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DECISION DOCUMENT FOR STUDY AREA 18 WITH TRANSMITTAL LETTER NTC
ORLANDO FL
5/30/2003
TETRA TECH



TETRA TECH NUS, INC.

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0503-A050

May 30, 2003

Commander, Southern Division
Naval Facilities Engineering Command
ATTN: Ms. Barbara Nwokike, Code ES33
P.O. Box 190010
2155 Eagle Drive
North Charleston, SC 29419-9010

Reference: CLEAN Contract No. N62467-94-D-0888
Contract Task Order No. 0024

Subject: Final Decision Document for Study Area 18
Naval Training Center, Orlando, Florida

Dear Ms. Nwokike:

Enclosed is the final Decision Document for Study Area 18 in hardcopy and CD formats. Comments received from the Orlando Partnering Team have been incorporated into the document. A second copy of the transmittal has been mailed to Southern Division's Orlando office.

I will bring the signature page for signoff to the partnering team meeting in June 2003. If you have any questions, please contact me at (865) 220-4730.

Sincerely,

Steven B. McCoy, P.E.
Task Order Manager

SBM:ckf

Enclosure

- c: Ms. Barbara Nwokike, Southern Division (Orlando Office) (hardcopy and CD)
Mr. Wayne Hansel, Southern Division (cover letter only)
Ms. Hope Wilson, Southern Division (hardcopy)
Mr. David Grabka, FDEP (hardcopy and CD)
Mr. Gregory Fraley, USEPA Region 4 (hardcopy and CD)
Mr. Steve Tsangaris, CH2M Hill (CD)
Mr. Mark Salvetti, MACTEC (CD)
Mr. Michael Campbell, Tetra Tech NUS (hardcopy)
Mr. J.E. Bentkowski, Gannett Fleming (hardcopy and CD)
Mr. Mark Perry, Tetra Tech NUS (unbound hardcopy and CD)
Ms. Debbie Wroblewski, Tetra Tech NUS (cover letter only)
File/db



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0703-E272

July 2, 2003

Commander, Southern Division
Naval Facilities Engineering Command
Attn: Ms. Barbara Nwokike, Code ES33
P.O. Box 190010
2155 Eagle Drive
North Charleston, SC 29419-9010

Reference: CLEAN Contract No. N62467-94-D-0888
Contract Task Order No. 0024

Subject: Study Area 18 Decision Document
McCoy Annex, Naval Training Center, Orlando

Dear Ms. Nwokike:

Enclosed is a copy of the completed signature page for the final Decision Document for Study Area 18 at McCoy Annex (May 2003). Please replace the unsigned page in your copy of the document with the signed page.

If you have any questions, please contact me at (865) 220-4730.

Sincerely,

Steven B. McCoy, P.E.
Task Order Manager

SBM:tko

Enclosures

c: Ms. Barbara Nwokike, Southern Division (Orlando Office)
Ms. Hope Oaks, Southern Division
Mr. David Grabka, FDEP
Mr. Gregory Fraley, USEPA Region 4
Mr. Steve Tsangaris, CH2M Hill
Mr. Mark Salvetti, MACTEC Engineering
Mr. Michael Campbell, Tetra Tech NUS
Mr. J.E. Bentkowski, Gannett Fleming
Mr. James Young, Terraine
Mr. Mark Perry, Tetra Tech NUS (unbound)
Ms. Debbie Wroblewski, Tetra Tech NUS (cover letter only)
File/db

**DECISION DOCUMENT
FOR
STUDY AREA 18**

**NAVAL TRAINING CENTER
ORLANDO, FLORIDA**

**Contract No. N62467-94-D-0888
Contract Task Order 0024**

Prepared by:

**Tetra Tech NUS, Inc.
Foster Plaza 7
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Prepared for:

**Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29419**

May 2003

Introduction

An environmental investigation and interim remedial actions have been completed for Study Area (SA) 18 on the McCoy Annex at the former Naval Training Center (NTC), Orlando, Florida. The results of the investigation and the actions selected by the Orlando Partnering Team (OPT) to clean up environmental contamination associated with the site are described in this final decision document. The OPT, which was assembled to address environmental issues at NTC, Orlando, consists of representatives from the U.S. Navy (Navy) and its contractors, the Florida Department of Environmental Protection (FDEP), and the U.S. Environmental Protection Agency (USEPA). The Navy transferred SA 18 to the City of Orlando for residential and light commercial use.

