

N60200.AR.003647
NAS CECIL FIELD, FL
5090.3a

PROPOSED PLAN FOR OPERABLE UNIT 11 (OU 11) SITE 45 FORMER STEAM
GENERATING PLANT NAS CECIL FIELD FL
7/1/2003
TETRA TECH NUS INC



Installation Restoration Program July 2003



Proposed Plan for Operable Unit 11, Site 45 Naval Air Station Cecil Field Jacksonville, Florida

Facility Description

Naval Air Station (NAS) Cecil Field (see Figure 1) was established in 1941 and provided facilities, services, and material support for naval operations. NAS Cecil Field 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, NAS Cecil Field was closed and the majority of the flightline was transferred to the Jacksonville Port Authority. In September 2000, most of the remainder of NAS Cecil Field was transferred to the City of Jacksonville.

Site Description

Operable Unit (OU) 11, Site 45, Former Steam Generating Plant is located north of Crossover Street (formerly Second Street) and east of Authority Avenue (formerly Avenue "C"). (see Figure 2). The site is a flat primarily unpaved area that covers approximately 2 acres and included Buildings 2, 7, 11, and 12 (see Figure 2). Site 45 also included one underground storage tank (UST) and three aboveground storage tanks (ASTs). Building 2 was an administrative office, Building 7 was used to store flammable and hazardous materials, Building 11 was the plant that generated steam for the entire Base, and Building 12 was the Operations Training Building. The three ASTs provided fuel for the steam generating plant, and the UST provided fuel for an emergency power generator in Building 11. Currently, Site 45 is a vacant lot and in the future it will be used for commercial and industrial purposes. Current and future uses of the site were taken into consideration in the remedy selection process.

Site activities have resulted in contamination of soil with several **polynuclear aromatic hydrocarbons (PAHs)**, arsenic, and **total recoverable petroleum hydrocarbons (TRPH)**. **PAHs** were evaluated collectively as benzo(a)pyrene equivalents (BaPEq) to estimate site risks. Site activities have also resulted in contamination of the **surficial aquifer** groundwater with vanadium.

Soil contaminated in excess of the Florida Department of Environmental Protection (FDEP) Soil Cleanup Target Levels (SCTLs) for industrial land use have been excavated and disposed. However, following this **removal action**, soil with concentrations of BaPEq and **TRPH** greater than the FDEP residential SCTLs and concentrations of arsenic greater than the background value remain on site. The respective volumes

of contaminated soil and groundwater have been estimated at approximately 7,800 cubic yards (yd³) and 1,605,000 gallons, respectively.

The Proposed Cleanup Plan

To address contaminated soil and groundwater at Site 45, the Navy and United States Environmental Protection Agency (U.S. EPA), in consultation with Florida Department of Environmental Protection (FDEP) proposes the following:

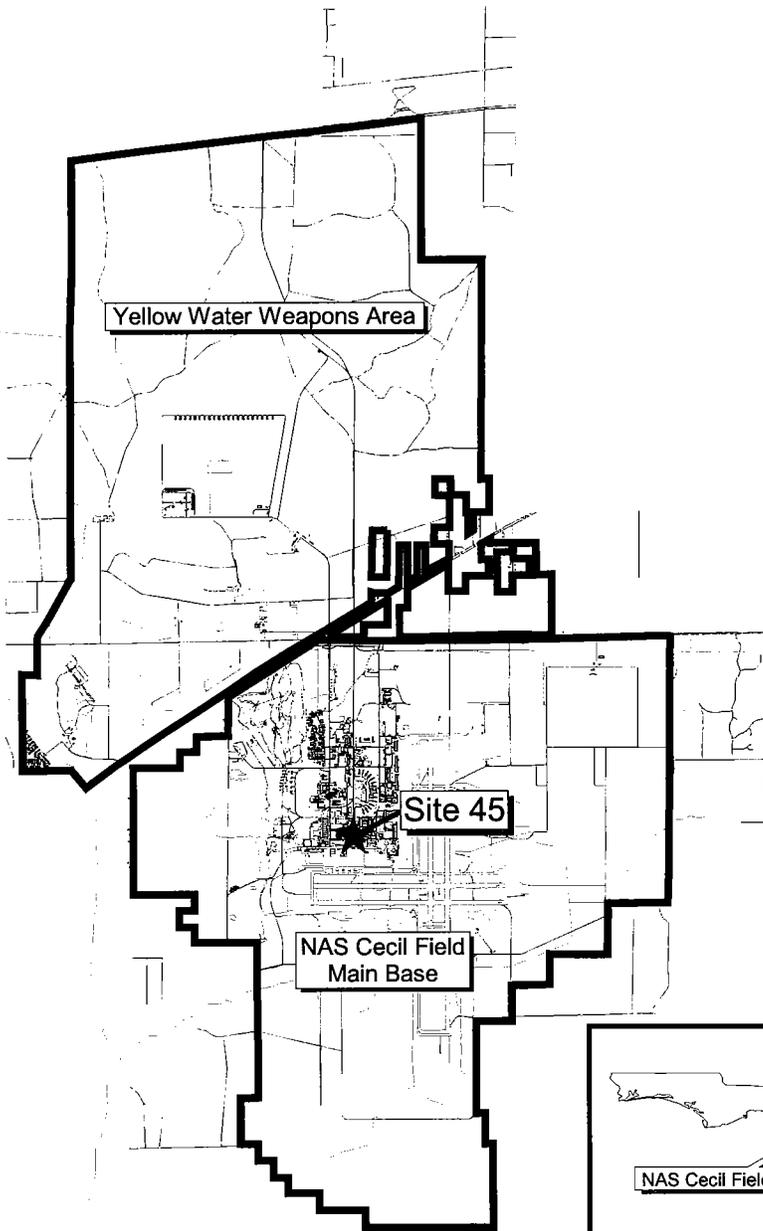
- Implement **land use controls (LUCs)** to prevent residential development of the site and restrict use of the **surficial aquifer** groundwater. Continued implementation of these controls would be verified by regular site inspections.
- Monitor soil and groundwater quality to verify that contamination is not migrating past selected compliance wells and to evaluate decreases in contaminant concentrations that may result from naturally-occurring processes.
- Perform a site review every 5 years to verify the continued adequacy of the proposed remedy. If this is not the case, another cleanup approach may be implemented.

