk assessment (ERA)** for Site 15 concluded that potential risks to ecological receptors existed at the site, due primarily to lead and PAHs in soil. The **ERA** also concluded that potential risks to some ecological receptors might exist due to aluminum, antimony, and arsenic in soil; lead, **PAHs**, DDT (a pesticide), and its breakdown products in sediment; and lead in surface water.

Because the ditches from which sediment samples were collected provide no permanent habitat for aquatic communities (fish, etc.), the samples actually represent "damp soil" rather than sediment, and potential risk from lead and **PAHs** associated with these samples was determined to be more appropriately evaluated in the assessment of soil data. Site-related risk from the pesticide DDT and its breakdown products was determined to be negligible. Lead concentrations in some surface water samples were elevated relative to ecological guidelines, but the ditches provide no permanent habitat for aquatic communities. Lead-related risk has been investigated in other studies at NAS Cecil Field and appears to be negligible in water bodies into which these ditches drain. There are no other surface water bodies at Site 15. Based on the results of the ecological risk assessment, the NAS Cecil Field BCT concluded that ecological **COPCs** at Site 15 are limited to lead, PAHs, and arsenic in surface soil.

The Navy's studies of **OU 5**, site 15, have resulted in the following conclusion:

- As a result of past activities, several chemicals are present in surface soil at Site 15 that could result in unacceptable human health and ecological risks.

It is the current judgement of the Navy and U.S. EPA, in consultation with FDEP, that the preferred alternative, or one of the other active measures identified in this Proposed Plan, is necessary to protect public health and welfare from actual or threatened releases of hazardous substances into the environment.

### Remedial Action Objectives and Cleanup Goals

Using the information gathered during the site investigations, the Navy and U.S. EPA, in consultation with FDEP, have identified the following two **Remedial Action Objectives (RAOs)** for **OU 5**, Site 15:

- Prevent unacceptable human health risk associated with exposure to surface soil containing **BaPEqs**, arsenic, lead, and **TRPH** at concentrations greater than the established site-specific **cleanup goals**.
- Reduce ecological risk associated with exposure to surface soil containing **BaPEqs**, arsenic, and lead at concentrations greater than the established site-specific **ecological target levels**. Implementation of the preferred alternative will allow low-intensity recreational reuse of the site, in accordance with the NAS Cecil Field Master Plan, which calls for reuse of the site as part of a natural and recreational corridor. This is also in accordance with the overall cleanup strategy for Cecil Field, which involves restoring the facility for beneficial. These **RAOs** were developed based on site-specific **low-intensity recreational use** and are not designed to be protective for **medium-** and **high-intensity recreational use**.

**Low-intensity recreational use** would consist of activities such as hiking, biking, horseback riding, birding, and hunting. No man-made attractions would be provided that would entice people, particularly small children, to frequently visit the site. This type of use is consistent with the property's proposed reuse as a natural resource corridor.

**Medium-** and **high-intensity recreational use** would not be permitted. **Medium-intensity recreational use** include picnicking and camping. **High-intensity recreational use** include children's playgrounds and contact sports such as baseball, football, and soccer.

Table 1 addresses soil contamination at Site 15 and shows the **COCs**, ranges of concentrations found during the **RI**, and **pickup levels** for **low-intensity** recreational use required to obtain the corresponding recreational use **cleanup goals** as developed in the **FS**.

**TABLE 1**  
**SURFACE SOIL CLEANUP GOALS AND PICKUP LEVELS**  
**OPERABLE UNIT 5, SITE 15**  
**NAVAL AIR STATION CECIL FIELD**  
**JACKSONVILLE, FLORIDA**

COC	Range of Detections	Recreational Use Cleanup Goal	Recreational Use Pickup Level <sup>(1)</sup>
BaPEqs	2.60 - 956,000 µg/kg	2,250 µg/kg	6,750 µg/kg
Arsenic	0.91 - 451 mg/kg	36 mg/kg	108 mg/kg
Lead	1.1 - 65,500 mg/kg	3,281 mg/kg	6,500 mg/kg
TRPH	9.74 - 450 mg/kg	8,900 mg/kg	340 mg/kg

µg/kg: **Micrograms per kilogram**  
mg/kg: **Milligrams per kilogram**

<sup>1</sup> If soil with contaminant concentrations greater than the "**pickup level**" are removed or treated, the 95-percent **upper confidence level (UCL)**, or the average in the case of lead concentrations, in remaining soil will be less than the **cleanup goal**.

### Summary of Remedial Alternatives

The **OU 5**, Site 15, Amended **FS** Report presents the options that the Navy and U.S. EPA in consultation with FDEP considered for cleanup of this site. These options, referred to as "cleanup alternatives," are different combinations of plans to restrict access and to contain, remove, or treat contamination to protect public health and the environment. The Preferred Alternative is Alternative 3C: Excavation to Meet Recreational **RAOs**, On-Site Solidification/Stabilization, Off-Site Treatment and Disposal, and **LUCs**. All options considered in the Amended **FS** are summarized below.