Site Background

McCoy Annex. The McCoy Annex is one of four facilities that comprised the former NTC, Orlando (Figure 1). The other three facilities are the Main Base, Area C, and Herndon Annex. The McCoy Annex lies immediately west of the Orlando International Airport. The Main Base lies about 8 miles to the north. The City of Orlando began construction of a municipal airport at Pinecastle, Florida, in 1941, then leased the property to the U.S. Army Air Corps (Army) in 1942. The Army acquired adjoining property and constructed Pinecastle Army Air Field. The Army deactivated the airfield at the end of World War II and returned the property to the city. The U.S. Air Force reopened the airfield as Pinecastle Air Force Base during the Korean Conflict and changed its name to McCoy Air Force Base in 1958. The city regained ownership of the airfield, including the runways, aircraft hangars, and maintenance

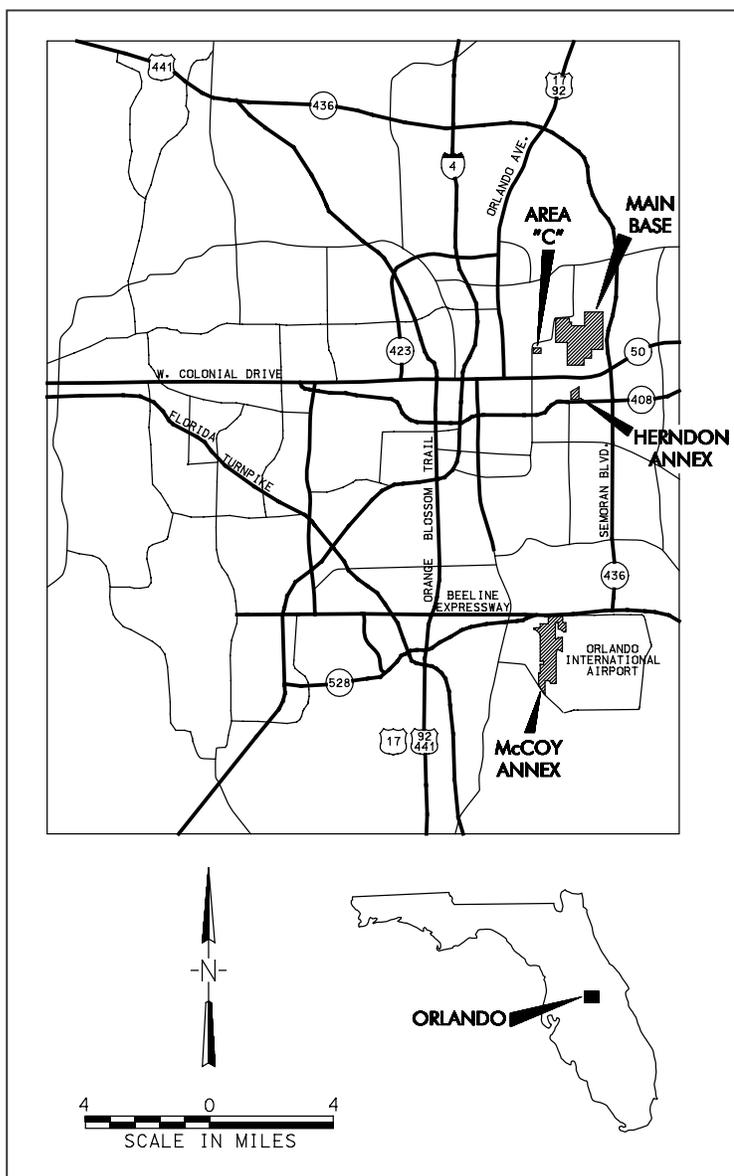


Figure 1. McCoy Annex Location Map

facilities, when McCoy Air Force Base closed in 1973. The Navy acquired title to the remaining property, changed its name to McCoy Annex, and used it as a community support annex. NTC, Orlando was closed in April 1999 as part of the Defense Base Realignment and Closure Act of 1990.