About this Document

In accordance with Section 117(a) of the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)** and Section 300.430(f)(2) of the National Oil and

*This document summarizes the proposed cleanup plan proposed by the Navy and U.S. EPA in consultation with FDEP. For detailed information on the options evaluated for OU 11, Site 45, consult the documents contained within the **Administrative Record**, which is available for review at the Information Repository located at Building 907, 13357 Lake Newman Street, Cecil Commerce Center, Jacksonville, Florida, 32252, Tel (904) 573-0336.*

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



8000 0 8000 Feet

| | |
|--------------------|-----------------|
| DRAWN BY MJJ | DATE 30Jun00 |
| CHECKED BY | DATE |
| COST/SCHEDULE-AREA | |
| SCALE AS NOTED | |



GENERAL LOCATION MAP
SITE 45
PROPOSED PLAN
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

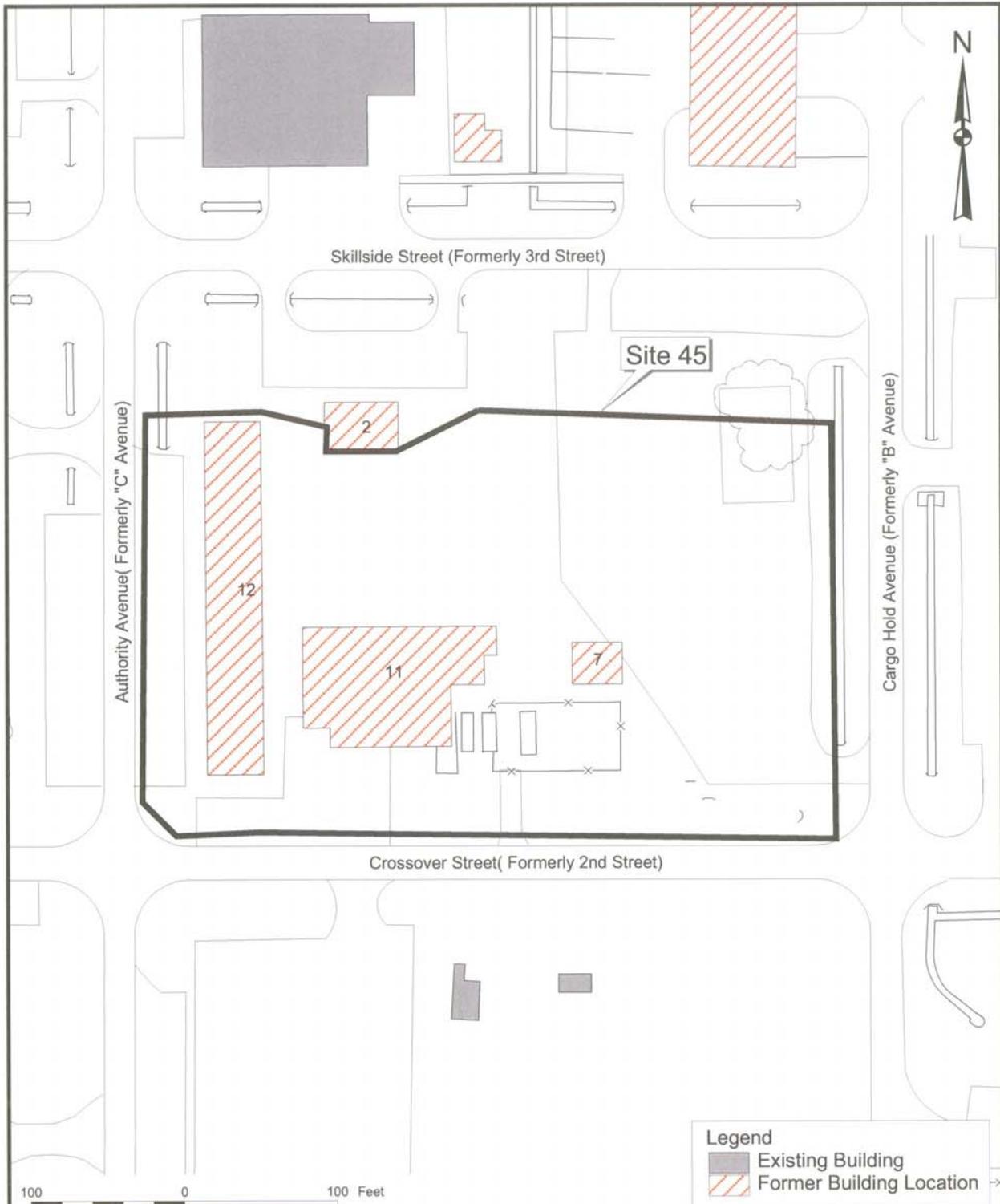
CONTRACT NUMBER
0039

APPROVED BY *[Signature]* DATE
04/15/03

APPROVED BY DATE

DRAWING NO.
FIGURE 1

REV
1



| | |
|--------------------|-----------------|
| DRAWN BY MJJ | DATE 30Jun00 |
| CHECKED BY | DATE |
| COST/SCHEDULE-AREA | |
| SCALE AS NOTED | |



