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NAS WHITING FIELD  
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FINAL RECORD OF DECISION FOR SITE 15 NAS WHITING FIELD FL  
9/22/2006  
TETRA TECH NUS

# Comprehensive Long-term Environmental Action Navy

CONTRACT NUMBER N62467-94-D-0888



Rev. 2  
09/22/06

## Record of Decision for OU 14, Site 15, Southwest Landfill Surface and Subsurface Soil

Naval Air Station Whiting Field  
Milton, Florida  
USEPA ID No. FL2170023244

Contract Task Order 0369

September 2006



Southeast

2155 Eagle Drive

North Charleston, South Carolina 29406

RECORD OF DECISION  
FOR  
OPERABLE UNIT 14 - SITE 15, SOUTHWEST LANDFILL  
SURFACE AND SUBSURFACE SOIL

NAVAL AIR STATION WHITING FIELD  
MILTON, FLORIDA  
USEPA ID No. FL2170023244

COMPREHENSIVE LONG-TERM  
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:  
Naval Facilities Engineering Command  
Southeast  
2155 Eagle Drive  
North Charleston, South Carolina 29406

Submitted by:  
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CONTRACT NO. N62467-94-D-0888  
CONTRACT TASK ORDER 0369

SEPTEMBER 2006

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### CERTIFICATION OF TECHNICAL DATA CONFORMITY

The Contractor, Tetra Tech NUS, Inc., hereby certifies, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-94-D-0888 are complete, accurate, and comply with all requirements of this contract. The work and professional opinions rendered in this report were conducted or developed in accordance with commonly accepted procedures consistent with applicable standards of practice.

DATE: 30 September 2006

A handwritten signature in black ink that reads "Michael O. Jaynes". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

NAME AND TITLE OF CERTIFYING OFFICIAL: Michael O. Jaynes, P.E.  
Task Technical Lead

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## ACRONYMS

ARARs	Applicable or Relevant and Appropriate Requirements
bls	below land surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CG	Cleanup Goals
COC	Constituent of Concern
COPC	Constituent of Potential Concern
ERA	Ecological Risk Assessment
EE	Envirodyne Engineers, Inc.
F.A.C.	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FDER	Florida Department of Environmental Regulation
FS	Feasibility Study
FSA	Feasibility Study Addendum
ft	feet/foot
G&M	Geraghty & Miller, Inc.
HHRA	Human Health Risk Assessment
HI	Hazard Index
HLA	Harding Lawson and Associates
IAS	Initial Assessment Study
ILCR	Incremental Life-Time Cancer Risk
IR	Installation Restoration
LUCs	Land Use Controls
LUCIP	Land Use Controls Implementation Plan
mg/kg	milligrams per kilograms
NA	No Action
NACIP	Navy Assessment and Control of Installation Pollutants
NAS	Naval Air Station
Navy	United States Navy
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
NPW	net present worth
O&M	Operation and Management
OU	Operable Unit
PCBs	Polychlorinated Biphenyls
PRGs	Preliminary Remediation Goals
RA	Remedial Action
RAOs	Remedial Action Objectives
RD	Remedial Design
RI	Remedial Investigation
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SCTLs	Soil Cleanup Target Levels
SVOCs	Semi Volatile Organic Compounds

## ACRONYMS (Continued)

TAL	Target Analyte List
TBC	To Be Considered
TCL	Target Compound list
TRPH	Total Recoverable Petroleum Hydrocarbons
TiNUS	Tetra Tech, NUS, Inc.
USEPA	United States Environmental Protection Agency
VOCs	Volatile Organic Compounds

## **1.0 DECLARATION OF THE RECORD OF DECISION**

### **1.1 SITE NAME AND LOCATION**

Naval Air Station (NAS) Whiting Field is located approximately 5.5 miles north of the city of Milton, Florida in Santa Rosa County, about 25 miles northeast of Pensacola. Operable Unit (OU) 14 - Site 15, Southwest Landfill, hereafter referred to as "Site 15", is located near the southwestern facility boundary near the South Air Field at NAS Whiting Field. The approximate location of Site 15 is presented on Figure 1-1.

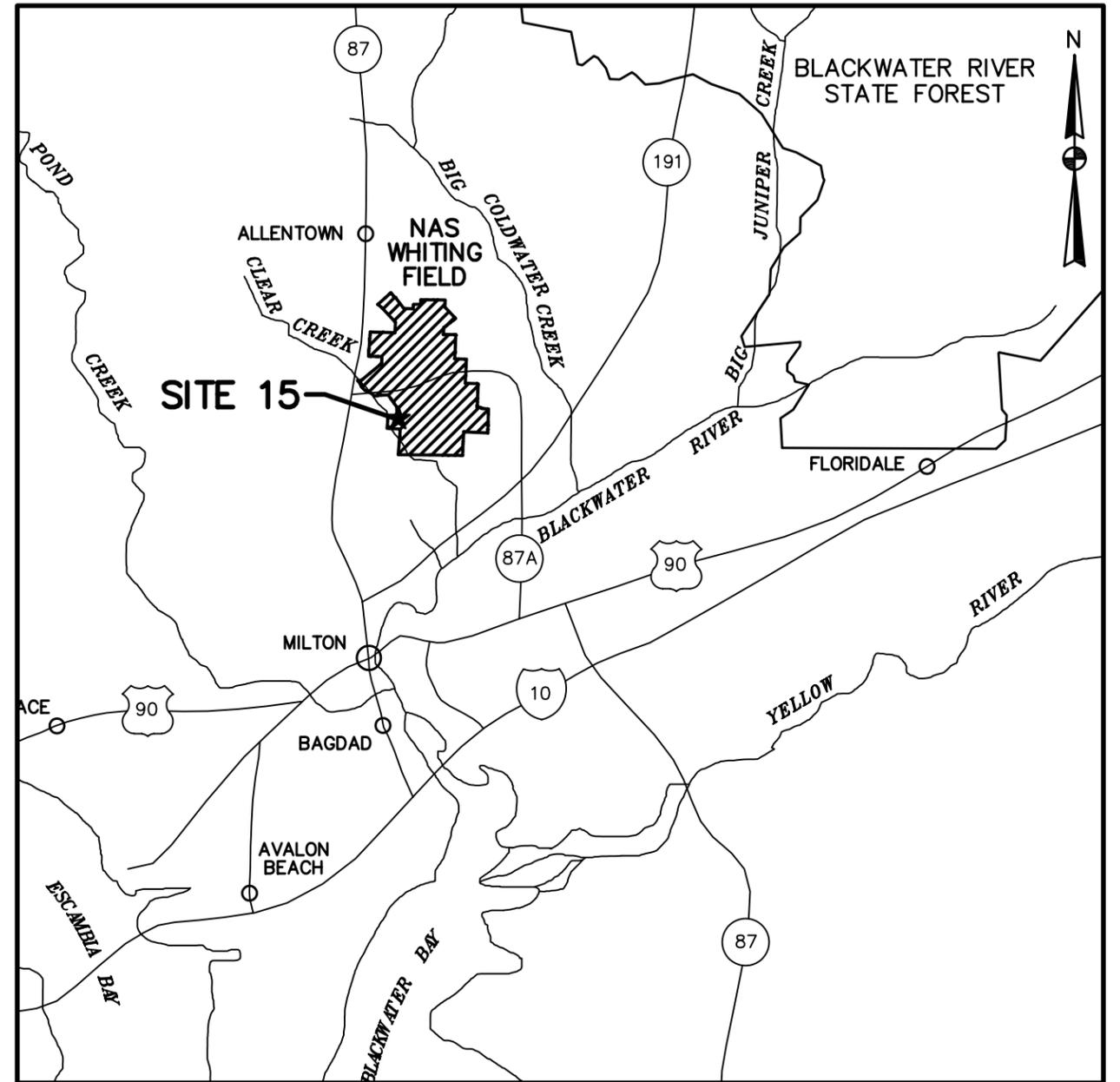
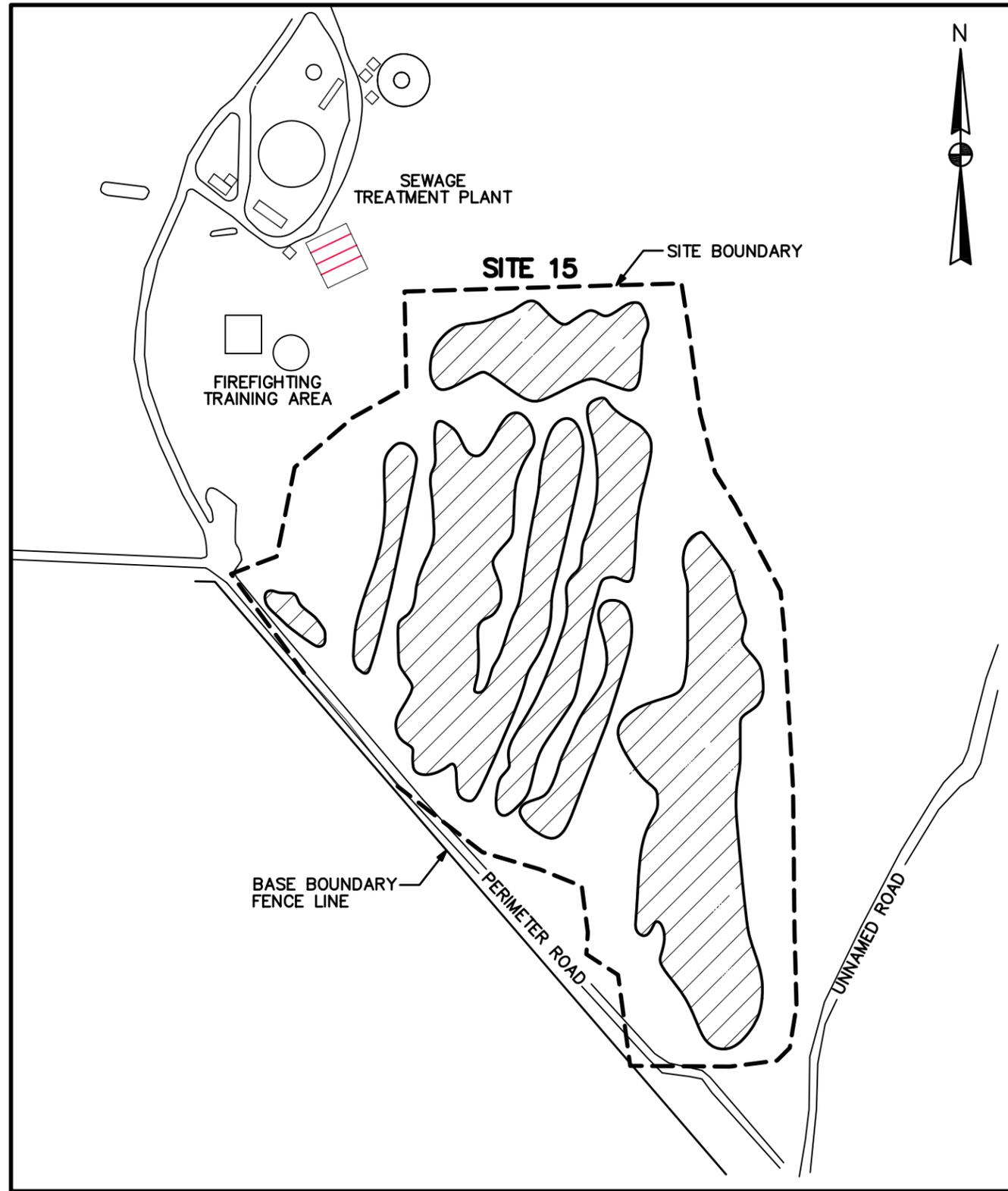
### **1.2 STATEMENT OF BASIS AND PURPOSE**