**No Action**

#### Alternative 1: No Action

No remedial action would be conducted to reduce risks to human health and the environment, and no restrictions would be imposed to prevent access to surface soil contamination. This alternative is required as a baseline for comparison to other alternatives.

**Limited Action**

#### Alternative 2: Soil Cover to Meet Recreational RAOs and LUCs

This alternative would place a soil cover over the areas of Site 15 where concentrations of **COCs** in surface soil are greater than the recreational use **pickup levels**. A total of 22 areas with an overall surface of approximately 7.2 acres would be capped with a 2-foot-thick soil cover. Because the cover would need to be maintained to prevent exposure to the contaminated soil remaining on site, **LUCs** would have to be established and enforced. These **LUCs** would include establishing an inspection and maintenance schedule for the cover, restricting site use to **low-intensity recreational use**, and preventing commercial/industrial and residential development and **medium- and high-intensity recreational use**.

## Removal and Disposal

### Alternative 3A: Excavation to Meet Recreational RAOs, Off-Site Treatment and Disposal, and LUCs

This alternative would remove soil from the areas of Site 15 where concentrations of **COCs** are greater than the recreational use **pickup levels**. A total of approximately 11,850 yd<sup>3</sup> of contaminated soil would be excavated from the same 22 areas totaling approximately 7.2 acres that are considered for capping under Alternative S-2. Most of the excavated soil (approximately 8,090 yd<sup>3</sup>) would be disposed off site at a permitted **RCRA** non-hazardous landfill, and the remainder (approximately 3,760 yd<sup>3</sup>) would be treated and disposed at an off-site permitted **RCRA** hazardous **treatment, storage, and disposal facility (TSDF)**. The excavated areas would then be backfilled with 11,850 yd<sup>3</sup> of clean imported fill material, the site would be revegetated, and impacted wetlands would be restored. Because the soil remaining on site would continue to contain concentrations of **COCs** that would not be protective of hypothetical future receptors, **LUCs** would have to be established and enforced. These **LUCs** would restrict site use to **low-intensity recreational use** and would prevent commercial/industrial and residential development and **medium- and high-intensity recreational use**. **LUCs** would also prohibit excavation of soil at the site unless prior written approval is obtained from the Navy, U.S. EPA, and FDEP.

### Alternative 3B: Excavation To Meet Recreational RAOs, On-Site Soil Washing and Reuse, and LUCs

Like Alternative 3A, Alternative 3B would remove soil from the areas of Site 15 where concentrations of **COCs** are greater than the recreational use **pickup levels**. A total of approximately 11,850 yd<sup>3</sup> of contaminated soil would be excavated from the same 22 areas totaling approximately 7.2 acres that would be excavated under Alternative 3A. The excavated soil would be screened on site, and approximately 600 yd<sup>3</sup> of oversized material would be landfilled at an off-site permitted non-hazardous

waste landfill facility. The screened soil would be treated on site by soil washing, and approximately 10,200 yd<sup>3</sup> of treated soil would be reused to backfill the excavated areas. The soil washing process would concentrate the **COCs** removed from the treated soil in a wet (65 percent moisture by weight) filter cake residue, and approximately 790 yd<sup>3</sup> (or 1,600 tons) of this wet filter cake residue would be disposed at an off-site permitted **RCRA** hazardous waste **TSDF**. The backfilling of the excavated areas would be completed with 1,660 yd<sup>3</sup> of clean imported fill material, the site would be revegetated, and impacted wetlands would be restored. Alternative 3B would also incorporate the same **LUCs** as Alternate 3A to prevent unacceptable risks from exposure of hypothetical future receptors to contaminated soil remaining on site. These **LUCs** would restrict site use to **low-intensity recreational use** and would prevent commercial/industrial and residential development and **medium- and high-intensity recreational use**.

### Alternative 3C: Excavation to Meet Recreational RAOs, On-Site Solidification/Stabilization, Off-Site Treatment and Disposal, and LUCs

Like Alternatives 3A and 3B, Alternative 3C would remove soil from the areas of Site 15 where concentrations of **COCs** are greater than recreational use **pickup levels**. A total of approximately 11,850 yd<sup>3</sup> would be excavated from the same 22 areas totaling 7.2 acres that would be excavated under Alternative 3A. Prior to excavation, samples of soil in the lead-contaminated areas would be analyzed by the **Toxicity Characteristic Leaching Procedure (TCLP)** to determine whether it would be classified as hazardous or non-hazardous. Soil classified as non-hazardous would be disposed at an off-site permitted **RCRA** non-hazardous landfill (estimated at approximately 8,090 yd<sup>3</sup>). Remaining soil (estimated at approximately 3,760 yd<sup>3</sup>) would be **solidified/stabilized** on site with a Portland cement mixture to reduce the amount of soil that would require hazardous disposal. After **solidification/stabilization**, soil (and associated treatment material) would be disposed off site as hazardous or non-hazardous based on the results of post-treatment sampling. It is estimated that following treatment, 750 yd<sup>3</sup> of contaminated soil (and 168 tons of treatment material) would require off-site treatment and subsequent disposal at a permitted **RCRA** hazardous **TSDF**. **RCRA** requires treatment of hazardous wastes (such as a portion of the lead-contaminated soil at Site 15 determined by **TCLP** testing to be characteristically hazardous) and requires compliance with **Land Disposal Restrictions** before disposal. Like Alternative 3A, the excavated areas would be backfilled with 11,850 yd<sup>3</sup> of clean imported fill material, the site would be revegetated, and wetland areas impacted by cleanup activities would be restored. Because the soil remaining on site would continue to have concentrations of **COCs** that would not