Study Area 18. SA 18 encompasses about 6 acres near the center of the McCoy Annex property (Figure 2). The site is bounded by railroad tracks on the southwest, 5th Street on the southeast, and Binnacle Way on the northeast. Building 7249, a parking lot, and a large open area lie to the northwest. The site includes Buildings 7177, 7179, and 7182 and the paved storage areas that surrounded them (Figure 3). Building 7182, built in 1952, was the administrative center for the McCoy Annex housing office. Paints, solvents, and lawn supplies were stored in the building. A paved lot that surrounded the building included a large fenced enclosure for trailer and RV storage, a gas cylinder storage area, a paint storage building that was previously used for battery maintenance (Building 7179), and a hazardous material storage area that contained several unmarked, rusted drums and oil and paint containers. A 1,000-gallon steel underground storage tank (UST) installed in 1952 supplied heating oil to a boiler in Building 7182. Refrigerators, hot water heaters, transformers, and other appliances and equipment were occasionally stored on-site.

The shallow aquifer at SA 18 is an unconfined sand aquifer and groundwater flow is generally toward the east-southeast and southeast. Groundwater was observed at depths of 7 to 8 feet below ground surface during monitoring well installation. Groundwater elevation measurements made between 1995 and 2001 indicate that the flow gradient is relatively flat (less than 0.002 ft/ft). The groundwater at SA 18 meets the Florida criteria for a G-II aquifer as defined in Chapter 62-520, *Florida Administrative Code*. The State describes a G-II aquifer as follows:

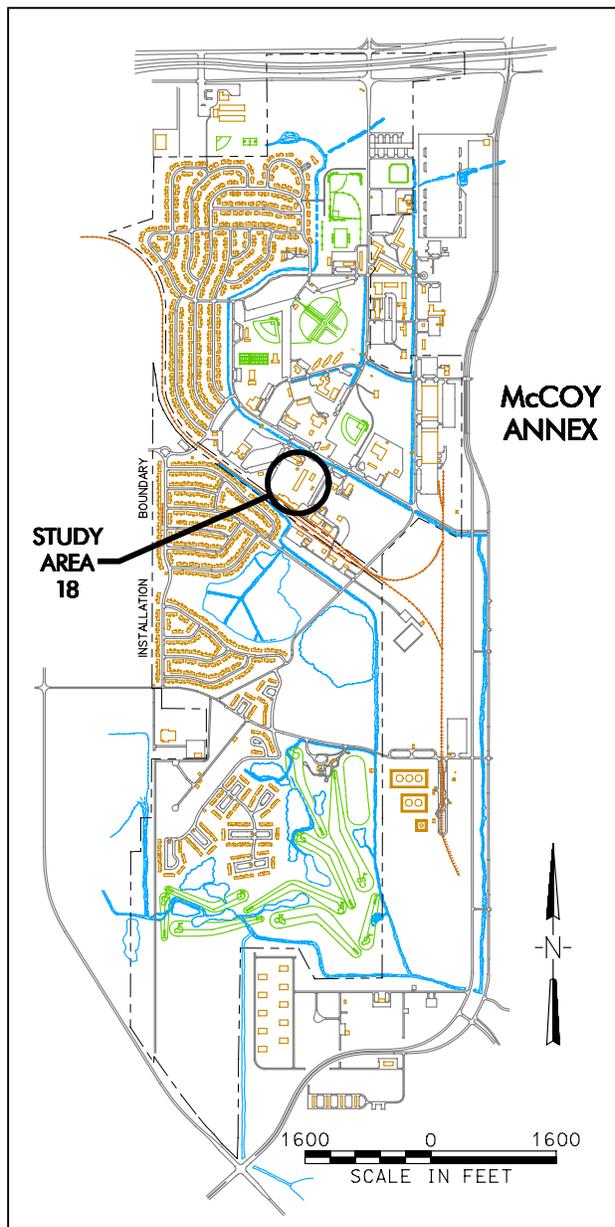


Figure 2. Study Area 18 Location Map

"Potable water use, groundwater in aquifers which has a total dissolved solids content of less than 10,000 µg/L, unless otherwise approved by the Commission."

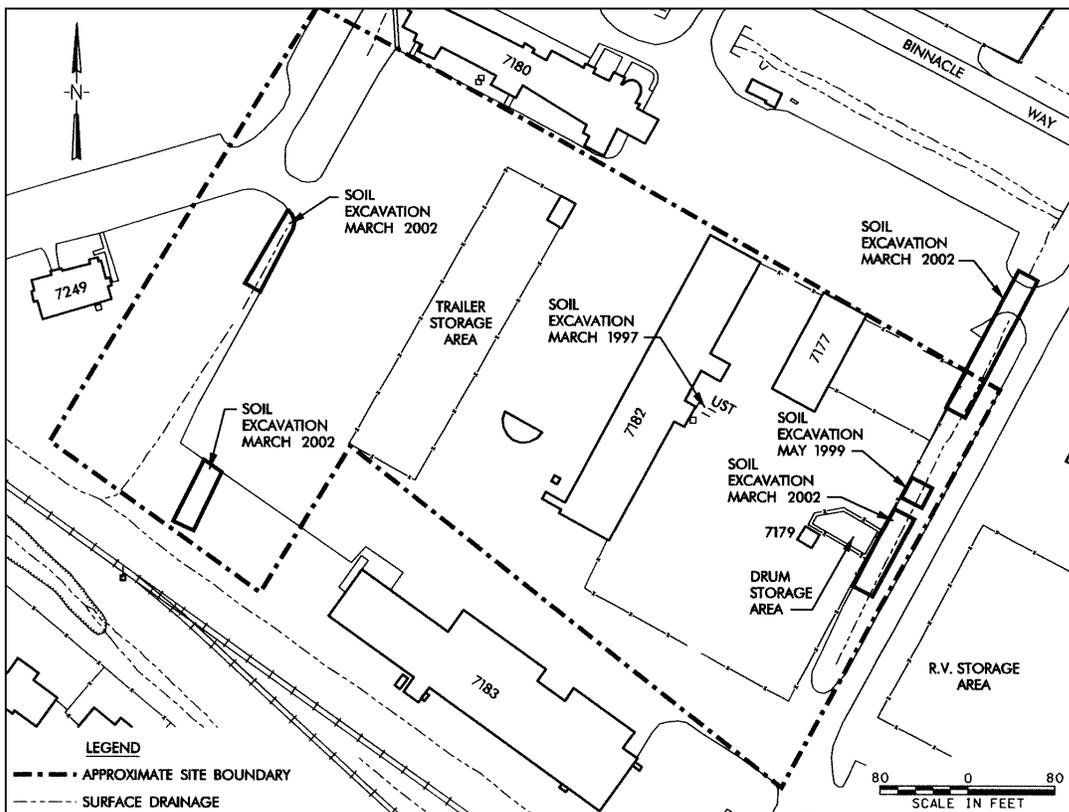


Figure 3. Study Area 18 Site Map

Environmental Investigations

The investigations described below were conducted to determine if chemical concentrations in soil or groundwater exceeded established State of Florida cleanup levels.¹ The work was conducted between April 1995 and March 2002, a period in which the applicable soil and groundwater cleanup criteria were replaced or revised several times by the FDEP. The most recent criteria were used to evaluate the analytical results from all investigations to assure that the resulting soil removal actions brought SA 18 into regulatory compliance and were protective of human health and the environment. The investigations were conducted in several phases to accomplish the following objectives:

- Determine if previous site activities had resulted in concentrations of contaminants in soil or groundwater that exceeded established State of Florida cleanup levels.
- Determine the nature and extent of soil or groundwater contamination, if detected.