This decision document presents the selected remedy for OU 14 - Site 15, as Land Use Controls (LUCs) for surface and subsurface soils. Groundwater at NAS Whiting Field has been identified as a separate site (Site 40, Basewide Groundwater) and will be addressed in a future decision document. There is no surface water or sediment present at Site 15. The selected action was chosen by the United States Navy (Navy) and the United States Environmental Protection Agency (USEPA) in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986 and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). Information supporting the selection of this action is contained in the Administrative Record for this site. The NAS Whiting Field Information Repository, including the Administrative Record, is located at the West Florida Regional Library, Milton Branch, 805 Alabama Street, Milton, Florida 32570, (850) 623-5565.

The Florida Department of Environmental Protection (FDEP) concurs with the selected remedy.

### **1.3 ASSESSMENT OF THE SITE**

The Remedial Investigation (RI) Report for Site 15 [Harding Lawson and Associates (HLA), 1999] identified three volatile organic compounds (VOCs), three semi-volatile organic compounds (SVOCs) three pesticides, 20 inorganic constituents, and cyanide in surface soil and three VOCs, seven SVOCs, two pesticides/polychlorinated biphenyls (PCBs), 20 inorganic constituents, and cyanide in subsurface soil. One constituent, Aroclor-1242, was identified as a constituent of concern (COC) in subsurface soil under a residential land use scenario based on the revised human health risk assessment (HHRA) included in the *Risk Assessment Re-Evaluation Report of Soils, Sites 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18* report [Tetra Tech NUS, Inc. (TtNUS), 2006c] and human health risks were identified for exposure



**FIGURE 1-1**  
**SITE 15 LOCATION AND AREA MAP**  
**RECORD OF DECISION**  
**NAS WHITING FIELD, MILTON, FLORIDA**



to subsurface soils at Site 15. A summary of site risks is provided in Section 2.6 of this Record of Decision (ROD).

The ecological risk assessment (ERA) presented in the RI for Site 15 did not identify any unacceptable ecological risks at Site 15; therefore, further ecological study is unwarranted. A discussion of ecological risk is presented in Section 2.6.2.

Site 15 currently consists of vacant, unused land with exposed soil, sparse native grasses, scrub oak vegetative cover, and planted pine trees. Site 15 is not fenced; however, access is controlled at the perimeter security gate. No permanent surface water sources exist at Site 15.

The response action selected in this ROD is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

#### **1.4 DESCRIPTION OF THE SELECTED REMEDY**

This ROD presents the final action for surface and subsurface soils at Site 15 and is based on results of the RI (HLA, 1999), the Feasibility Study (FS) (HLA, 2001), the FS Addendum (FSA) (TtNUS, 2006a), Proposed Plan (TtNUS, 2006b), and the revised HHRA (TtNUS, 2006c). This ROD only addresses surface and subsurface soil at Site 15.

This ROD does not address actual or potential groundwater contamination at the site. Groundwater at NAS Whiting Field has been identified as a separate site (Site 40, Basewide Groundwater) and will be addressed in a future decision document. There is no surface water or sediment present at Site 15.

The selected remedy for Site 15 is LUCs for surface and subsurface soils and ensures protection of human health and the environment. LUCs will restrict future use of the site to nonresidential activities involving less than full-time human contact with surface and subsurface soils. The LUCs will be implemented as described in Alternative 2 in the FS (HLA, 2001). Implementation would include all activities required at Site 15 and include the following:

- Development and implementation of LUCs prohibiting future residential development of the site
- LUCs prohibiting digging into or removal of soil off-site
- Post warning signs

Specific implementation and maintenance actions to ensure the viability of the selected remedy will be described in a Remedial Design (RD) document to be prepared in accordance with USEPA guidance.

Within 90 days of ROD signature, the Navy shall prepare and submit a LUC RD to the USEPA and FDEP, for review and approval. The LUC RD shall contain implementation and maintenance actions, including periodic inspections as well as the design and location of warning signs.

The RD will restrict use/access to the land in and around Site 15 and place regulatory control on any activities at the site. The RD will be implemented and enforced in compliance with all local, state and federal regulations. The RD describes all planned operations, maintenance, inspections, and monitoring that will take place at the site.

As part of LUC implementation, follow up site inspections/reviews are required to ensure compliance while the LUCs are in effect. Under CERCLA regulations, site reviews must take place every five years. Warning signs will be posted at the site to discourage trespassing. LUCs will be maintained until concentrations of hazardous substances in soil reach levels that allow for unrestricted use and unlimited exposure. The Navy will be responsible for implementing, maintaining, reporting on, and enforcing the LUCs.

The estimated total net present worth (NPW) cost of the selected remedy is approximately \$103,000 over a 30 year period. The selected remedy must remain in place indefinitely, unless all contaminated surface and subsurface soils are removed or subsequent sampling demonstrates they meet then applicable criteria for unrestricted use of the site.

## **1.5 STATUTORY DETERMINATIONS**

The LUC remedy selected for surface and subsurface soils at Site 15 is protective of human health and the environment, complies with federal and state requirements legally applicable or relevant and appropriate, and is cost effective.

This remedy does not satisfy the statutory preference for treatment as a principal element of the remedy (i.e., reduction in the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants through treatment as a principal element) because contaminated soils will remain in place. Because this remedy will result in contaminants remaining on-site above residential risk-based levels, a statutory review will be required every five years after the initiation of the LUC remedy to ensure the remedy continues to be protective of human health and the environment.

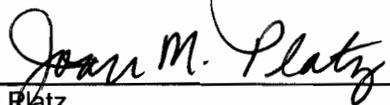
**1.6 DATA CERTIFICATION CHECKLIST**

The information required to be included in the ROD is summarized on Table 1-1. These data are presented in Section 2.0, Decision Summary, of this ROD. Additional information, if required, can be found in the NAS Whiting Field Administration Record for Site 15.

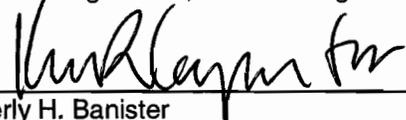
**TABLE 1-1**  
**DATA CERTIFICATION CHECKLIST**  
**SITE 15 – SOUTHWEST LANDFILL**  
**RECORD OF DECISION**  
**NAVAL AIR STATION WHITING FIELD**  
**MILTON, FLORIDA**

<b>Information</b>	<b>ROD Reference</b>
Constituents of Concern (COCs)	Sections 2.5.1.1 and 2.5.1.2 Pages 2-7
Baseline risk represented by the COCs	Section 2.6.1 and 2.6.3 Pages 2-9 and 2-11
Cleanup Goals (CGs) established for the COCs.	Section 2.7.1 Pages 2-12
Disposition of source materials constituting principal threat.	Section 2.2 Page 2-1
Current and reasonably anticipated future land use scenarios used for risk assessment.	Section 2.5.4 Page 2-8
Potential land uses available at the site as a result of the selected remedy.	Section 2.10.4 Page 2-20
Estimated capital, operation and maintenance (O&M), and net present worth (NPW) costs, discount rate used and timeframe these costs are projected for the selected remedy.	Section 2.10.3 Page 2-20  Table 2-5 Page 2-21
Key factors leading to the selection of the remedy.	Section 2.10.1 Page 2-18

1.7 AUTHORIZING SIGNATURES

  
\_\_\_\_\_  
Joan Platz  
Captain, United States Navy  
Commanding Officer, NAS Whiting Field

25 Sep 06  
Date

  
\_\_\_\_\_  
Beverly H. Banister  
Acting Director, Waste Management Division  
USEPA, Region 4

10/2/06  
Date

## **2.0 DECISION SUMMARY**

### **2.1 SITE NAME, LOCATION, AND DESCRIPTION**

Site 15, Southwest Landfill, is 21 acres in size and is located along the southwestern facility boundary near the South Air Field at NAS Whiting Field. The site topography slopes about five percent to the southwest towards Clear Creek, located approximately 1,200 feet (ft) southwest of the site.