be protective of hypothetical future receptors, the same **LUCs** required for Alternatives 3A and 3B would be established and enforced. These **LUCs** would restrict site use to low-intensity recreational use and would prevent commercial/industrial and residential development and medium- and high-intensity industrial use. **LUCs** would also prohibit excavation of soil at the site unless prior written approval is obtained from the Navy, U.S. EPA, and FDEP.

For Alternatives 3A, 3B, and 3C, a confirmation groundwater sample would be collected after the soil excavation is completed to verify that no adverse impacts to the aquifer occurred during cleanup activities.

#### **Alternative 4A: Excavation To Allow Unrestricted Site Use and Off-Site Treatment and Disposal**

This alternative would remove contaminated soil to the extent necessary to allow unrestricted use of the site. This would require excavation of all of the site surface soil with **COC** concentrations greater than residential **cleanup goals**. A total volume of approximately 118,000 yd<sup>3</sup> of contaminated soil would be excavated over an area of 73 acres. Approximately 108,000 yd<sup>3</sup> of the excavated soil would be disposed at an off-site permitted non-hazardous waste landfill facility, and the remaining 10,000 yd<sup>3</sup> would be disposed at an off-site permitted **RCRA** hazardous waste **TSDF**. The excavated areas would then be backfilled with 118,000 yd<sup>3</sup> of clean imported fill material, the site would be revegetated, and impacted wetlands would be restored. Because the soil remaining on site would no longer contain concentrations of **COCs** that could be harmful to hypothetical future residential receptors, **LUCs** would not be required.

#### **Alternative 4B: Excavation To Allow Unrestricted Site Use and On-Site Soil Washing and Reuse**

As with Alternative 4A, Alternative 4B would remove contaminated soil to the extent necessary to allow unrestricted use of the site, and approximately 118,000 yd<sup>3</sup> of contaminated soil would be excavated over an area of 73 acres. The excavated soil would be screened on site, and approximately 6,000 yd<sup>3</sup> of oversized material would be landfilled at an off-site permitted non-hazardous waste landfill facility. The screened soil would be treated on site by soil washing, and approximately 102,000 yd<sup>3</sup> of treated soil would be reused to backfill the excavated areas. Approximately 7,870 yd<sup>3</sup> (or 15,900 tons) of wet filter cake residue from the soil washing process would be disposed at an off-site permitted **RCRA** hazardous waste **TSDF**. The backfilling of the excavated areas would be completed with 14,000 yd<sup>3</sup> of clean fill material, the site would be revegetated, and impacted wetlands would be restored. As with Alternative 4A, no **LUCs** would be required.

## **Evaluation of Alternatives**

**Applicable or Relevant and Appropriate Requirements (ARARs)** are federal and more stringent state environmental requirements that on-site remedial actions are required to comply with under **CERCLA** section 121(d) and the **NCP** [40 CFR 300.430(f)(1)(ii)(B)]. The chemical-, location-, and action specific **ARARs** that were used in the evaluation of the remedial alternatives and potentially apply to the remedial action at **OU 5**, Site 15 are listed in Section 2 of the Amended **FS** Report. Each alternative has been evaluated to determine its compliance with **ARARs** in accordance with **CERCLA** and the **NCP**.

In accordance with **CERCLA**, a detailed analysis of each cleanup alternative must be performed using nine evaluation criteria. These include two threshold criteria (Overall Protection of Human Health and the Environment and Compliance with **ARARs**), five balancing criteria (Long Term Effectiveness and Permanence; Reduction of Toxicity, Mobility, and Volume through Treatment; Short-Term Effectiveness; Implementability; and Cost) and two modifying criteria (State Acceptance and Community Acceptance). An analysis of these criteria was performed for each cleanup alternative, and summary comparisons of these analyses are presented in Table 2. Please consult the **OU 5**, Site 15 Amended **FS** Report for more detailed information.