¹ FDEP (Florida Department of Environmental Protection), 1999. *Chapter 62-777 Florida Administrative Code, Target Cleanup Levels*. May.

Harding Lawson Associates (HLA) conducted initial and supplemental site screening activities between April 1995 and August 1998. The initial studies evaluated the potential effects of hazardous material storage, UST operations, and storm water runoff from the site. Supplemental sampling was conducted to further delineate contamination observed in the initial sampling. Tetra Tech NUS, Inc. (TtNUS) conducted additional soil and groundwater sampling between May 1999 and August 2001 to define the extent of contamination. TtNUS documented the environmental investigations in a Site Screening Report.² An appendix to the TtNUS report contains a Site Assessment Report prepared by HLA for Building 7182.³

Soil Investigation. HLA collected seven surface soil samples and five subsurface soil samples in April and May 1995. Five of the seven surface soil sample locations were in or near the paved area on the eastern side of the site where hazardous materials were stored. Polynuclear aromatic hydrocarbon (PAH) concentrations in four of the surface soil samples exceeded their respective Florida Soil Cleanup Goals (SCGs).⁴ Each of the four samples was collected in an area that previously received storm water runoff from SA 18. The benzo(a)pyrene concentrations exceeded the Florida SCG of 0.1 milligram per kilogram (mg/kg) in all four samples, with observed concentrations ranging from 0.14 mg/kg to 1.9 mg/kg. One surface soil sample also contained the PAHs benzo(a)anthracene, benzo(b)fluoranthene, and dibenz(a,h)anthracene at concentrations ranging from 1.5 to 19 times their Florida SCGs. Two surface soil samples contained the pesticide Dieldrin[®] at concentrations of 0.99 and 1.6 mg/kg, exceeding the Florida SCG of 0.07 mg/kg. The barium concentration of 2,250 mg/kg in one surface soil sample and 2,750 mg/kg in a duplicate sample from the same location exceeded the Florida SCG of 110 mg/kg. Several organic and inorganic chemicals were detected in subsurface soil samples, but not at concentrations exceeding the Florida criteria.

HLA collected surface and subsurface soil samples from nine supplemental sampling locations distributed across the site in November 1997 to further characterize the Study Area. PAHs were detected at eight of the nine locations, but only two locations contained concentrations exceeding the Florida Soil Cleanup Target Levels (SCTLs).⁵ The benzo(a)pyrene concentration was 0.31 mg/kg in one surface soil sample and the dibenz(a,h)anthracene concentration was 0.11 mg/kg in one subsurface soil sample. The Florida SCTL is 0.1 mg/kg for both compounds.

The detection of trichloroethene (TCE) in a temporary monitoring well that HLA installed near the former UST pit led to supplemental site screening activities. In July 1998, HLA advanced six soil borings near the

² TtNUS (Tetra Tech NUS), 2003. *Site Screening Report for Study Area 18*, Naval Training Center, Orlando, Florida. February.

³ HLA (Harding Lawson Associates). 1998. *Site Assessment Report, Building 7182, McCoy Annex*, Naval Training Center, Orlando, Florida. October.

⁴ FDEP (Florida Department of Environmental Protection), 1995. *Soil Cleanup Goals for Florida*. September.

⁵ FDEP, 1998. *Technical Report: Development of Soil Cleanup Target Levels (SCTLs) for Chapter 62-785, F.A.C. CEHT/TR-97-03*. April.

former UST and buried fuel line and collected 18 soil samples for field organic vapor analyses. The organic vapor analyses showed that no petroleum-impacted soil was encountered. Two subsurface soil samples submitted for laboratory analyses contained ethylbenzene, toluene, and xylenes, but not at concentrations exceeding the Florida SCTLs.