The approximate location of Site 15 is shown on Figure 2-1. There are currently no buildings at Site 15 and no permanent surface water sources exist in the immediate vicinity of Site 15.

### **2.2 SITE HISTORY AND ENFORCEMENT ACTIVITIES**

#### **2.2.1 NAS Whiting Field History**

NAS Whiting Field was placed on the National Priorities List (NPL) by the USEPA in June 1994. Following the listing of NAS Whiting Field on the NPL, remedial response activities have been conducted pursuant to CERCLA authority. The decision documents and remedy selection for NAS Whiting Field are developed by the Navy, the lead agency, and the USEPA, a support agency, with concurrence from FDEP, a support agency.

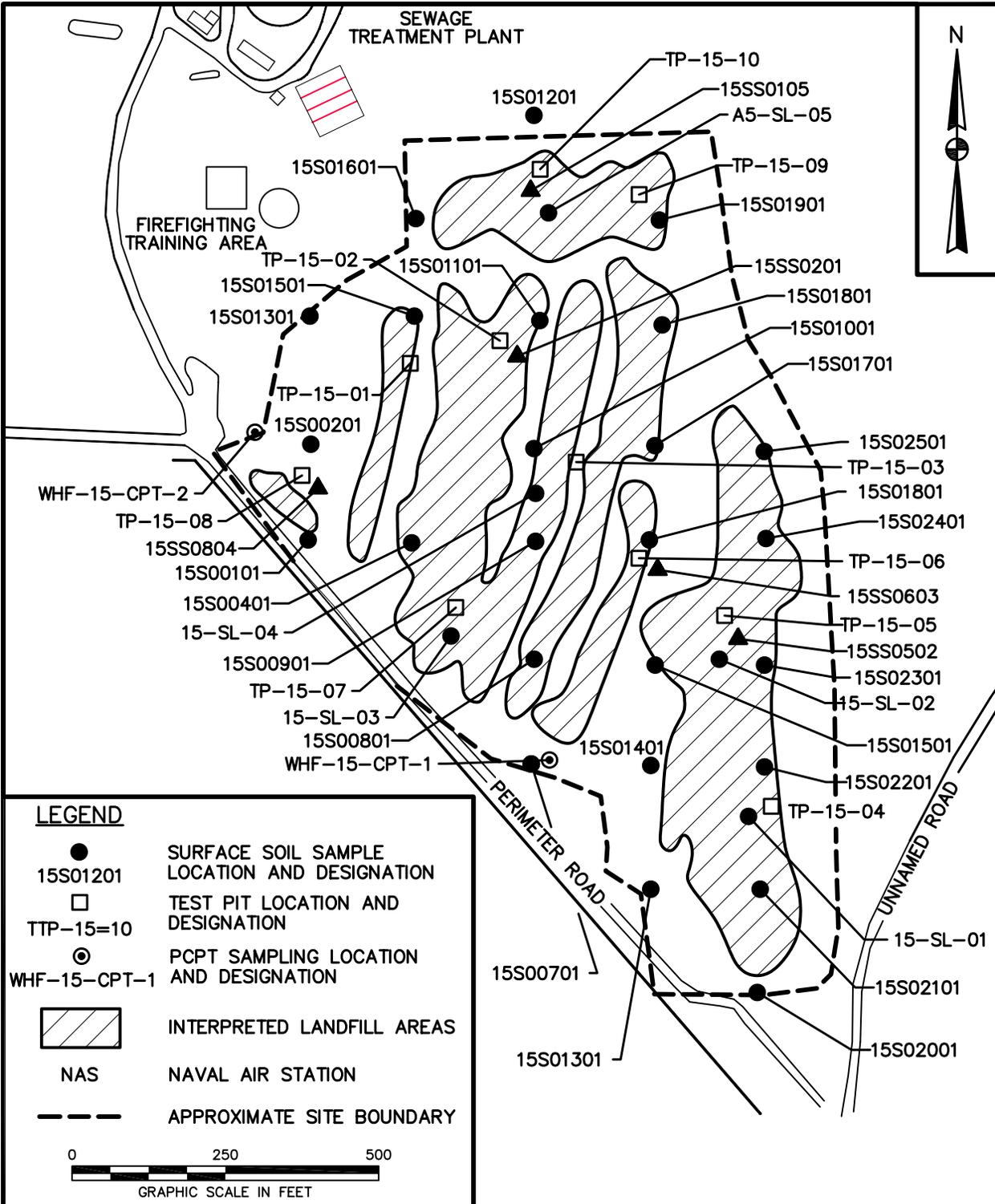
The first environmental studies for the investigations of waste handling and/or disposal sites at NAS Whiting Field were conducted during the Initial Assessment Study (IAS) (Envirodyne Engineers, Inc. (EE), 1985). The record search indicated throughout its years of operation, NAS Whiting Field generated a variety of waste related to pilot training, operation and maintenance of aircraft and ground support equipment, and facility maintenance programs.

NAS Whiting Field presently consists of two airfields (North and South Fields) and serves as a naval aviation training facility providing support facilities for flight and academic training. The current and anticipated future land use at Site 15 is recreational.

#### **2.2.2 Site 15 History**

Site 15 was an operational landfill from 1965 to 1979 and consisted of approximately seven trenches oriented north-northeast. These trenches covered approximately 15 of the 21 acres of the site. The landfill reportedly received the majority of waste generated at NAS Whiting Field, potentially including general refuse, waste paints, oils, solvents, thinner, hydraulic fluid, bagged asbestos, and potentially

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<b>REVISED BY</b>	<b>DATE</b>
<b>SCALE</b> AS NOTED	



**SITE 15 PLAN MAP  
SOUTHWEST LANDFILL  
RECORD OF DECISION  
NAS WHITING FIELD  
MILTON, FLORIDA**

<b>CONTRACT NO.</b> 0006	
<b>OWNER NO.</b> 0000	
<b>APPROVED BY</b>	<b>DATE</b>
<b>DRAWING NO.</b> FIGURE 2-1	<b>REV.</b> 0

PCB-contaminated transformer oil. It is estimated approximately 3,000 to 4,500 tons of waste were disposed at the site annually. Burning of waste material was not conducted, and waste was covered on a daily basis. At the time of the RI fieldwork, buried wastes were not typically exposed at the land surface, and there were no indications (e.g., stained soil or stressed vegetation) of other past waste disposal practices (HLA, 1999).

Past uses of hazardous waste (described above) at Site 15, although acceptable at the time, had the potential to cause long-term problems through the release of hazardous constituents into the soil and groundwater. As part of the Installation Restoration (IR) Program and the Navy Assessment and Control of Installation Pollutants (NACIP), Site 15 was included in the Verification Study [Geraghty & Miller (G&M), 1986] for NAS Whiting Field.

A surface soil assessment was conducted during the RI of Site 15 in two phases (Phase IIA and IIB). Phase IIA included the collection of soil samples from five locations (15-SL-01 through 15-SL-05) during 1992. The Phase IIB investigation included the collection of soil samples from 24 locations (15-SO01 through 15-SO25, not including 15-SO15). The Phase IIA samples were collected at locations where surface geophysical anomalies were interpreted to be present. Because the Phase IIA surface soil sample locations were biased based on geophysical anomalies, the Phase IIB surface soil samples were collected using a random sampling technique to more appropriately support the HHRA. The Phase IIB sampling involved using a systematic sampling method in which a point was chosen at random along a transect and samples were collected at equidistant intervals thereafter. A subsequent removal action conducted in 2000 at Site 15, excavated the soils at location 15SO1501.

CH2M Hill collected a total of 22 samples from around the RI sample location 15SO1501. All samples were analyzed for arsenic. Results indicate that arsenic concentrations in all the samples ranged between 1.2 mg/kg to 2.1 mg/kg. Confirmation samples were collected to verify the extent of soil excavation. Based on analytical results, a 10-foot by 2-foot area was identified for excavation. Approximately 7.4 cubic yards of soil was excavated. All soil was placed directly into a roll-off box for disposal. Clean backfill soil, from a tested and approved off-site borrow source, was placed in the excavation in 1-foot lifts (CH2M Hill, 2001)

The Phase IIA and IIB surface soil samples were collected from a depth interval of 0 to 12 inches below land surface (bls) and analyzed for Target Compound List (TCL) VOCs, SVOCs, pesticides and PCBs, Target Analyte List (TAL) inorganics, and cyanide.

To characterize waste materials within the landfill, test pits were excavated at locations where geophysical anomalies identified potential locations of buried materials. The subsurface soil dataset for Site 15 consists of one sample from each of five test pits (TP-15-02, TP-15-05, TP-15-06, TP-15-08, and TP-15-10) excavated during the 1992 Phase IIA field investigation. The Phase IIA subsurface soil samples were collected from depth intervals of 5 to 6 ft or 10 to 12 ft bls and analyzed for TCL VOCs, SVOCs, pesticides and PCBs, TAL inorganics, and cyanide.