### **Overall Protection of Human Health and Environment**

Alternative 1 would not be protective. Alternatives 2, 3A, 3B, 3C, 4A, and 4B would be protective. However, because of the dependence on **LUCs** to prevent residential, commercial/industrial, and **high- and medium-intensity recreational uses** in the future, Alternatives 2, 3A, 3B, and 3C would be ranked lower than Alternatives 4A and 4B. Alternatives 3A, 3B, and 3C would be ranked higher than Alternative 2 because of the removal of contaminated soil in the former. Alternatives 3B and 4B would be ranked marginally higher than Alternatives 3A and 4A, respectively, because of their use of on-site treatment to remove **COCs**. The protectiveness of Alternative 3C would be between 3A/4A and 3B/4B because on-site treatment would **solidify/stabilize** lead before the stabilized soil is removed from the site.

### **Compliance with ARARs and TBCs**

Alternative 1 would not comply with chemical- and location-specific **ARARs**. Action-specific **ARARs** do not apply to Alternative 1. Alternative 2 would not comply with chemical-specific **ARARs** but would comply with location- and action-specific **ARARs**. Alternatives 3A, 3B,

**TABLE 2**  
**SUMMARY OF COMPARATIVE ANALYSIS OF SOIL REMEDIAL ALTERNATIVES**  
**OPERABLE UNIT 5, SITE 15 AMENDED PROPOSED PLAN**  
**NAS CECIL FIELD**  
**JACKSONVILLE, FLORIDA**

Evaluation Criteria	Alternative 1: No Action	Alternative 2: Soil Cover To Meet Recreational RAOs and LUCs	Alternative 3A: Excavation To Meet Recreational RAOs, Off-Site Treatment and Disposal, and LUCs	Alternative 3B: Excavation To Meet Recreational RAOs, On-Site Soil Washing and Reuse, and LUCs	Alternative 3C: Excavation To Meet Recreational RAOs, On-Site Solidification/Stabilization, Off-Site Treatment and Disposal, and LUCs	Alternative 4A: Excavation To Allow Unrestricted Site Use and Off-Site Treatment and Disposal	Alternative 4B: Excavation To Allow Unrestricted Site Use and On-Site Soil Washing and Reuse
Overall Protection of Human Health and Environment	Not protective	Protective	More protective than Alternative 2	Slightly more protective than Alternative 3A	Protectiveness between Alternatives 3A/4A and 3B/4B	More protective than Alternatives 3A, 3B, and 3C	Slightly more protective than Alternative 4A
Compliance with ARARs and TBCs							
Chemical-Specific	Would not comply	Would not comply	Would comply	Would comply	Would comply	Would comply	Would comply
Location-Specific	Would not comply	Would comply	Would comply	Would comply	Would comply	Would comply	Would comply
Action-Specific	Not applicable	Would comply	Would comply	Would comply	Would comply	Would comply	Would comply
Long-Term Effectiveness and Permanence	Not effective	Effective	More effective than Alternative 2	Similar to Alternative 3A	Similar to Alternative 3A	More effective than Alternatives 3A, 3B, and 3C	Similar to Alternative 4A
Reduction of Contaminant Toxicity, Mobility, or Volume through Treatment	None	None	3,760 yd <sup>3</sup> treated off site for reduction of mobility to meet <b>TCLP</b> levels	11,850 yd <sup>3</sup> treated to reduce lead concentrations to meet <b>UTS</b> (and to reduce <b>BaPEq</b> concentrations by over 90 percent). 790 yd <sup>3</sup> of highly contaminated treatment residue removed from site	3,760 yd <sup>3</sup> solidified/ stabilized on site to reduce lead mobility. 750 yd <sup>3</sup> of solidified/stabilized soil also treated off site for reduction of mobility to meet <b>TCLP</b> and <b>LDR</b> levels	10,000 yd <sup>3</sup> treated for reduction of mobility to meet <b>TCLP</b> and <b>LDR</b> levels	118,000 yd <sup>3</sup> treated to reduce lead concentrations to meet <b>UTS</b> (and to reduce <b>BaPEq</b> concentrations by over 99 percent). 7,870 yd <sup>3</sup> of highly contaminated treatment residue removed from site
Short-Term Effectiveness	No relevant issues to address	Would be effective. Minimum potential for short-term risks. One year to attain <b>RAOs</b> .	Would be effective. Greater potential for short-term risks than Alternative 2. One year to attain <b>RAOs</b> .	Would be effective. Lesser impact on community than Alternative 3A due to lesser amount of soil transported off site. One year to attain <b>RAOs</b> .	Would be effective. Less impact on community than 3A because transported soil would be solidified/ stabilized. One year to attain <b>RAOs</b> .	Would be effective. Greater potential for short-term risks than Alternative 3A because greater volume of soil would be transported off site. Two years to attain <b>RAOs</b> .	Would be effective. Lesser impact on community than Alternative 4A due to lesser amount of soil transported off site. Three years to attain <b>RAOs</b> .
Implementability	Nothing to implement	More difficult to implement than Alternatives 4A and 3A	Somewhat more difficult to implement than Alternative 4	More difficult to implement than Alternative 3B	More difficult to implement than Alternatives 3A and 4A	Easiest to implement	Most difficult to implement
Costs:							
Capital	\$0	\$1,373,000	\$3,872,000	\$4,415,000	\$2,767,000	\$20,100,000	\$27,114,000
NPW of O&M	\$0	\$247,000	\$35,000	\$35,000	\$35,000	\$0	\$0
NPW	\$0	\$1,620,000	\$3,907,000	\$4,450,000	\$2,801,000	\$20,100,000	\$27,114,000