GENERAL ARRANGEMENT
 SITE 45
 PROPOSED PLAN
 NAVAL AIR STATION CECIL FIELD
 JACKSONVILLE, FLORIDA

| | |
|-----------------------------------|------------------|
| CONTRACT NUMBER 0039 | |
| APPROVED BY <i>[Signature]</i> | DATE 04/15/03 |
| APPROVED BY | DATE |
| DRAWING NO. FIGURE 2 | REV 1 |

P:\GIS\NAS_CecilField\PSC45_PP.apr 14Apr03 MJJ General Arrangement Map Layout

Hazardous Substances Pollution Contingency Plan (NCP), this document summarizes the Navy's proposal for site cleanup to help the public understand and comment on the proposed alternatives. This Proposed Plan has been developed by the Navy and U.S. EPA, in consultation with the FDEP. These agencies, in consultation with the **Restoration Advisory Board (RAB)** will select a final remedy for **OU 11, Site 45** after public comments have been addressed. One of the purposes of this Proposed Plan is to solicit the public's views and comments on the alternatives described. The Navy and U.S. EPA, in consultation with FDEP, may modify the Preferred Alternatives that constitute the proposed cleanup plan or 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. This Proposed Plan highlights the key information from the **Remedial Investigation (RI)** and **Feasibility Study (FS)** reports, but is not a substitute for these documents. More complete information can be found in the **RI** and **FS** reports and other documents within the **Administrative Record** located at the Information Repository (see Page 16 for details).

What do you think?

The Navy, as the lead agency, is accepting formal public comments on this proposal from July 14, 2003 to August 13, 2003. You don't have to be a technical expert to comment. If you have a concern or preference, the Navy, U.S. EPA, and FDEP wants to hear it before making a final decision on how to protect your community. To comment formally:

Offer oral comments during the comment portion of the public hearing, if such a hearing is requested (see page 16 for details).

Send written comments, postmarked no later than August 13, 2003, to

Commander
Department of the Navy
Southern Division
Naval Facilities Engineering Command
Attn: Jeffrey Meyers, P.E., CHMM (Code ES3)
2155 Eagle Drive
North Charleston, SC 29406
Tel: 843-820-5609

E-mail comments by August 13, 2003 to:

meyersjg@efdsouth.navfac.navy.mil

Site History

Following is a brief environmental history of environmental investigations and remediation at Site 45:

- 1994 – During the BRAC Investigation, Site 45 was first designated as Facility 11.
- 1995 to 1998 – As part of the Phase II Investigation of Buildings 7 and 11 and the confirmatory sampling for UST 11A and aboveground storage tanks 11B, 11C, and 11D, soil and groundwater samples were collected and

analyzed for **volatile organic compounds (VOCs)**, **semivolatile organic compounds (SVOCs)**, pesticides and **polychlorinated biphenyls (PCBs)**, inorganic compounds, and FDEP **Kerosene Analytical Group (KAG)** parameters. As a result of the contamination detected in soil and groundwater during these investigations, Facility 11 was re-designated as **Potential Source of Contamination (PSC) 45** in 1999.

- 1999 to 2000 – Investigation of **PSC 45**. Samples were collected and analyzed for previously detected contaminants to delineate soil and groundwater contamination. Samples were analyzed for **PAHs**, arsenic, mercury, vanadium, and **TRPH**. The results of this investigation were used to identify areas of soil requiring excavation and off-site disposal. This investigation also identified an area of groundwater with concentrations of vanadium and lead greater than the FDEP Groundwater Cleanup Target Levels (GCTLs). Because of the presence of groundwater contamination, **PSC 45** was re-designated as **Installation Restoration (IR) Site 45**.
- 2000 – Site 45 **RI**. Samples were collected and analyzed for the previously identified contaminants to provide additional data for a **preliminary risk evaluation (PRE)** and to support the **FS**. Soil samples were collected and analyzed for geotechnical parameters, and two existing wells were tested to estimate hydraulic conductivity and transmissivity in the shallow zone of the **surficial aquifer**.
- 2001 – Site 45 **FS**. Based on the results of previous investigations, soil and groundwater **chemicals of concern (COCs)** were identified and **cleanup goals** were established. Soil and groundwater remedial technologies were screened and remedial alternatives were assembled, analyzed, and compared against each other.
- 2001 – A **removal action** was performed. Approximately 363 tons of soil with concentrations of BaPEq, arsenic, mercury, and **TRPH** greater than the FDEP industrial SCTLs were excavated and disposed off-base.

Summary of Site Risks

The **PRE** performed as part of the **RI** indicated that no unacceptable human health risks would result from direct exposure to soil at Site 45 under the current and foreseeable future commercial or industrial land use scenarios. However, adverse human health effects could result from exposure to soil under a hypothetical residential land use scenario and/or from ingestion of the groundwater from the **surficial aquifer**. These adverse effects are associated with soil concentrations of BaPEq and **TRPH** greater than FDEP residential SCTLs, and soil concentrations of arsenic greater than the background value and with groundwater concentrations of vanadium greater than the FDEP GCTL.