During the RI, three VOCs, three SVOCs, three pesticides, 20 inorganic constituents, and cyanide were detected in the surface soil and three VOCs, seven SVOCs, two pesticides/PCBs, 20 inorganic compounds, and cyanide were detected in the subsurface soil at Site 15. The individual inorganic constituents, aluminum, arsenic, iron, manganese, and vanadium, detected at the site have no direct evidence of site-related use at Site 15 and the procedures at this site did not likely contribute to the presence of these inorganics in surface soil. Additionally, the site-specific values for these inorganics are within the range of levels found at NAS Whiting Field. Considering the information presented above, arsenic, aluminum, iron, manganese, and vanadium were dropped from consideration as constituents of potential concern (COPCs) for Site 15 surface and subsurface soils.

Table 2-1 summarizes the Site 15 investigative history.

### **2.3 HIGHLIGHTS OF COMMUNITY PARTICIPATION**

The FS (HLA 2001), FSA (TtNUS 2006a) and Proposed Plan (TtNUS 2006b) for Site 15 were made available to the public for review in August 2006. These documents, and other IR program information, are contained within the Administrative Record in the Information Repository at the West Florida Regional Library, Milton, Florida.

The notice of availability of all site-related documents was published in the Santa Rosa Press Gazette and Pensacola News Journal on August 12 and 13, 2006, respectively, and targeted the communities closest to NAS Whiting Field. The availability notice presented information on the RI, FS, and FSA at Site 15 and invited community members to submit written comments on the Proposed Plan.

A public comment period was held from 15 Aug through 14 Sep 2006, to solicit comments on the Proposed Plan. The comment period included an opportunity for the public to request a public meeting; however, a public meeting was not held because one was not requested. The site-related documents were placed in the Information Repository and made available for the public to review. Comments

**TABLE 2-1  
INVESTIGATIVE HISTORY  
RECORD OF DECISION  
SITE 15, SOUTHWEST LANDFILL  
NAVAL AIR STATION WHITING FIELD  
MILTON, FLORIDA**

Date	Investigation Title	Activities	Findings
1986	<i>Verification Study, Assessment of Potential Groundwater Pollution at NAS Whiting Field, Florida</i> (Geraghty & Miller, Inc., 1986)	<ul style="list-style-type: none"> <li>• On-site survey and interviews</li> <li>• Installation of one monitoring well and groundwater sampling</li> </ul>	<ul style="list-style-type: none"> <li>• Site 15 was an operational landfill from 1965 to 1979 and consisted of approximately seven trenches oriented north-northeast. These trenches covered approximately 15 of the 21 acres of the site. The landfill reportedly received the majority of waste generated at NAS Whiting Field, potentially including general refuse, waste paints, oils, solvents, thinner, hydraulic fluid, bagged asbestos, and potentially PCB-contaminated transformer oil.</li> <li>• Site 15 was recommended for additional investigation due to the potential for off-site migration and impact on human and ecological receptors.</li> </ul>
1992-1999	<i>Remedial Investigation Report, Site 15, NAS Whiting Field, Milton, Florida</i> , (HLA, 1999)	<ul style="list-style-type: none"> <li>• Geophysical survey</li> <li>• Geological assessment</li> <li>• Hydrogeological assessment</li> <li>• Collection and analysis of surface and subsurface soil samples</li> <li>• Installation of groundwater monitoring wells and groundwater sampling</li> <li>• Soil gas survey</li> <li>• HHRA</li> <li>• ERA</li> </ul>	<ul style="list-style-type: none"> <li>• The groundwater flow direction is to the southwest across the site.</li> <li>• The HHRA determined the carcinogenic risk from exposure to surface soil may be unacceptable for current and future receptors.</li> <li>• The total ILCR associated with exposure to soil by a hypothetical future resident and industrial worker exceeded FDEP's target level of concern (<math>1 \times 10^{-6}</math>) due to the presence of arsenic.</li> <li>• The non-cancer risk associated with ingestion and direct contact of soil under current and hypothetical future land-uses are below USEPA's and FDEP's target HI of 1.0.</li> <li>• The ERA does not predict unacceptable risks to ecological receptors from constituents present in surface and subsurface soil.</li> </ul>
2001	<i>Feasibility Study for Site 15, NAS Whiting Field, Milton, Florida</i> (HLA, 2001).	<ul style="list-style-type: none"> <li>• Evaluated remedial alternatives for site cleanup of COCs.</li> </ul>	<ul style="list-style-type: none"> <li>• Three COCs identified for surface and subsurface soil.</li> </ul>
2006	<i>Risk Assessment Re-Evaluation of Soils at Sites 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18, NAS Whiting Field, Milton, Florida</i> (TtNUS, 2006c)	<ul style="list-style-type: none"> <li>• Evaluated changed conditions at the site and changes in regulatory screening criteria.</li> </ul>	<ul style="list-style-type: none"> <li>• One COC was identified for subsurface soil.</li> </ul>
2006	<i>Feasibility Study Addendum for Site 15, NAS Whiting Field, Milton, Florida</i> (TtNUS, 2006a).	<ul style="list-style-type: none"> <li>• Evaluated remedial alternatives for site cleanup of COCs.</li> </ul>	<ul style="list-style-type: none"> <li>• One COC identified for subsurface soil, based on the Risk Assessment Re-evaluation (2004).</li> </ul>
2006	<i>Proposed Plan, Site 15, Southwest Landfill, NAS Whiting Field, Milton, Florida</i> , (TtNUS, 2006b)	<ul style="list-style-type: none"> <li>• Established public comment period from 15 Aug through 14 Sep 2006.</li> </ul>	<ul style="list-style-type: none"> <li>• Proposed remedy: LUCs for Site 15 surface and subsurface soils.</li> <li>• No comments received.</li> </ul>

Notes:

HHRA = human health risk assessment  
HLA = Harding Lawson Associates  
ILCR = incremental lifetime cancer risk  
ERA = ecological risk Assessment  
HI = hazard index

FDEP = Florida Department of Environmental Protection  
TtNUS = Tetra Tech NUS, Inc.  
USEPA = United States Environmental Protection Agency  
SCTLs = Soil Cleanup Target Levels  
COC = constituents of concern

received during the public comment period are presented in the Responsiveness Summary in Appendix A.

## **2.4 SCOPE AND ROLE OF REMEDIAL ACTION SELECTED FOR SITE 15**

The Proposed Plan recommended LUCs for surface and subsurface soils at Site 15. Therefore, this ROD for Site 15 addresses surface and subsurface soil contamination and presents the final response action as LUCs for surface and subsurface soils. The groundwater at NAS Whiting Field has been designated as a separate site (Site 40, Basewide Groundwater) and is not addressed in this ROD. There is no surface water or sediment present at Site 15.

## **2.5 SITE CHARACTERISTICS**

Site 15, Southwest Landfill, is approximately 21 acres in size and is located along the southwestern facility boundary near the South Air Field taxiway at NAS Whiting Field. The site topography slopes at about five percent to the southwest towards Clear Creek, located approximately 1,200 ft southwest of the site. The IAS report noted soil erosion had exposed numerous areas of buried waste (EE, 1985).

Site 15 was an operational landfill from 1965 to 1979 and consisted of approximately seven trenches oriented north-northeast. These trenches covered approximately 15 of the 21 acres of the site. The landfill reportedly received the majority of waste generated at NAS Whiting Field, potentially including general refuse, waste paints, oils, solvents, thinner, hydraulic fluid, bagged asbestos, and potentially PCB-contaminated transformer oil.

Currently, Site 15 consists of vacant, unused land covered with sparse native grasses and scrub oak vegetative cover and planted pine trees approximately 20 to 30 ft in height. No permanent surface water sources exist in the immediate vicinity of Site 15.

### **2.5.1 Nature and Extent of Contamination**

As part of the RI conducted for Site 15, data were collected to determine the nature and extent of releases of site-derived contaminants in surface and subsurface soil, to identify potential pathways of migration in surface and subsurface soil, and to evaluate risks to human and ecological receptors.

Constituents detected in the surface soils include three VOCs, three SVOCs, three pesticides, 20 inorganic constituents, and cyanide. Constituents detected in the subsurface soils include three VOCs,

seven SVOCs, two pesticides/PCBs, 20 inorganic constituents, and cyanide. Surface and subsurface soil sample locations are presented on Figure 2-1.

#### **2.5.1.1 Surface Soil**

Surface soil sampling was conducted at Site 15 to determine the nature and extent of contamination at the site and to assess whether or not surface soil could potentially serve as an exposure pathway to human or ecological receptors. Constituents detected in surface soil at Site 15 included three VOCs, three SVOCs, three pesticides, 20 inorganic constituents, and cyanide. No COCs were identified following the revised risk assessment for surface soils at Site 15. A complete list of all constituents sampled and their detected concentrations in surface soil is available in the RI report (HLA, 1999).

Concentrations of all chemicals were less than the direct contact, risk based COPC screening levels with the exception of aluminum, arsenic, iron, and vanadium. Although concentrations of aluminum, arsenic, iron, and vanadium in surface soil exceeded the screening criteria these inorganics are not known to be associated with past practices or processes at any NAS Whiting Field sites. Therefore, no constituents were retained as COPCs for direct contact exposures to surface soil at the Site 15.

#### **2.5.1.2 Subsurface Soil**

Subsurface soil sampling was conducted at Site 15 to determine the nature and extent of contamination at the site and to assess whether or not subsurface soil could potentially serve as an exposure pathway to human or ecological receptors. Constituents detected in subsurface soil at Site 15 included, three VOCs, seven SVOCs, two pesticides/PCBs, 20 inorganic constituents, and cyanide. One COC (Aroclor-1242) was identified following the revised risk assessment for subsurface soils at Site 15. A complete list of all constituents sampled and their detected concentrations in subsurface soil is available in the RI report (HLA, 1999).