yd<sup>3</sup> Cubic yards  
 ARARs Applicable or Relevant and Appropriate Requirements  
 BaPEq Benzo(a)pyrene equivalent  
 LUCs Land use controls  
 NPW Net present worth  
 O&M Operation and maintenance  
 RAOs Remedial Action Objectives  
 TBCs To Be Considered  
 TCLP Toxicity Characteristic Leaching Procedure  
 UTS Universal Treatment Standard

## EVALUATION CRITERIA FOR SUPERFUND REMEDIAL ALTERNATIVES

**Overall Protectiveness 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.

**Compliance with 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.

**Long-Term Effectiveness and Permanence** considers the ability of an alternative to maintain protection of human health and the environment over time.

**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.

**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.

**Implementability** considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.

**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 time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent.

**State/Support Agency Acceptance** considers whether the state agrees with the Navy's and U.S. EPA's analyses and recommendations, as described in the RI/FS and Proposed Plan.

**Community Acceptance** considers whether the local community agrees with the Navy's and U.S. EPA's analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

3C, 4A, and 4B would comply with chemical-, location-, and action-specific **ARARs**.

### **Long-Term Effectiveness and Permanence**

Alternative 1 would not be effective in the long term and offers no permanent solution. Alternatives 2, 3A, 3C, 3B, 4A, and 4B offer varying degrees of long-term effectiveness and permanence.

Alternatives 4A and 4B offer remedies that remove **COCs** from the site without the need for **LUCs** to prevent residential, commercial/industrial, and **high- and medium-intensity recreational** development. Alternatives 2, 3A, 3B, and 3C depend on **LUCs** and may be somewhat less effective in the long term. However, because of the removal of **COCs** from the site with on-site and/or off-site treatment/disposal, Alternatives 3A, 3B, and 3C are superior to Alternative 2, which depends on the maintenance of a soil cover for its effectiveness. Alternative 3B is marginally superior to Alternatives 3A and 3C because the volume of contaminated material requiring off-site treatment/

disposal is smaller, and therefore the relative magnitude of future liability of the disposed material is less under Alternative 3B.

### **Reduction of Contaminant Toxicity, Mobility, or Volume through Treatment**

Alternatives 1 and 2 do not employ any treatment. Alternatives that employ treatment are ranked in the following order of decreasing volumes of soil treated: Alternative 4B (112,000 yd<sup>3</sup>), Alternative 3B (11,250 yd<sup>3</sup>), Alternative 4A (10,000 yd<sup>3</sup>), and Alternatives 3A and 3C (3,760 yd<sup>3</sup>). However, only Alternatives 3B and 4B would reduce the mass of **COCs** (and hence toxicity) at the site by irreversible treatment. Alternative 3B would treat 11,250 yd<sup>3</sup> of contaminated soil to reduce **BaPEq** concentrations by over 90 percent and would treat 3,760 yd<sup>3</sup> of high lead-content soil (included in the 11,250 yd<sup>3</sup>) to attain the lead **Universal Treatment Standard (UTS)**, resulting in approximately 790 yd<sup>3</sup> (or 1,600 tons) of highly contaminated filter cake treatment residue being removed from the site. Alternative 4B

would treat 12,000 yd<sup>3</sup> of contaminated soil to reduce **BaPEq** concentrations by over 99 percent and would treat 10,000 yd<sup>3</sup> of high lead-content soil (included in the 112,000 yd<sup>3</sup>) to attain the lead **UTS**, resulting in approximately 7,870 yd<sup>3</sup> (or 15,900 tons) of highly contaminated filter cake treatment residue being removed from the site. Alternatives 3A and 4A would reduce the mobility of **COCs** by off-site treatment of a portion of the excavated soil, and Alternative 3C would reduce the mobility of **COCs** by on-site and off-site treatment of a portion of the excavated soil. Alternative 4A would treat 10,000 yd<sup>3</sup> of lead-contaminated soil compared to 3,760 yd<sup>3</sup> for Alternative 3A to achieve mobility reduction. Alternative 3C would include on-site treatment of 3,760 yd<sup>3</sup> of lead-contaminated soil to reduce mobility and subsequent additional off-site treatment of 750 yd<sup>3</sup> of this soil to further reduce mobility.