The ecological risk assessment performed as part of the **RI** established that Site 45 consists primarily of buildings and parking lots that provide an ecological habitat of very marginal quality of little use to terrestrial wildlife. Therefore, the **RI** concluded that contamination at Site 45 does not present significant ecological risk.

Why is Cleanup Needed?

The Navy's studies of **OU 11, Site 45** have resulted in the following conclusions:

- As a result of past activities, several chemicals that could potentially be harmful to human health were found in soil and groundwater at Site 45.
- Following the 2001 soil removal action, several contaminants remain in the soil and the groundwater of the **surficial aquifer** that could result in unacceptable human health risk in case of hypothetical future residential development or use of the **surficial aquifer**.

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

Final **RODs** have been approved for **OU 1** through **OU 4**; **OU 5**, Site 14; **OU 6** through **OU 8**; **OU 9**, Sites 36 and 37; and **OU 12**, Sites 32, 42, 44 and Old Golf Course. An **RI**, Baseline Risk Assessment (BRA), and **FS** have also been prepared for **OU 5**, Site 15, but the **FS** is currently being re-evaluated. **RI** and **FS** reports were finalized for **OU 9**, Sites 57 and 58 in August and October 2002, respectively. **RI** reports for **OU 10**, Sites 21 and 25 were finalized in October 2001. The **FS** report for Site 21 was finalized in September 2002, and the **FS** for Site 25 was finalized in October 2001. An interim action has been completed for **OU 12**, Site 32. Decision documents are forthcoming for Sites 21, 25, and 32.

What are the Cleanup Objectives and Goals?

Using the information gathered during the site investigations and the results of the **PRE**, the Navy and U.S. EPA, in consultation with FDEP, have identified the following **Remedial Action Objectives (RAOs)** at **OU 11, Site 45**:

- Prevent unacceptable risk from exposure to soil with concentrations of BaPEq and **TRPH** in excess of the FDEP residential SCTLs and with concentrations of arsenic in excess of the NAS Cecil Field site-specific **Inorganic Background Data Set (IBDS)** value.
- Prevent unacceptable risk from ingestion of groundwater with concentrations of vanadium in excess of the FDEP GCTL.
- Reduce concentrations of vanadium in groundwater to less than the FDEP GCTL.

Table 1 shows the **COCs** and **cleanup goals**.

Cleanup Alternatives for OU 11, Site 45

The **OU 11, Site 45 FS** report reviews the options that the Navy and U.S. EPA, in consultation with FDEP, considered for cleanup of Site 45. 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.

TABLE 1

| COCs and Cleanup Goals | | | |
|--|----------------------------|------------------------|--------------------|
| Operable Unit 11, Site 45 - NAS Cecil Field | | | |
| COCs | Range of Detections | Cleanup Goal | Federal MCL |
| Soil (µg/kg) | | | |
| BaPEq | 4.0 – 2,478 | 100 ⁽¹⁾⁽²⁾ | NA |
| Arsenic | 10 – 9,600 | 2,040 ⁽³⁾ | NA |
| TRPH | 10,000 – 439,000 | 340,000 ⁽¹⁾ | NA |
| Groundwater (µg/L) | | | |
| Vanadium | 0.7U – 280 | 49 ⁽¹⁾ | NL |

NOTES:

µg/kg Microgram per kilogram
µg/L Microgram per liter

- (1) Criterion from Florida Administrative Code (FAC) 62-777 Residential SCTL or GCTL
 - (2) FDEP SCTL for benzo(a)pyrene
 - (3) NAS Cecil Field site-specific **IBDS** value
- U Undetected at the indicated analytical detection limit
NA Not applicable
NL Not listed

The Preferred Alternatives are Soil Alternative 2: **LUCs** and Monitoring and Groundwater Alternative 2: Natural Attenuation, **LUCs**, and Monitoring.

Soil Cleanup Alternatives

No Action

Soil Alternative 1: No Action

Evaluation of the No Action alternative is required by law as a basis for comparison with other alternatives. No remedial action would be conducted to reduce risks to human health and the environment and no restrictions on the use of the property would be imposed. Soil concentrations of some of the **COCs** (particularly **TRPH**) might eventually be reduced to **cleanup goals** through natural attenuation processes, but no monitoring would be performed that would verify and quantify this reduction.

Limited Action

Soil Alternative 2: LUCs and Monitoring

LUCs would be implemented to prevent residential development of Site 45. Soil would be regularly sampled and analyzed to monitor any decrease in **COC** concentrations as a result of natural attenuation. Groundwater samples would also be collected and analyzed to evaluate the potential for migration of **COCs** from soil to groundwater. Every 5 years, a site review would be conducted to evaluate the continued effectiveness of the alternative and to determine if additional remedial measures need to be evaluated and possibly implemented.

Removal and Disposal

Soil Alternative 3: Excavation and Off-Base Disposal

An estimated 7,800 yd³ of soil with concentrations of **COCs** in excess of FDEP residential SCTLs or background values would be excavated and transported to a permitted off-base facility for disposal by **landfilling**. The excavated areas would be backfilled with clean soil. Prior to **landfilling**, the excavated soil might require treatment with such technologies as **low-temperature thermal desorption (LTTD)** and/or **chemical fixation**.