Concentrations of Aroclor-1242 exceeded the simple apportioned Preliminary Remediation Goals (PRGs) and Soil Cleanup Target Levels (SCTLs), but were less than the non-apportioned and PRGs and SCTLs. The maximum Aroclor-1242 concentration exceeded the apportioned and non-apportioned SCTLs. Therefore, Aroclor-1242 [max conc. – 2.2 milligrams per kilograms (mg/kg)], was identified as a COC for subsurface soil exceeding criteria for a residential use scenario at the site.

### **2.5.2 Ecological Habitat**

Site 15 is limited in the quantity and quality of habitat for ecological receptors. Most importantly, the site comprises only a small portion of the home ranges of most wildlife and the limited size and habitat of the site serves to restrict the amount of food available to upper trophic level organisms.

### **2.5.3 Migration Pathways**

Aroclor-1242 is the only COC in soil at Site 15. The primary agents of migration acting on soil include wind, water, and human activity. Soil can also act as a source medium, allowing COCs to be transported to other media.

Transport of COCs from soil via wind is not expected to be a major transport mechanism based on the characteristics of Aroclor-1242, the detection was at a depth of 11 ft bls, and the presence of vegetation and native grasses at Site 15. Vegetation is an effective means of limiting wind erosion of soil.

Humans and, to a lesser extent, ecological receptors are effective at moving soil and can greatly affect the transport of soil-bound constituents. Under the current land use scenario at Site 15, human activity and ecological receptors are not major transport mechanisms for COCs in soil.

The transport of soil by water and, therefore, COCs in soil, via the mechanisms of physical transport of soil or the leaching of constituents from the soil to groundwater, is a potential concern. Soil erosion - the physical transport of soil via surface water runoff - is currently not considered a major mechanism for the transport of the COCs in soil at Site 15 because (1) the minimal slope of the land surface at the site; (2) the vegetation covering the site; and (3) the nature of the constituents remaining in the soil at the site.

Leaching of constituents from the soil to the groundwater will be evaluated as part of the RI/FS for Site 40, Basewide Groundwater. As stated earlier, there is no surface water or sediment present at Site 15.

### **2.5.4 Current and Potential Future Land Use**

The current and anticipated future land use at Site 15 is recreational.

## **2.6 SUMMARY OF SITE RISKS**

A risk assessment was completed for Site 15 to predict whether the site would pose current or future threats to human health or the environment. Both a HHRA and an ERA were performed for Site 15. These risk assessments evaluated the constituents detected in site soil during the RI.

The HHRA and the ERA provide the basis for selecting the Remedial Action (RA) for Site 15. The HHRA was revised to evaluate the changed conditions at the site and changes in the regulatory screening criteria that have become effective since the original risk assessment was conducted. This section of the ROD summarizes the results of the revised HHRA and the ERA for Site 15.

### **2.6.1 HHRA**

The HHRA was revised at Site 15 to characterize the risks associated with potential exposures to site-related contaminants for human receptors. Details of the revised HHRA are provided in Section 9.0 of the *Risk Assessment Re-evaluation of Soils, Sites 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18* report (TtNUS, 2006c).

#### **2.6.1.1 Risk Characterization**

For the risk characterization at Site 15 potential risks were estimated for five receptors (the hypothetical future resident, the typical industrial worker, the construction worker, the maintenance worker, and the recreational user/trespasser). Potential risks were calculated using the methodology presented in Section 2.0 of the revised HHRA (TtNUS, 2006c). Aroclor-1242 and mercury were the only constituents detected at concentrations in excess of the direct contact, risk based COPC screening levels and consequently were retained as COPCs for subsurface soil and evaluated in the quantitative HHRA.

As discussed above in Section 2.2.2, although concentrations of aluminum, arsenic, iron, and vanadium in surface and subsurface soil exceed respective screening criteria, these inorganics are not known to be associated with past practices or processes at any NAS Whiting Field sites. Soils associated with NAS Whiting Field landfills are composed of natural soil covers and do not reflect subsurface landfill contents. Therefore, these inorganics were not retained as COPCs for direct contact exposures to soil at Site 15.

Quantitative risk estimates for potential human receptors were developed for the identified COPCs. Potential cancer risks and hazard indices (HIs) were calculated and the results are discussed below.

### **Non-carcinogenic Risk**

The non-cancer risk estimates (i.e., HIs) for the hypothetical future resident exposed to subsurface soil exceeded 1.0 for Aroclor-1242 indicating a potential for adverse, non-carcinogenic health effects under the conditions established in the exposure assessment. The non-cancer risk estimates (i.e., HIs) for the typical industrial worker or the construction worker did not exceed 1.0.

### **Carcinogenic Risk**

Cumulative Incremental Life-Time Cancer Risk (ILCRs) for exposures to subsurface soil were less than or within USEPA's target risk range of  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$  for all receptors. However, the ILCR for residents hypothetically exposed to subsurface soil exceeded the FDEP target level of  $1 \times 10^{-6}$ . The chemical-specific ILCR for Aroclor-1242, the only carcinogen selected as a COPC, exceeded  $1 \times 10^{-6}$  for exposures to subsurface soil by residents.

The cancer risk estimate developed for the future resident hypothetically exposed to Aroclor-1242 ( $4.0 \times 10^{-6}$ ), in subsurface soils exceeded the State of Florida cancer risk benchmark of  $1 \times 10^{-6}$ . However, cancer risk estimates for the typical industrial worker and the construction worker did not, and none of the cancer risk estimates exceeded the USEPA cancer risk range of  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ . Risk estimates for mercury did not exceed USEPA or State of Florida cancer risk benchmarks for any of the receptors evaluated.

### **2.6.2 ERA**

A screening ERA was performed for Site 15. The purpose of the ERA for Site 15 was to evaluate the potential for adverse effects to ecological receptors at the site. Components of the screening level ERA included (1) preliminary problem formulation; (2) preliminary ecological effects evaluation; (3) preliminary exposure estimate; and (4) preliminary risk calculation. The ERA completed for Site 15 considered exposure of terrestrial plants, terrestrial invertebrates, and wildlife receptors to chemicals in soil at the site. All constituents detected in soil at Site 15 including VOCs, SVOCs, Total Recoverable Petroleum Hydrocarbons (TRPH), pesticides/PCBs, and inorganic analytes were evaluated during the screening level assessment.

Aroclor-1242 and mercury were detected in subsurface soil at concentrations exceeding conservative screening levels and, therefore, were selected as COPCs. These COPCs were assessed in a less conservative Step 3A evaluation. The results of the Step 3A analysis indicate the constituents detected in surface and subsurface soil at Site 15 do not pose unacceptable risks to ecological receptors.

The site is severely limited in the quantity and quality of habitat. Most importantly, the site comprises only a small portion of the home ranges of most of the terrestrial wildlife species found on the base. Therefore,

reduction in growth, survival, and reproduction of small mammal and bird populations at and near the site is unlikely. For these reasons, no unacceptable risks were identified and further ecological study at Site 15 is unwarranted.

### **2.6.3 Risk Summary**

The risk assessment considered five receptors, the hypothetical future resident, the typical industrial worker, the construction worker, the maintenance worker, and the recreational user, assuming exposure via the ingestion, dermal contact, and inhalation routes of exposure. However, with the possible exception of the maintenance worker, none of the receptors are currently contacting surface or subsurface soils at Site 15.

No constituents were selected as COPCs for surface soil. Aroclor-1242 and mercury were selected as COPCs for subsurface soil, and quantitative risk estimates were calculated for three future receptors (i.e., resident, typical industrial worker, and construction worker). The non-cancer risk estimates (i.e., HIs) for the hypothetical future resident exposed to subsurface soil exceeded 1.0 for Aroclor-1242 indicating a potential for adverse, non-carcinogenic health effects under the conditions established in the exposure assessment. The non-cancer risk estimates for the typical industrial worker or the construction worker did not exceed 1.0. The cancer risk estimate developed for the future resident hypothetically exposed to Aroclor-1242 ( $4.0 \times 10^{-6}$ ) in subsurface soils exceeded the State of Florida cancer risk benchmark of  $1 \times 10^{-6}$ . However, cancer risk estimates for the typical industrial worker and the construction worker did not, and none of the cancer risk estimates exceeded the USEPA cancer risk range of  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ . Risk estimates for mercury did not exceed USEPA or State of Florida risk benchmarks.

### **2.6.4 Uncertainty Analysis**

General uncertainties associated with the risk estimation process and site-specific uncertainties are discussed or referenced in the RI. Uncertainties associated with the revised HHRA for surface and subsurface soil at Site 15 are summarized below:

- Overall site-related risks from soil may be overestimated by the background screening process.
- Potential risks are likely to be overestimated as a result of using the maximum concentration for the COCs.
- Risk is likely overestimated for the general populations exposed to the constituents in the environmental media at the site.

## 2.7 REMEDIAL ACTION OBJECTIVES

The Remedial Action Objectives (RAOs) for Site 15 are:

- To prevent residential development (such as housing, schools or playgrounds) on the site.
- To address possible future risk of direct exposure to subsurface soil exceeding SCTLs and risk benchmarks for Aroclor-1242.
- To comply with federal and state applicable or relevant and appropriate requirements (ARARs) and consider to be considered (TBC) guidance in accordance with accepted USEPA and FDEP guidelines.

### 2.7.1 Cleanup Goals

Cleanup Goals (CGs) establish acceptable exposure levels protective of human health and the environment. The following soil CGs were established for the Site 13 COC:

COC	CG
Aroclor-1242	0.5 mg/kg <sup>(1)</sup>

(1) FDEP SCTL for direct exposure, residential

The CGs were used to determine the areas and volumes of surface and subsurface soils with the potential to impact human health under a residential land-use scenario. The estimated area of mercury-contaminated soil exceeding the CG is 100 square feet with an estimated volume of 15 cubic yards.