### Short-Term Effectiveness

Alternatives that involve the treatment and handling of contaminated surface soil during construction and/or operation (Alternatives 3A, 3B, 3C, 4A, and 4B) could pose a limited risk to construction workers or operating personnel. However, measures would be taken to minimize the risks associated with handling **RCRA** hazardous waste. Alternatives that involve the transportation of contaminated soil and treatment residue for off-site disposal (Alternatives 3A, 3C, and 4A) could pose a risk to nearby communities. However, measures would be taken to minimize and control these risks. Alternatives that involve on-site treatment and/or site construction activities (Alternatives 2, 3A, 3B, 3C, 4A, and 4B) would occupy the site. This would limit use and/or development of the site for the duration of the cleanup.

Alternatives 3B and 4B would require less off-site transport of soil and therefore would have less of an impact on the community during implementation. Alternative 2 would involve the least volume of excavation and movement of contaminated soil and is likely to pose the least short-term risk. Alternatives 3A and 3C have similar amounts of soil transported and disposed, but lead-contaminated soil transported under Alternative 3C would be stabilized and therefore present less risk to transportation workers, the community, and the environment. However, Alternative 3C involves more potential worker contact with the soil during on-site solidification/stabilization. Alternative 3A is less likely to pose a short-term risk than Alternative 4A because of the lower volume of contaminated soil being excavated. Short-term risks for all alternatives, except Alternative 1, would be properly mitigated by application of engineering controls and adherence to appropriate health and safety procedures.

The approximate time frame for implementation and attainment of RAOs would be 1 year for Alternatives 2, 3A, 3B, and 3C, 2 years for Alternative 4A, and 3 years for Alternative 4B.

### Implementability

Alternative 1 is readily implementable because there is no action to implement. The other alternatives would be ranked in the following decreasing order of ease of implementability: Alternative 4A, Alternative 3A, Alternative 2, and Alternatives 3B, 3C, and 4B. Alternative 4A is the easiest to implement because no on-site treatment or long-term maintenance would be required. Alternative 3A is expected to be somewhat more difficult than Alternative 4A to implement because of the need to conduct long-term site monitoring and to maintain LUCs. Alternative 2 would require maintenance of LUCs as well as maintenance of a cap. Alternatives 3B, 3C, and 4B employ on-site treatment, which requires specialized engineering and trained technicians, and therefore they are likely to be more difficult to implement. Alternative 4B is more dependent than Alternative 3B on treatability studies and additional processing to meet more stringent on-site reuse requirements. A treatability study would also be required for Alternative 3C.

### Cost

The estimated costs for each alternative are presented in Table 2.

### State and Community Acceptance

State concurrence with the preferred alternative was obtained through the review and approval of the Amended **FS** Report by FDEP. Community acceptance will be determined through the publication of this Proposed Plan and solicitation of public input on the preferred alternative during the public comment period. During the upcoming public comment period, the Navy, U.S. EPA, and FDEP also welcome your comments on the preferred alternative and on the other remedial alternatives that were evaluated.

Based on the analysis performed by the Navy, U.S. EPA, and FDEP that is documented in the Amended **FS** Report, the preferred alternative, Alternative 3C, provides the best balance among alternatives with respect to the **NCP**'s evaluation criteria.

### Preferred Alternative

The preferred alternative includes the following components:

- **Excavation, On-Site Solidification/Stabilization, and Off-Site Treatment and Disposal to Allow Recreational Reuse of the Site** - Soil with contaminant concentrations greater than **low-intensity recreation use pickup levels** would be excavated. Soil from lead-contaminated areas would be tested using the **TCLP**, and soil determined to be non-hazardous based on the results would be disposed in an off-site permitted non-hazardous landfill. Soil with lead concentrations greater than **TCLP** limits would be solidified/stabilized on site using a Portland cement mixture, and the treated soil would be retested using the **TCLP**. Post-treatment **TCLP** results would be used to determine whether the soil remained characteristically hazardous for lead and whether the soil meets **alternative LDRs treatment standards**. Soil and treatment material determined to meet non-hazardous landfill disposal requirements (**TCLP** lead concentration less than the regulatory limit and meeting the **alternative LDR treatment standards**) would be disposed in an off-site permitted landfill, and soil and treatment material determined not to meet non-hazardous disposal requirements (**TCLP** lead concentration greater than the regulatory limit and not meeting the **alternative LDR treatment standards**) would be transported to an off-site hazardous **TSDF** for additional treatment and disposal. Following excavation, 95-percent **UCLs** (average concentration in the case of lead) in remaining soil will be less than **cleanup goals**. The excavated areas would be backfilled and the site revegetated to support its intended use as a natural and recreational corridor.
- **Land Use Controls** - **LUCs** such as deed restrictions would be developed and implemented to restrict site use to **low-intensity recreational use** and to prevent commercial/industrial and residential development and **medium-** and **high-intensity recreational use**. **LUCs** would also prohibit excavation of soil at the site unless prior written approval is obtained from the Navy, U.S. EPA, and FDEP. The **LUCs** would be developed and implemented via a **LUC Remedial Design (RD)** that would identify the objectives, implementation, and enforcement of the **LUCs**. Annual site inspections would be conducted to verify the continued implementation of these **LUCs**. Once implemented, the **LUCs** would remain applicable to Site 15 during Navy ownership as well as subsequent ownership of the site; however, the Navy will retain ultimate responsibility for the remedy. The Navy would be responsible for maintaining, reporting on, and enforcing all of the **LUCs** as part of this remedial action.