Groundwater Cleanup Alternatives

No Action

Groundwater Alternative 1: No-Action

No remedial action would be conducted to reduce risks to human health and the environment, and no restrictions would prevent exposure to groundwater contamination. Concentrations of vanadium in groundwater might eventually be reduced to its **cleanup goal** through natural attenuation processes, but no monitoring would be performed that would verify and quantify this reduction.

Limited Action

Groundwater Alternative 2: Natural Attenuation, LUCs, and Monitoring

Natural processes, such as dispersion, dilution, and adsorption would reduce the concentration of vanadium in groundwater and **LUCs** would restrict use of **surficial aquifer** groundwater. Monitoring would consist of regularly sampling and analyzing groundwater to evaluate the decrease in vanadium concentrations and to verify that this chemical is not further migrating. Every 5 years, a site review would be conducted to evaluate the continued effectiveness of this alternative. If it is determined that natural attenuation and **LUCs** have failed to adequately protect human health, additional remedial measures would be evaluated and implemented.

Removal, Treatment, and Disposal

Groundwater Alternative 3: Extraction, On-Site Treatment, Surface Water Discharge, LUCs, and Monitoring

Groundwater would be pumped from the **surficial aquifer** through an estimated four extraction wells at the combined rate of approximately 20 gallons per minute (gpm). The extracted groundwater would be treated by ion exchange to remove dissolved vanadium prior to discharge to a nearby drainage ditch. **LUCs** and monitoring would be the same as for Groundwater Alternative 2.

Use of ARARs in the Evaluation Process

Applicable or relevant and appropriate requirements (ARARs) are federal and State environmental requirements used to evaluate the appropriate extent of site cleanup, scope and formulate remedial alternatives, and control the implementation and operation of a selected remedial action. Potential chemical-, location-, and action-specific **ARARs** are defined in the NAS Cecil Field General Information Report (GIR). Each alternative has been evaluated to determine its

compliance with **ARARs**. Chemical-, location-, and action-specific **ARARs** that apply to **OU 11, Site 45** are presented in Section 2.0 of the **FS**.

Detailed Analysis of Cleanup Alternatives

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 a summary comparison of that analysis is presented on Table 2 for the soil cleanup alternatives and on Table 3 for the groundwater cleanup alternatives. Please consult the **OU 11, Site 45 FS** report for more detailed information.

Based on information currently available, the Preferred Alternatives, Soil Alternative 2 and Groundwater Alternative 2, provide the best balance among alternatives with respect to the evaluation criteria.

State acceptance was secured during the **FS** review. As part of the community acceptance process, the **RAB** was briefed in July 2001. During the upcoming public comment period, the Navy, U.S. EPA, and FDEP welcome your comments on the proposed cleanup plan and on the other technical approaches that the team evaluated.

A Closer Look at the Proposed Cleanup Plan

1. LUCs

LUCs such as deed restrictions would be prepared and implemented to prevent future residential development of the site and use of the **surficial aquifer** groundwater. Formal notice would be given to the St. Johns River Water Management District not to issue permits for the installation of wells at Site 45 that draw water from the **surficial aquifer**. Regular site inspections would be conducted to verify the continued implementation of these **LUCs**. The Navy would be responsible for the continued enforcement of **LUCs**, including the performance of annual site inspections.

2. Long-Term Monitoring

Soil and groundwater would be regularly sampled and analyzed to verify that **COCs** are not migrating from the site and to evaluate any decrease in the concentrations of these **COCs** that may result from naturally-occurring processes such as biodegradation, dispersion, and dilution.

3. Five-Year Reviews

Every 5 years, a site review would be performed to evaluate the continued adequacy of the remedy.

4. Contingency Remedy

If the results of any five-year reviews show that **LUCs** and natural attenuation have failed to provide proper protection from soil and groundwater contamination, additional active remedial measures would be evaluated and might be implemented. Potential contingency remedial measures could include additional excavation and off-base treatment and disposal of contaminated soil and extraction, on-site treatment, and surface discharge of contaminated groundwater.

Based on the information currently available, the Navy, U.S. EPA, and FDEP believe that the proposed cleanup plan meets the threshold criteria and provides the best balance of tradeoffs with respect to the balancing and modifying criteria. The Navy, U.S. EPA, and FDEP expect the proposed cleanup plan to satisfy the following statutory requirements of **CERCLA** §121(b): (1) be protective of human health and the environment; (2) comply with **ARARs**, specifically the Safe Drinking Water Act and the Florida Administrative Code Chapter 62-520; (3) be cost effective; (4) utilize permanent solutions to the maximum extent practical; and (5) satisfy the preference for treatment as a principal element.

What Impacts Would the Cleanup Have on the Local Community?

- Alternatives that involve the treatment and handling of soil and/or groundwater during construction and/or operation (Soil Alternative 3, Groundwater Alternative 3) could pose a limited risk to construction workers or operating personnel. However, measures would be taken to minimize and control these risks.
- Alternatives that involve the transportation of contaminated soil or treatment residue for off-site disposal (Soil Alternative 3, Groundwater Alternative 3) would pose a risk to nearby communities. However, measures would be taken to minimize and control these risks.
- Alternatives that do not immediately achieve **cleanup goals** (Soil Alternative 2, Groundwater Alternatives 2 and 3) include administrative action to restrict land and groundwater use until these **cleanup goals** have been reached.
- The No-Action Alternatives (Soil Alternative 1, Groundwater Alternative 1) would not prevent exposure to site contaminants, resulting in unacceptable human health risks if residential development occurs and/or groundwater from the **surficial aquifer** is used.