## 2.8 DESCRIPTION OF ALTERNATIVES

As stated in the Proposed Plan (TtNUS, 2006b) and in previous sections of this document, the four remedial alternatives evaluated in the FS (HLA, 2001) required re-evaluation based on the revised HHRA (TtNUS, 2006c). Cleanup alternatives were developed by the Navy, the USEPA, and the FDEP. The four remedial alternatives are listed below and summarized in Table 2-2.

**Alternative 1:** No Action (NA)

**Alternative 2:** LUCs

**Alternative 3:** Soil Cover and LUCs

These alternatives were developed in consideration of site risks, the anticipated future recreational land use, federal and state ARARs and guidance, and the limited ecological habitat at Site 15.

**TABLE 2-2**  
**SUMMARY OF REMEDIAL ALTERNATIVES EVALUATED**  
**RECORD OF DECISION**  
**SITE 15, SOUTHWEST LANDFILL**  
**NAVAL AIR STATION WHITING FIELD**  
**MILTON, FLORIDA**

Alternative	Description of Key Components	Cost <sup>(1)</sup>	Duration <sup>(2)</sup>
<b>Alternative 1: No Action</b>	No remedial actions are performed at Site 15	\$0	NA
<b>Alternative 2: LUCs</b>	Post warning signs.  Implementation of LUCs will address contaminants in soil above residential standards. An RD will be submitted to USEPA and FDEP and will detail the implementation plans to prohibit residential use of the property.	\$103,000 <sup>(3)</sup>	30 Years
<b>Alternative 3: Soil Cover and LUCs</b>	Develop project plans for soil cover to include delineation/confirmatory sampling.  Construct soil cover for soils exceeding residential land use CGs.  Provide a vegetative cover for soil cover area.  Post warning signs.  Implementation of LUCs will address contaminants in soil above residential standards. An RD will be submitted to USEPA and FDEP and will detail the implementation plans to maintain the site for nonresidential purposes.	\$2,127,000	30 Years

<sup>(1)</sup> Net present worth costs rounded to the nearest thousand dollars.

<sup>(2)</sup> A period of 30 years was chosen for present worth costing purposes only. Under CERCLA, remedial actions must continue as long as hazardous substances, pollutants, or contaminants remain at a site.

<sup>(3)</sup> The cost for implementation of Alternative 2 includes the cost of the required 5-year reviews.

Notes: CG(s) = Cleanup goal(s)  
 FDEP = Florida Department of Environmental Protection  
 LUC(s) = land use control(s)  
 RD = Remedial Design  
 USEPA = United States Environmental Protection Agency

These alternatives primarily address protection of human health because, as discussed previously, no unacceptable ecological risk was identified. A detailed description of the three alternatives is provided below.

**Alternative 1:** No Action. This alternative [estimated total NPW cost of \$0] is required by CERCLA as a baseline for comparison with the other alternatives. The NA alternative assumes no RA would occur and establishes a basis for comparison with the other alternatives. No RA, treatment, LUCs, or monitoring of site conditions would be implemented under the NA alternative. Alternative 1 does not meet chemical-specific ARARs, and there are no action-specific ARARs for this alternative.

**Alternative 2:** LUCs. (estimated total NPW cost \$103,000): LUCs to prohibit the disturbance of existing soil and to restrict future use of the site to non-residential purposes precluding full-time human contact with contaminated surface or subsurface soils. Future and current land-use concerns are addressed by the LUCs. Alternative 2 achieves compliance with chemical-specific ARARs by implementing LUCs to prevent exposure to surface and subsurface soils exceeding CGs. Compliance with action-specific ARARs would be achieved by proper selection, implementation, and maintenance of LUCs.

**Alternative 3:** Soil cover and LUCs. This alternative (estimated total NPW cost \$2,127,000) involves construction of a soil cover for surface and subsurface soils exceeding levels allowed for Florida residential sites and LUCs, as described in Alternative 2 above. Alternative 3 meets chemical-specific ARARs for surface and subsurface soils. Compliance with action-specific ARARs would be achieved by proper design and execution of the soil cover.

## **2.9 SUMMARY OF THE COMPARATIVE ANALYSIS OF ALTERNATIVES**

This section evaluates and compares each of the soil remedial alternatives with respect to the nine criteria outlined in Section 300.430(e) of the NCP. These criteria are categorized as threshold, primary balancing, and modifying and are further explained in Table 2-3. A detailed analysis was performed for each alternative using the nine criteria to select a remedy. Table 2-4 presents a summary comparison of these analyses.

**TABLE 2-3**  
**EXPLANATION OF DETAILED ANALYSIS CRITERIA**  
**RECORD OF DECISION**  
**SITE 15, SOUTHWEST LANDFILL**  
**NAVAL AIR STATION WHITING FIELD**  
**MILTON, FLORIDA**

Criterion	Description
Threshold	<p><b>Overall Protection of Human Health and the Environment.</b> This criterion evaluates the degree each alternative eliminates, reduces, or controls threats to human health and the environment through treatment, engineering methods, or institutional controls (e.g., access restrictions).</p> <p><b>Compliance with State and Federal Regulations.</b> The alternatives are evaluated for compliance with environmental protection regulations determined to be applicable or relevant and appropriate to the site conditions.</p>
Primary Balancing	<p><b>Long-Term Effectiveness and Permanence.</b> The alternatives are evaluated based on their ability to maintain reliable protection of human health and the environment after implementation.</p> <p><b>Reduction of Contaminant Toxicity, Mobility, and Volume Through Treatment.</b> Each alternative is evaluated based on how it reduces the harmful nature of the contaminants, their ability to move through the environment, and the amount of contamination.</p> <p><b>Short-Term Effectiveness.</b> The potential risks to workers and nearby residents posed by implementation of a particular remedy (e.g., whether or not contaminated dust will be produced during excavation), as well as the reduction in risks resulting from controlling the contaminants, are assessed. The length of time needed to implement each alternative is also considered.</p> <p><b>Implementability.</b> Both the technical feasibility and administrative ease (e.g., the amount of coordination with other government agencies needed) of a remedy, including availability of necessary goods and services, are assessed.</p> <p><b>Cost.</b> The benefits of implementing a particular alternative are weighted against the cost of implementation.</p>
Modifying	<p><b>USEPA and FDEP Acceptance.</b> The final Feasibility Study and the Proposed Plan, placed in the Administrative Record, represent a consensus by the Navy, USEPA, and FDEP.</p> <p><b>Community Acceptance.</b> The Navy assesses community acceptance of the selected alternative by giving the public an opportunity to comment on the remedy selection process and the selected alternative and then responds to those comments.</p>

**TABLE 2-4**  
**SUMMARY OF COMPARATIVE ANALYSIS OF SOIL REMEDIAL ALTERNATIVES**  
**RECORD OF DECISION**  
**SITE 15, SOUTHWEST LANDFILL**

**NAVAL AIR STATION WHITING FIELD**  
**MILTON, FLORIDA**

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<b>Evaluation Criteria</b>	<b>Soil Alternative 1: No Action</b>	<b>Soil Alternative 2: LUCs</b>	<b>Soil Alternative 3: Soil Cover and LUCs</b>
Overall Protection of Human Health and Environment	Would not be protective to human receptors exposed to soils at the site.	Would be protective to human receptors. LUCs would prevent unacceptable potential exposure because residential use would be prohibited.	Would be very protective because all surface and subsurface soils exceeding CGs would be covered, eliminating the risk of exposure. LUCs would prevent potential residents from coming into contact with soil exceeding residential standards at the site. Would also provide protection to ecological receptors however, may end up altering the ecological habitat at the site.
Compliance with ARARs and TBCs: Chemical-Specific Location-Specific Action-Specific	Would not comply Not applicable Not applicable	Would comply Not applicable Would comply	Would comply Not applicable Would comply
Long-Term Effectiveness and Permanence	Would not have long-term effectiveness and permanence because contaminants would remain on site. Any long-term effectiveness would not be known since monitoring would not occur.	Would provide long-term effectiveness and permanence through LUCs preventing residential development. LUCs would preclude existing soil disturbance. Would require long-term management would be administered by the facility through implementing an approved RD.	Would provide high level of long-term effectiveness and permanence by covering all impacted soil exceeding residential cleanup levels, reducing residual risk from impacted soil left at the site and by implementing LUCs to prevent residential development. Would require long-term management and five-year reviews. LUCs would be administered by the facility through implementing an approved RD.
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.	Would permanently and significantly reduce toxicity and mobility of contaminants by covering impacted soil. Volume of impacted soil would not be reduced.