Because hazardous substances would remain in excess of levels that allow for unlimited exposure and unrestricted use, the Navy would review the remedial action every 5 years after initiation of the remedial action per CERCLA Section 121(c) and the NCP at 40 CFR 300.430(f)(4)(ii). If the results of any five-year reviews show that remedy integrity is compromised and protection of human health is insufficient, additional remedial actions would be evaluated and may be implemented by the navy.

Based on the information currently available, the Navy, U.S. EPA, and FDEP believe that the above preferred alternative meets the threshold criteria and provides for the best balance of tradeoffs with respect to the balancing and modifying criteria. The Navy, U.S. EPA, and FDEP expect 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; (4) utilize permanent solutions to the maximum extent practical; and (5) satisfy the preference for treatment as a principal element.

## Community Participation

By June 5, 2008, the Navy and U.S. EPA in consultation with FDEP expect to have reviewed comments and signed the **ROD** describing the chosen cleanup plan. The **ROD**, which includes a summary of responses to public comments, will then be made available to the public at the Information Repository at Building 907, the Former Memorial Chapel, 3112 New World Avenue, Cecil Commerce Center, Jacksonville, Florida, 32221. The Navy and U.S. EPA, in consultation with FDEP, will also announce its decision through the local news media and the community mailing list.

To provide comments on this Proposed Plan, follow the directions on page 16 and use the form on pages 17 and 18.

## 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.

**Administrative Record:** The complete body of documents pertaining to the investigation and restoration of an environmental site. This body of documents is kept at a location where it can be accessed by the general public.

**Alternative LDR treatment standards (for soil):** Developed by U.S. EPA to enable more feasible cleanup of hazardous contaminated soil subject to **LDRs**. The alternative standards continue to be protective but provide more flexibility in treatment requirements. For metals, treatment must achieve 90 percent reduction in constituent concentrations as measured in leachate from the treated media (tested according to the **TCLP**) or 90 percent reduction in total constituent concentrations (when a metal removal treatment technology is used). However, when treatment of any constituent subject to treatment to a 90 percent reduction standard would result in a concentration less than 10 times the **UTS** for that constituent, treatment to achieve constituent concentrations less than 10 times the **UTS** is not required.

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

**Benzo(a)pyrene equivalents (BaPEqs):** The calculated concentration of carcinogenic **PAHs** relative to the toxicity associated with an equivalent concentration of Benzo(a)pyrene.

**Chemical of concern (COC):** A substance detected at a concentration and/or in a location where it could have an adverse effect on human health and the environment.

**Cleanup goal:** A numerical concentration agreed upon by the Navy and U.S. EPA, in consultation with FDEP, as having to be reached for a certain **COC** in order to meet one or more of the **RAOs**. A **cleanup goal** may be a 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 (SARA). This law created a special tax that goes into a trust fund to investigate and cleanup abandoned or uncontrolled hazardous waste sites.

**Ecological risk assessment (ERA):** A study that evaluates the potential risk to ecological receptors (various types of plants and animals) from contaminants at a site.

**Ecological target levels:** The constituent concentration in soil determined to be protective of those ecological receptors chosen to be representative or prevalent at the specific site.

**Feasibility Study (FS):** A report that presents the development, analysis, and comparison of cleanup alternatives.

**High-intensity recreational use:** Activities that involve frequent site use by large number of persons and require significant man-made structures. Examples of such activities are playgrounds and organized sports such as baseball, softball, football, and soccer.

**Land Disposal Restrictions (LDRs):** The **RCRA** LDR program requires hazardous wastes to be treated before they may be disposed in the land.

**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 controls or procedures that prohibit activities such as residential development and/or groundwater use.

**Low-intensity recreational use:** Activities that involve infrequent site use by limited numbers of persons and require no man-made structures. Examples of such activities are hiking, horseback riding, and hunting.

**Medium-intensity recreational use:** Activities that involve occasional site use by moderate numbers of persons and require minimal man-made structures. Examples of such activities are picnicking and camping.

**Micrograms per kilogram:** Concentration level similar to one part of contaminant in one billion parts of soil by weight.

**Milligram per kilogram:** Concentration level similar to one part of contaminant per million parts of soil by weight.

**National Priorities List (NPL):** The list of national Superfund sites.

**National Oil and Hazardous Substances Pollution Contingency Plan, or National Contingency Plan (NCP):** The federal government's plan for responding to oil spills and hazardous substance releases. Following the passage of **Superfund** 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.