TABLE 2

SUMMARY COMPARATIVE ANALYSIS OF SOIL CLEANUP ALTERNATIVES
 OPERABLE UNIT 11, SITE 45
 NAVAL AIR STATION CECIL FIELD
 JACKSONVILLE, FLORIDA
 PAGE 1 OF 3

| Evaluation Criteria | Soil Alternative 1: No Action | Soil Alternative 2: LUCs and Monitoring | Soil Alternative 3: Excavation and Off-Base Disposal |
|--|--|--|---|
| Overall Protection of Human Health and Environment | Would not be protective because residential development could occur that would result in unacceptable risks to human and ecological receptors. The threat of soil COCs migrating to the groundwater would remain. | Would be protective of the environment by preventing residential development and detecting the migration of soil COCs . | Would be most protective by eliminating the risk of exposure to soil contaminated above the FDEP residential SCTLs or background values and minimizing the potential for migration of COCs to groundwater. |
| Compliance with ARARs : Chemical-Specific Cleanup Criteria Location-Specific Action-Specific | Would not comply Would not comply Not applicable | Would not comply in the short-term Would comply Would comply | Would comply Would comply Would comply |
| Long-Term Effectiveness and Permanence | Would have very limited long-term effectiveness and permanence because contaminants would remain on-site. Any long-term effectiveness would not be known because monitoring would not occur. | Would be long-term effective and permanent. The prevention of residential development through deed restrictions and the monitoring of contaminants to evaluate their migration would provide long-term effectiveness and permanence. | Would provide the most long-term effectiveness and permanence. Risks from exposure to contaminated soil under any land use scenario and from potential contaminants migration would be effectively and permanently eliminated through removal and disposal. |
| Reduction of Contaminant Toxicity, Mobility, or Volume through Treatment | Would not achieve reduction of toxicity, mobility, or volume of contaminants through treatment but may achieve some reduction through natural processes. | Would not achieve reduction of toxicity, mobility, or volume of contaminants through treatment but may achieve some reduction through natural processes. | Approximately 7,800 yd ³ of contaminated soil containing an estimated 1,604 pounds of COCs would be permanently removed from the site. Disposal would reduce mobility. |

TABLE 2

SUMMARY COMPARATIVE ANALYSIS OF SOIL CLEANUP ALTERNATIVES
 OPERABLE UNIT 11, SITE 45
 NAVAL AIR STATION CECIL FIELD
 JACKSONVILLE, FLORIDA
 PAGE 2 OF 3

| Evaluation Criteria | Soil Alternative 1: No Action | Soil Alternative 2: LUCs and Monitoring | Soil Alternative 3: Excavation and Off-Base Disposal |
|--------------------------|--|--|---|
| Short-Term Effectiveness | Would not result in short-term risks to site workers or adversely impact the surrounding community and would also not achieve the soil RAO and cleanup goals . | Would result in slight risk to site workers during sampling of the soil and groundwater. This risk would be reduced through the wearing of appropriate PPE and the compliance with site-specific health and safety procedures. The soil RAO would be achieved immediately upon implementation. Eventual compliance with the soil cleanup goals would be determined through monitoring. | Would result in a significant risk of exposure to site workers to contaminated soil during the excavation and off-base disposal activities. This risk would be reduced through the wearing of appropriate PPE and compliance with site-specific health and safety procedures. The soil RAO would be achieved immediately upon implementation. Soil cleanup goals would be attained within 6 months. |
| Implementability | Would be simple to implement because no action would occur. | Technical implementation of monitoring would be simple. Administrative implementation of LUCs would be simple. | Technical implementation would be somewhat more complex than for Alternative 2. However, excavation, transportation, and disposal services are readily available. Administrative implementation would be simpler than Alternative 2. No LUCs would be required. However, a construction permit would be needed. |
| Costs: | | | |
| Capital | \$0 | \$25,000 | \$3,900,000 |
| O&M | \$0 | \$122,000 | \$0 |
| NPW | \$0 | \$147,000 | \$3,900,000 |
| State Acceptance | FDEP concurs with the selection of Soil Alternative 3 for the proposed remedy. | | |

TABLE 2

SUMMARY COMPARATIVE ANALYSIS OF SOIL CLEANUP ALTERNATIVES
 OPERABLE UNIT 11, SITE 45
 NAVAL AIR STATION CECIL FIELD
 JACKSONVILLE, FLORIDA
 PAGE 3 OF 3

| Evaluation Criteria | Soil Alternative 1: No Action | Soil Alternative 2: LUCs and Monitoring | Soil Alternative 3: Excavation and Off-Base Disposal |
|---------------------|---|---|--|
| Public Acceptance | Public acceptance of the preferred alternative will be determined following receipt of public comments. | | |

NOTES:

- ARARs** Applicable or relevant and appropriate requirements
- COCs** Chemicals of concern
- FDEP** Florida Department of Environmental Protection
- LUCs** Land use controls
- NPW** Net present worth
- O&M** Operation and maintenance
- PPE** Personal protection equipment
- RAO** Remedial Action Objective
- SCTL** FDEP Soil Cleanup Target Level
- yd³** cubic yard