**TABLE 2-4  
SUMMARY OF COMPARATIVE ANALYSIS OF SOIL REMEDIAL ALTERNATIVES  
RECORD OF DECISION  
SITE 15, SOUTHWEST LANDFILL**

**NAVAL AIR STATION WHITING FIELD  
MILTON, FLORIDA**

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<b>Evaluation Criteria</b>	<b>Soil Alternative 1: No Action</b>	<b>Soil Alternative 2: LUCs</b>	<b>Soil Alternative 3: Soil Cover and LUCs</b>
Short-Term Effectiveness	Would not result in short-term risks to site workers or adversely impact the surrounding community and would not achieve the soil RAOs and CGs.	Would not result in short term risks to site workers or adversely impact the surrounding community and would not achieve the soil CGs.  Estimated time to reach RAOs is less than one year.	Would create short-term risks of worker exposure and potential fugitive dust during soil cover construction. Environmental impacts (fugitive dust and runoff) are expected to be minimal. Engineering controls would minimize any environmental impacts. RAOs and CGs would be met within less than one year.
Implementability	Would be simple to implement because no action.	Would be easily implemented. Would require monitoring of the site and potential exposure. Equipment, specialists, and materials for this alternative are readily available.	Would be easily implemented. This remedial technology is proven and reliable. Equipment, specialists, and materials for this alternative are readily available.
Cost: Capital NPW O&M (30 year) Total cost, NPW (30 year)	\$0 \$0 \$0	\$23,000 \$80,000 \$103,000	\$1,697,000 \$237,000 \$2,127,000

CG = Cleanup Goal  
LUC = Land Use Control  
NPW = Net Present Worth  
RAO = Remedial Action Objective  
RD = Remedial Design

## **2.10 SELECTED ALTERNATIVE**

### **2.10.1 Summary of Rationale for Remedy**

The goals of the selected RA are to protect human health and the environment by eliminating, reducing or controlling hazards posed by the site and to meet ARARs. Based upon the consideration of the requirements of CERCLA, the NCP, the detailed analysis of alternatives, and public comments, Alternative 2 - LUCs were selected to address surface and subsurface soils at Site 15.

This remedy was selected for the following reasons:

- Although concentrations of COCs remaining in soil exceed screening level criteria for a residential use scenario, they do not present an unacceptable threat to human health or the environment assuming only future recreational land uses are permitted at Site 15.
- No unacceptable ecological risks were identified.
- The current and future use of the property at Site 15 remains recreational and the current and future receptors are construction workers and the recreational user/trespasser.

### **2.10.2 Remedy Description - LUCs**

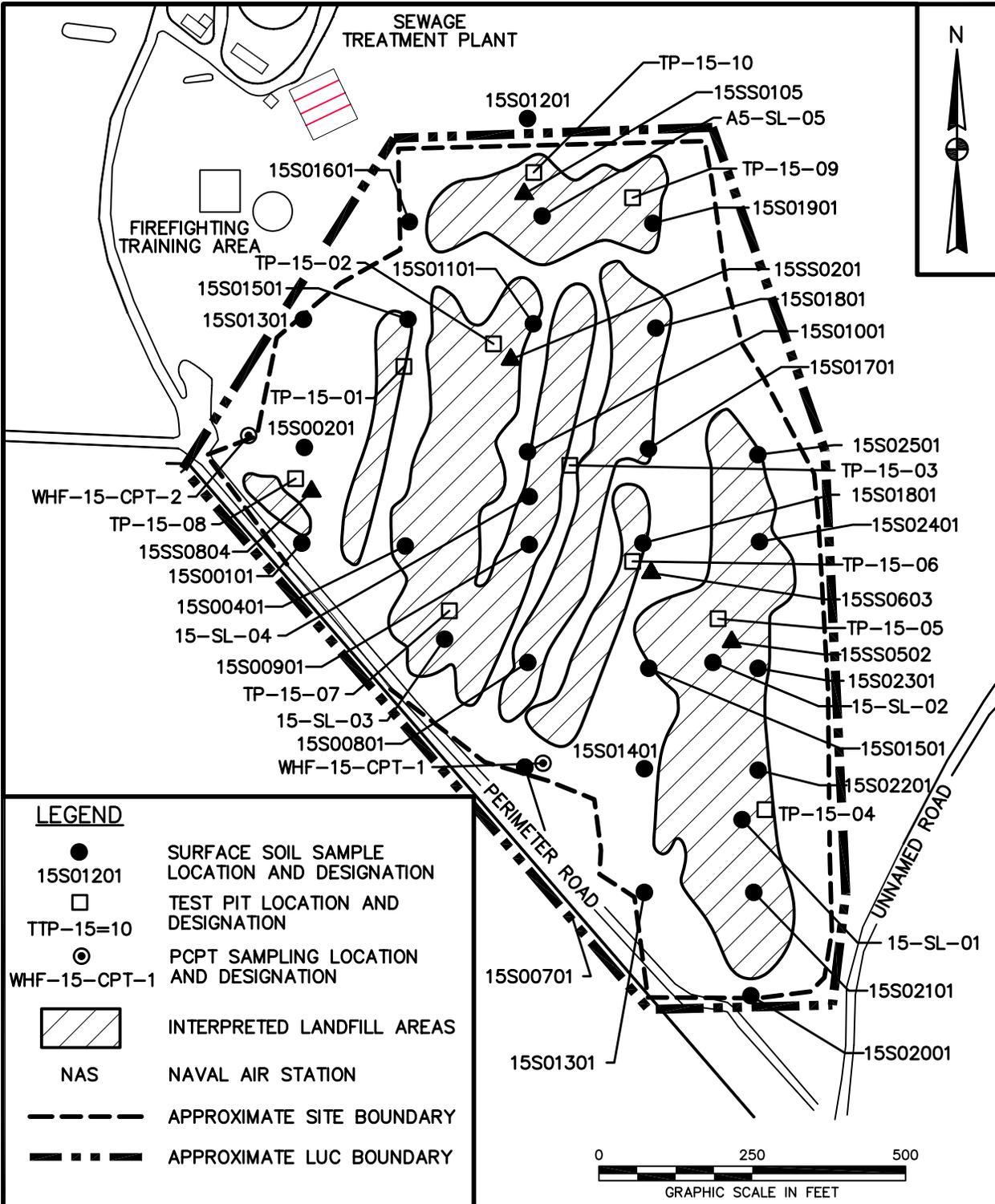
Soil contamination remains at Site 15 at concentrations precluding unrestricted use and unlimited exposure; therefore, the remedy includes LUCs to address unacceptable risk. These LUCs will be implemented to prohibit residential development and eliminate unacceptable risks from exposure to contaminated soil. LUCs, prohibiting residential use and digging, disturbing, or removing of soil, will be placed on an area of land slightly larger than the boundaries of the Site 15 ensuring an appropriate buffer zone is created. Warning signage will be placed along the boundary in locations to be designated in the LUC RD. Figure 2-2 presents the approximate LUC boundaries for Site 15. The LUCs cover only surface and subsurface soils.

The LUC performance objectives for Site 15 are:

- Maintain the integrity of the remedial system, LUCs.
- Prohibit the development and use of the property for residential housing, elementary and secondary schools, child care facilities and playgrounds.
- Prohibit digging into or disturbance of the existing soil or removal of soil off-site.

The LUCs will:

- Restrict future use of the site to recreational activities involving less than full-time human contact (such as parks and trails) with surface and subsurface soils



**LEGEND**

●	SURFACE SOIL SAMPLE LOCATION AND DESIGNATION
15S01201	
□	TEST PIT LOCATION AND DESIGNATION
TTP-15=10	
⊙	PCPT SAMPLING LOCATION AND DESIGNATION
WHF-15-CPT-1	
	INTERPRETED LANDFILL AREAS
NAS	NAVAL AIR STATION
- - - - -	APPROXIMATE SITE BOUNDARY
- · - · - ·	APPROXIMATE LUC BOUNDARY

<b>DRAWN BY</b> MF	<b>DATE</b> 1/25/06
<b>CHECKED BY</b>	<b>DATE</b>
<b>REVISED BY</b>	<b>DATE</b>
<b>SCALE</b> AS NOTED	



**SITE 15 LUC BOUNDARY  
SOUTHWEST LANDFILL  
RECORD OF DECISION  
NAS WHITING FIELD  
MILTON, FLORIDA**

<b>CONTRACT NO.</b> 0006	
<b>OWNER NO.</b> 0000	
<b>APPROVED BY</b>	<b>DATE</b>
<b>DRAWING NO.</b> FIGURE 2-2	<b>REV.</b> 0

The Navy or any subsequent owners shall not modify, delete, or terminate any LUC without USEPA and FDEP concurrence. The LUCs shall be maintained until the concentrations of hazardous substances in the soils have been reduced to levels allowing for unlimited exposure and unrestricted use. The Navy will be responsible for implementing, maintaining, inspecting, reporting, and enforcing the LUCs described in this ROD in accordance with the approved LUC RD. Although the Navy may later transfer these procedural responsibilities to another party by contract, property transfer agreement, or through other means, the Navy shall retain ultimate responsibility for remedy integrity. Should this LUC remedy fail, the Navy will ensure appropriate actions are taken to re-establish its protectiveness and may initiate legal action to either compel action by a third party(ies) and/or to recover the Navy's costs for remedying any discovered LUC violation(s).

Within 90 days of ROD signature, the Navy shall prepare the LUC RD in accordance with USEPA guidance and submit to the USEPA and FDEP for review and approval. The RD shall contain LUC implementation and maintenance actions, including periodic inspections.

#### **2.10.3 Summary of Estimated Remedy Costs**

The estimated total NPW cost of Alternative 2 at Site 15 is approximately \$103,000 over a 30-year period, based upon an annual discount rate of six percent. Table 2-5 summarizes the cost estimate data for Alternative 2. The information is based on the best available information regarding the anticipated scope of the remedial alternative. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. Major changes may be documented in the form of a memorandum in the Administrative Record file, an explanation of significant differences, or a ROD amendment. The estimate is an order-of-magnitude engineering cost estimate expected to be within +/- 25 percent of the actual project cost.

#### **2.10.4 Expected Outcome of the Selected Remedy**

Immediately upon implementation, Site 15 will be environmentally safe for its current and intended future use as recreational, as long as the LUCs are in place and observed.

### **2.11 STATUTORY STATEMENT**

The alternative selected for Site 15 is consistent with the Navy's IR program, CERCLA, and NCP. The selected remedy for surface and subsurface soil is protective of human health and the environment.