**Operable Unit (OU):** A discrete entity that comprises an incremental step toward the comprehensive cleanup of one or more environmental sites. An **OU** may address a specific medium within a site (e.g., soil or groundwater), a geographical portion of the site, a specific site environmental concern, or the initial phases of an action. At NAS Cecil Field, **OUs** have often been organized to group multiple sites with similar characteristics and environmental concerns.

**Pickup level:** A numerical concentration of a specific contaminant in soil that is removed to achieve the established **cleanup goal**.

**Polynuclear aromatic hydrocarbons (PAHs):** High molecular weight, relatively immobile, and moderately toxic solid organic chemicals that feature 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.

**Preliminary Risk Evaluation:** A streamlined evaluation of current and future potential for adverse human health or environmental effects from exposure to site contaminants. This evaluation typically uses standard conservative criteria rather than site-specific evaluation parameters.

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

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

**Remedial Investigation (RI):** A report that describes the site, documents the type and distribution of environmental contaminants detected, and present the results of the risk assessment.

**Resource Conservation and Recovery Act (RCRA):** The act that is the basis for all regulations for management of wastes from their point of generation until properly treated and disposed in an acceptable facility. The determination of what is considered to be a solid waste and whether or not the waste must be regulated as non-hazardous or hazardous is made following the requirements of **RCRA**.

**Solidification/stabilization:** A well-established technology used to treat soil/waste materials to reduce contaminant solubility and mobility. **Solidification/stabilization** processes involve the addition of additives to soil/waste to encapsulate, solidify, and/or chemically modify hazardous materials to reduce their leachability. A wide variety of additives are used for **solidification/stabilization** of metals-containing soil/waste including Portland cement, fly ash, lime, cement and lime kiln dust, phosphate, sulfide, and silicate compounds, and proprietary reagents.

**Toxicity Characteristics Leaching Procedure (TCLP):** A laboratory procedure developed by U.S. EPA to determine the potential of soil/waste in a landfill to leach dangerous concentrations of toxic chemicals into groundwater. Soil and waste materials are assessed using the **TCLP** to estimate how much of their toxic contents would be released into landfill leachate under ordinary conditions. If the amount of a particular chemical released under test conditions exceeds regulatory limits, the waste qualifies as hazardous and must be handled according to regulations governing hazardous waste. The **TCLP** is required by **RCRA** regulations to determine if a solid waste is also a hazardous waste. Hazardous waste must be managed and disposed according to **RCRA** regulations.

**Total recoverable petroleum hydrocarbons (TRPH):** A measurement of petroleum contamination in soil and water as defined by the State of Florida environmental regulations. This method measures the amount of petroleum compounds that have 8 to 40 carbon atoms.

**Treatment, storage and disposal facility (TSDF):** A licensed facility that is permitted to handle, treat contaminants, temporarily store, and dispose of in a landfill any hazardous waste.

**Universal Treatment Standard (UTS):** Part of the **RCRA LDR** regulations and includes a table that lists hazardous chemical constituents along with treatment

standards with numerical limits that generally must be met before disposal in a landfill.

**Upper confidence limit (UCL):** Statistical term used to define a numerical value that is greater than a certain percentage of the numerical values of a given data set. For example, the 95-percent UCL of a data set of concentrations expresses the concentration value that is greater than 95 percent of the individual concentration values of the data set.



## What's a Formal Comment?

Formal comments are used to improve the cleanup proposal. During the 30-day formal comment period, the Navy and U.S. EPA in consultation with FDEP will accept formal written comments and hold a hearing, if requested, to accept formal verbal comments.

To make a formal comment, you need to present your views during the public hearing or submit a written comment during the comment period. A request for a public hearing to present your formal comments must be made in writing. The request must be postmarked no later than May 31, 2008. Written comments and requests for a public hearing should be sent to

BRAC PMO SE  
Attention: Barbara Nwokike  
4130 Faber Place Drive, Suite 202  
North Charleston, SC 29405  
(843) 743-2141



Federal regulations require the Navy and U.S. EPA to distinguish between “formal” and “informal” comments. Although the Navy and U.S. EPA, in consultation with FDEP, use both your comments and RAB comments throughout site investigation and cleanup activities, they are only required to respond in writing to formal comments on the Proposed Plan. If a public hearing is requested, there will be no verbal response to your comments during the formal hearing portion of the meeting. After the formal hearing portion of the public meeting is closed, the Navy and U.S. EPA may respond to informal questions in consultation with FDEP.

The Navy and U.S. EPA, in consultation with FDEP, will review the transcript of all formal comments received at the hearing and all written comments received during the formal comment period before making a final cleanup decision. They will then prepare a written response to all formal comments. The transcript of formal comments and the Navy and U.S. EPA will then be issued in the Responsiveness Summary included in the final ROD.

## For More Detailed Information

To help the public understand and comment on the proposal for the site, this publication summarizes a number of reports and studies. All the technical and public information publications prepared to date for the site are available at the following Information Repository:

The Former Memorial Chapel  
6112 New World Avenue  
Cecil Commerce Center  
Jacksonville, Florida 32252