TABLE 3

SUMMARY COMPARATIVE ANALYSIS OF GROUNDWATER CLEANUP ALTERNATIVES
 OPERABLE UNIT 11, SITE 45
 NAVAL AIR STATION CECIL FIELD
 JACKSONVILLE, FLORIDA
 PAGE 1 OF 3

| Evaluation Criteria | Groundwater Alternative 1: No Action | Groundwater Alternative 2: Natural Attenuation, LUCs, and Monitoring | Groundwater Alternative 3: Extraction, On-Site Treatment, Surface Discharge, LUCs, and Monitoring |
|---|--|---|--|
| Overall Protection of Human Health and Environment | Would not be protective because there would be a continued risk from potential human exposure to contaminated groundwater. Also, potential contaminant migration would remain unchecked. | Would be protective by preventing risk from exposure to contaminated groundwater through LUCs and monitoring. | Would be more protective than Alternative 2 by providing the same protective components plus active removal of vanadium in groundwater through extraction and treatment of the contaminant plume. |
| Compliance with ARARs Chemical-Specific Cleanup Criteria Location-Specific Action-Specific | Would not comply Would not comply Not applicable | Would comply Would comply Would comply | Would comply Would comply Would comply |
| Long-Term Effectiveness and Permanence | Would not be effective or permanent because no action would be taken to prevent exposure to contaminated groundwater. Vanadium reduction or migration would remain undetected because no monitoring would occur. | Would be effective and permanent in the long term. Groundwater use restrictions would effectively prevent unacceptable risk from exposure to contaminated groundwater. Monitoring would effectively quantify vanadium reduction and detect any migration. | Would be effective and permanent in the long term. Groundwater use restrictions and monitoring would effectively prevent unacceptable risk from exposure to contaminated groundwater. Extraction and treatment would effectively remove vanadium from groundwater. |
| Reduction of Contaminant Toxicity, Mobility, or Volume through Treatment | Would not achieve reduction of toxicity, mobility, or volume of vanadium through treatment but might achieve some reduction through natural processes. | Would not achieve reduction of toxicity, mobility, or volume of vanadium through treatment but would achieve reduction through natural processes. | Would achieve reduction of contaminant toxicity, mobility, and volume through treatment. An estimated 3.1 pounds of vanadium would be irreversibly and permanently removed from the groundwater. |

TABLE 3

SUMMARY COMPARATIVE ANALYSIS OF GROUNDWATER CLEANUP ALTERNATIVES
 OPERABLE UNIT 11, SITE 45
 NAVAL AIR STATION CECIL FIELD
 JACKSONVILLE, FLORIDA
 PAGE 2 OF 3

| Evaluation Criteria | Groundwater Alternative 1: No Action | Groundwater Alternative 2: Natural Attenuation, LUCs, and Monitoring | Groundwater Alternative 3: Extraction, On-Site Treatment, Surface Discharge, LUCs, and Monitoring |
|--------------------------|---|--|---|
| Short-Term Effectiveness | Would not result in short-term risks to site workers or adversely impact the surrounding community and also would not achieve the groundwater RAO and cleanup goals . | Would result in slight risk of exposure to site workers during sampling of groundwater. This risk would be reduced through the wearing of appropriate PPE and the compliance with site-specific health and safety procedures. The groundwater RAO would be achieved immediately upon implementation. The vanadium cleanup goals would be attained within approximately 900 to 1,300 years. | Would result in slight risk of exposure to site workers during the installation and operation of the groundwater extraction and treatment system and the sampling of groundwater. This risk would be reduced through the wearing of appropriate PPE and the compliance with site-specific health and safety procedures. The groundwater RAO would be achieved immediately upon implementation. The vanadium cleanup goals would be attained within approximately 18 years. |
| Implementability | Would be simple to implement because no action would occur. | Technical implementation of monitoring would be simple. Administrative implementation of LUCs would be simple. | <p>Technical implementation of the extraction and on-site treatment would be somewhat more complex than that of Alternative 2. Installation and O&M of the limited number of extraction wells and small on-site treatment systems would be simple and would not create significant site disruptions. Implementation of the surface discharge, disposal of treatment residues, and monitoring would be simple.</p> <p>Administrative implementation of the LUCs would be simple. A construction permit would be required, and the substantive requirements of an NPDES permit would have to be met.</p> |

TABLE 3

SUMMARY COMPARATIVE ANALYSIS OF GROUNDWATER CLEANUP ALTERNATIVES
 OPERABLE UNIT 11, SITE 45
 NAVAL AIR STATION CECIL FIELD
 JACKSONVILLE, FLORIDA
 PAGE 3 OF 3

| Evaluation Criteria | Groundwater Alternative 1: No Action | Groundwater Alternative 2: Natural Attenuation, LUCs, and Monitoring | Groundwater Alternative 3: Extraction, On-Site Treatment, Surface Discharge, LUCs, and Monitoring |
|---------------------|---|--|---|
| Costs: | | | |
| Capital | \$0 | \$25,000 | \$303,000 |
| O&M | \$0 | \$122,000 | \$393,000 |
| NPW | \$0 | \$147,000 | \$696,000 |
| State Acceptance | FDEP concurs with the selection of Soil Alternative 3 for the proposed remedy. | | |
| Public Acceptance | Public acceptance of the preferred alternative will be determined following receipt of public comments. | | |

NOTES:

- ARARs** Applicable or relevant and appropriate requirements
- LUCs** Land use controls
- NPDES** National Pollutant Discharge Elimination System
- NPW** Net present worth
- O&M** Operation and maintenance
- PPE** Personal protective equipment
- RAO** Remedial Action Objective

Why Do the Navy, U.S. EPA, and FDEP Recommend This Proposed Plan?