TABLE 2-5

**SELECTED ALTERNATIVE COST ESTIMATE SUMMARY  
RECORD OF DECISION  
SITE 15, SOUTHWEST LANDFILL  
NAVAL AIR STATION WHITING FIELD  
MILTON, FLORIDA**

<b>CAPITAL COSTS</b>	
<b>Description</b>	<b>Cost</b>
1. Project Planning	\$1,379
2. Mobilization/Demobilization	\$0
3. Decontamination	\$0
4. Site Preparation	\$0
5. Excavation/Backfill	\$0
6. Off-site Transportation and Disposal	\$0
7. Site Restoration	\$0
8. LUC Implementation	<u>\$20,019</u>
Subtotal	\$21,398
Contingency Allowance (10%)	\$2,140
Engineering/Project Management (5%)	<u>\$1,070</u>
<b>Total Capital Cost</b>	<b>\$24, 608</b>
<b>OPERATION AND MAINTENANCE COSTS</b>	
<b>Description</b>	<b>Cost</b>
1. Total Operation and Maintenance Costs (including 5-year reviews)	<b>\$78,301</b>
<b>Total Net Present Worth Cost for Selected Alternative</b>	<b>\$102,909</b>

The selected remedy eliminates, reduces, or controls risks by implementing LUCs to (1) restrict future use of the site to non-residential activities involving less than full-time human contact with surface and subsurface soil and (2) prohibit digging into or disturbance of the existing soil. No unacceptable short-term risks or cross-media impacts will be caused by implementation of the remedy. Comparison of the selected remedy to the nine USEPA evaluation criteria is summarized in Table 2-6.

The selected remedy achieves compliance with chemical-specific ARARs by implementing LUCs to prevent exposure to surface and subsurface soils. Compliance with action-specific ARARs will be achieved by the proper selection, implementation, and maintenance of LUCs. Table 2-7 provides a summary of ARARs and guidance documents specific to the selected remedy.

The selected remedy is cost effective and provides a balance between cost and overall effectiveness in the protection of human health and the environment. Permanent solutions and treatment are used to the maximum practicable extent; however, the selected remedy does not provide for on-site treatment of contaminated material due to the nature of the contaminants and their location. Although the statutory preference for treatment is not met by the selected remedy, the remedy provides the best balance among the evaluated alternatives, with respect to the balancing and modifying evaluation criteria listed in Table 2-7.

Because LUCs would result in hazardous substances remaining on site, five-year reviews will be required after commencement of the RA (for a period of at least 30 years) to ensure the remedy continues to provide protection of human health and the environment.

## **2.12 DOCUMENTATION OF SIGNIFICANT CHANGES**

No significant changes have occurred at Site 15 since the public comment period for the Proposed Plan (TtNUS, 2006b).

**TABLE 2-6**  
**SUMMARY EVALUATION OF SELECTED REMEDY**  
**RECORD OF DECISION**  
**SITE 15, SOUTHWEST LANDFILL**  
**NAVAL AIR STATION WHITING FIELD**  
**MILTON, FLORIDA**

Evaluation Criteria	Assessment
Overall Protection of Human Health and the Environment	Human receptors will be protected if this alternative is implemented. Regulatory controls (i.e., LUCs) will prohibit potential future residents from exposure to the site because residential use of the site will be restricted under the proposed LUCs. LUCs will also prohibit digging into or removal of existing soil at the site.
Compliance with ARARs	This alternative achieves compliance with chemical-specific ARARs and TBC guidance by implementing LUCs to prevent exposure to surface and subsurface soils exceeding CGs. It meets action-specific ARARs by proper selection and maintenance of the LUCs.  Meets all other NAS Whiting Field requirements.
Long-Term Effectiveness	The risks to future workers or trespassers based on exposure to surface and subsurface soils at the site is addressed by LUCs. The long-term effectiveness and permanence of these controls will be controlled by the installation through the implementation of an approved RD.  Administrative actions proposed in this alternative (e.g., 5-year site reviews) would provide a means of evaluating the effectiveness of the alternative. These administrative actions are considered to be reliable controls, as long as the facility implements the approved RD.
Reduction of Toxicity, Mobility, and Volume through Treatment	This alternative does not treat the soil contaminants and thus does not reduce the toxicity, mobility, or volume through treatment.
Short-Term Effectiveness	The implementation of this alternative is estimated to take less than 1 year. No adverse impacts are expected as a result of implementing LUCs.
Implementability	Would be easily implemented. Would require monitoring of the soil for removal or other damage and potential exposure. Equipment, specialists, and materials for this alternative are readily available.
Cost	The total net present worth cost of Alternative 2 is \$103,000.
Federal and State Acceptance	The USEPA approves and the FDEP concurs with the selected remedy.
Community Acceptance	The community was given the opportunity to review and comment on the selected remedy. No comments were received and no public meeting was requested (see Appendix A). Therefore, the selected RA proposed in the Proposed Plan was not altered.
<p>Notes: ARAR = applicable or relevant and appropriate requirement  FDEP = Florida Department of Environmental Protection  LUC = land use control  RA = remedial action  RD = remedial design  TBC = to be considered  USEPA = United States Environmental Protection Agency</p>	

TABLE 2-7

**SUMMARY OF FEDERAL AND STATE ARARS AND GUIDANCE SPECIFIC TO THE SELECTED REMEDY  
RECORD OF DECISION  
SITE 15, SOUTHWEST LANDFILL  
NAVAL AIR STATION WHITING FIELD  
MILTON, FLORIDA**

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Authority	Requirement	Citation	Status/Type	Synopsis	Evaluation/Action To Be Taken
Federal Regulatory Requirement	USEPA Region IX Preliminary Remedial Goals (PRGs)		Relevant and Appropriate / Chemical-Specific	These guidelines aid in the screening of constituents in soil. USEPA has requested use of these PRGs as ARARs at NAS Whiting Field.	Will be used to identify constituents of concern (COCs) and for the development of soil cleanup goals at Site 15.
Federal Regulatory Requirement	Cancer Slope Factors (CSFs)		TBC / Chemical-Specific	Guidance values used to evaluate the potential carcinogenic hazard caused by exposure to contaminants.	Were considered for development of human health protection PRGs for soil at this site
Federal Regulatory Requirement	Reference Doses (RfDs)		TBC / Chemical-Specific	Guidance values used to evaluate the potential noncarcinogenic hazard caused by exposure to contaminants	Were considered for development of human health protection PRGs for soil at this site
State Regulatory Requirement	Contaminant Cleanup Target Levels Rule [Soil Cleanup Target Levels (SCTLs)]	F.A.C. Chapter 62-777	TBC / Chemical-Specific	This rule provides guidance for soil cleanup levels developed on a site-by-site basis.	Will be used to identify COCs and for the development of soil cleanup goals at Site 15.
Federal Regulatory Requirement	Occupational Safety and Health Administration (OSHA) General Industry Standards	29 CFR Part 1910	Applicable / Action Specific	Requires establishment of programs to assure worker health and safety at hazardous waste sites, including employee-training requirements	These regulations will apply to all soil remedial activities at Site 15.
Federal Regulatory Requirement	OSHA, Occupational Health and Safety Regulations	29 CFR Part 1910, Subpart Z	Applicable / Action Specific	Establishes permissible exposure limits for workplace exposure to a specific listing of chemicals	Will be applied to control worker exposure to OSHA hazardous chemicals during remedial activities.
Federal Regulatory Requirement	OSHA, Recordkeeping, Reporting, and Related Regulations	29 CFR Part 1904	Applicable / Action Specific	Provides recordkeeping and reporting requirements applicable to remedial activities.	These requirements will apply to all site contractors and subcontractors and will be followed during all site work.

TABLE 2-7

**SUMMARY OF FEDERAL AND STATE ARARS AND GUIDANCE SPECIFIC TO LUCS  
RECORD OF DECISION  
SITE 15, SOUTHWEST LANDFILL  
NAVAL AIR STATION WHITING FIELD  
MILTON, FLORIDA**

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<b>Authority</b>	<b>Requirement</b>	<b>Citation</b>	<b>Status/Type</b>	<b>Synopsis</b>	<b>Evaluation/Action To Be Taken</b>
Federal Regulatory Requirement	OSHA, Health and Safety Standards	29 CFR Part 1926	Applicable / Action Specific	Specifies the type of safety training, equipment, and procedures to be used during the site investigation and remediation.	All phases of the remedial response project will be executed in compliance with these standards.
Federal Regulatory Requirement	CERCLA and the NCP Regulations	40 CFR, Section 300.430	Applicable / Action Specific	Discusses the types of institutional controls to be established at CERCLA sites.	These regulations may be used as guidance in establishing appropriate institutional controls at Site 15.
State Regulatory Requirement	Florida Rules on Hazardous Waste Warning Signs	F.A.C. Chapter 62-730	Applicable / Action Specific	Requires warning signs at NPL and FDEP-identified hazardous waste sites to inform the public of the presence of potentially harmful conditions.	This requirement will be met.
Federal Regulatory Requirement	NA	NA	NA	NA	There are no Federal Location-Specific ARARs specific to this site.

Notes: NA = Not Applicable

## REFERENCES

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**APPENDIX A**

**COMMUNITY RELATIONS  
RESPONSIVENESS SUMMARY**

**Responsiveness Summary  
Site 15, Southwest Landfill  
Naval Air Station Whiting Field  
Milton, Florida**

A public comment period on the Site 15 Proposed Plan was held from 15 Aug 2006 through 14 Sep 2006. No public comments were received, and because a public meeting was not requested one was not held.