This cleanup plan is recommended for the following reasons:

- Although concentrations of **COCs** in soil exceed the FDEP residential SCTLs or background values, they do not present an unacceptable threat to human health or the environment under the current and foreseeable future industrial use of Site 45.
- Although vanadium was detected in groundwater at concentrations greater than the FDEP GCTL, detected concentrations were relatively low and do not present an unacceptable threat to human health or the environment under the current and foreseeable future site use scenarios.
- The size of the vanadium **contaminant plume** is small, and there is no evidence of on-going contaminant migration.
- The proposed cleanup plan will achieve risk reduction through natural attenuation for groundwater and by imposing restrictions on access to contaminated soil and groundwater until **cleanup goals** are met.

Next Steps:

By September 2003, the Navy and U.S. EPA expect to have reviewed comments in consultation with FDEP and signed the **Record of Decision (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, 13357 Lake Newman Street, Cecil Commerce Center, Jacksonville, Florida. 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.

Glossary of Terms

This glossary defines the 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 document is kept at a location where it can be accessed by the general public.

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**.

Chemical fixation: Controlled mixing of contaminated materials (typically soil or sludge) with selected chemicals that bond contaminants within a solid matrix.

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.

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.

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.

Contaminant plume: An area of groundwater with concentrations of one or more **COCs** greater than **cleanup goals**.

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

Inorganic Background Data Set (IBDS): A compendium of the concentrations of non-organic substances, mostly metals, typically detected in soil and groundwater in uncontaminated areas of NAS Cecil Field.

Installation Restoration (IR): A program established by the Navy for the investigation and cleanup of Superfund sites at their facilities.

Kerosene Analytical Group (KAG): A group of petroleum products defined under the State of Florida environmental regulations. This group consists of diesel, Jet-A, Jet-B, JP-4, JP-5, and kerosene or equivalent fuels.

Landfilling: Controlled burial of contaminated material at a facility specifically designed and permitted for this type of disposal.

Land use controls (LUCs): Administrative measures taken to restrict site access, current land use or future development, or groundwater use. Typical **LUCs** consist of deed restrictions.

Low-temperature thermal desorption (LTTD): Removal of **VOCs** and most **SVOCs** through controlled heating of contaminated material with hot air to temperatures typically ranging from 200 to 1,000 °F, followed by capture and treatment of the removed contaminants in the exhaust gases.

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

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.

Polychlorinated biphenyls (PCBs): High molecular weight, moderately mobile, and moderately to highly toxic liquid organic chemicals that feature multiple benzenic (aromatic) rings and chlorine atoms in their chemical formula. In the past, these were commonly used as cooling fluids in electric transformers and, as a result, **PCB** contamination is relatively widespread.

Polynuclear aromatic hydrocarbons (PAHs): High molecular weight, relatively immobile, and moderately toxic solid organic chemical that feature multiple benzenic (aromatic) rings in their chemical formula. **PAHs** are generally formed during the incomplete combustion of coal, oil, gas, garbage, or other organic substance. Typical **PAHs** include anthracene, phenanthrene, and benzopyrene.

Potential Source of Contamination (PSC): An area where environmental contamination was identified but limited to the soil above the groundwater table (vadose or unsaturated zone).

Preliminary risk evaluation (PRE): 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.

Removal action: An interim cleanup action performed to address an immediate environmental threat.

Restoration Advisory Board (RAB): A body of representatives from the general public that meets on a regular basis to be briefed by the Navy and their contractors on the progress of environmental investigations and cleanup activities for a given facility. The **RAB** provides the opportunity for the community to give input into the cleanup program before final decisions are made.

Semivolatile organic compounds (SVOCs): Organic compounds that do not readily evaporate at normal ambient temperatures but still have a relatively low boiling point. Such compounds are typically found in asphalt, fuel, paints, plastics, and tars.

Surficial aquifer: A layer of groundwater that is separated from deeper groundwater by a confining formation. At NAS Cecil Field, the **surficial aquifer** typically extends from approximately 5 feet below ground surface to approximately 90 feet below ground surface.

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

Volatile organic compounds (VOCs): Organic compounds that evaporate readily at normal ambient temperatures. Typical **VOCs** include the light fraction of gasoline (benzene, toluene, xylenes) and low molecular weight solvents, such as trichlorethylene (TCE).

What's a Formal Comment?



Formal comments are used to improve the cleanup plan. During the 30-day formal comment period, the Navy, U.S. EPA, and 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 August 13, 2003. Written comments and requests for a public hearing should be sent to:

Commander
Department of the Navy
Southern Division
Naval Facilities Engineering Command
Attn: Mr. Jeffrey Meyers, P.E., CHMM (Code ES3)
2155 Eagle Drive
North Charleston, SC 29406



Federal regulations require the Navy, U.S. EPA, and FDEP to distinguish between "formal" and "informal" comments. While the Navy, U.S. EPA, in consultation with FDEP, use both your comments and the **RAB's** comments throughout site investigation and cleanup activities, the team is 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. Once the formal hearing portion of the public meeting is closed, the Navy, U.S. EPA, and FDEP may respond to informal questions.

The Navy, 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 clean-up decision. They will then prepare a written response to all formal comments. The transcript of formal comments and the Navy, U.S. EPA, and FDEP's written responses will then be issued in the Responsiveness Summary included 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:

Building 907
13357 Lake Newman Street
Cecil Commerce Center
Jacksonville, Florida 32252
904-573-0336