Activities through 1998 defined a small area (20 ft x 20 ft) on the east side of the site where the PAH concentrations exceeded the Florida SCTLs. The remedial action taken at that location is described below. The analytical data also suggested that the extent of surface soil contamination had not been defined in four sampling locations near the corners of the site. Each suspect location lay within an area that previously received storm water runoff from SA 18.

TtNUS installed two upgradient wells in April 2001 and submitted soil samples from each boring for organic and inorganic analyses. No contaminant concentrations observed in the soil samples exceeded the Florida SCTLs, confirming that the wells represented background conditions.

TtNUS collected 30 additional surface soil samples in August 2001 to augment previous data and define the extent of contamination in the four drainage areas mentioned above. Workers collected samples outward from each of the four original locations until the areas where concentrations exceeded Florida SCTLs were defined. The Site Screening Report describes the soil sampling activities.²

Groundwater Investigation. ABB-ES installed and sampled four monitoring wells in May 1995, then resampled the wells in June 1996. Some groundwater samples contained the organic compounds acenaphthene, bis(2-ethylhexyl)phthalate, naphthalene, and xylene, but not at concentrations exceeding the Florida Groundwater Guidance Concentrations.⁶ All four wells contained concentrations of aluminum and iron that exceeded the Florida secondary drinking water standards⁷ and site-specific background screening values (BGSVs). The concentrations of lead, manganese, thallium, and vanadium also exceeded the Florida primary drinking water standards, secondary drinking water standards, or Guidance Concentrations in well OLD-18-01, but these results appear to be related to the high suspended solids (106 µg/L) present in the sample. Because of these exceedances, well OLD-18-01 was resampled in June 1996. The results indicated that the lead and thallium concentrations were below detection limits. The vanadium concentration decreased from 211 to 19.8 µg/L, versus the Florida Guidance Concentration of 49 µg/L for vanadium. Aluminum and iron concentrations also decreased to less than 25 percent of their initial values, although they still exceeded their respective BGSVs.

⁶ FDEP, 1994. *Groundwater Guidance Concentrations*. June.

⁷ FDEP, 1994. Florida Administrative Code 62-550, *Florida Drinking Water Standards*, September.

HLA (formerly ABB-ES) installed and sampled a temporary monitoring well in the backfill of the former tank pit after the UST was removed in 1997. The groundwater sample contained 5 micrograms per liter ($\mu\text{g/L}$) of TCE, exceeding the Florida Groundwater Cleanup Target Level (GCTL) of 3 $\mu\text{g/L}$.⁵ No petroleum hydrocarbon contaminant concentrations exceeded the Florida cleanup levels. HLA then installed three shallow monitoring wells near the former tank pit. The tetrachloroethene (PCE) concentration of 4.9 $\mu\text{g/L}$ in one shallow well exceeded the Florida GCTL of 3 $\mu\text{g/L}$ when sampled in August 1998, but PCE was not detected (<2 $\mu\text{g/L}$) when the well was resampled in May 1999..

TtNUS sampled all seven monitoring wells at SA 18 in May 1999. The aluminum concentrations in two wells and the iron concentrations in four wells exceeded their respective Florida cleanup levels. One sample contained PCE and two samples contained TCE, but none of the observed concentrations exceeded Florida GCTLs.

TtNUS re-sampled the four original monitoring wells in October 2000. Aluminum and iron in groundwater were detected at concentrations exceeding Florida GCTLs (based on secondary standards) and background screening values for the NTC. Because the concentrations of aluminum in groundwater fell within the range of background values detected at NTC, aluminum was removed as a chemical of potential concern. Samples collected from upgradient SA 18 background wells in June 2001 indicated that iron concentrations were higher or in the same range as wells being used to assess the site. As a result of conducting the site-specific background assessment of iron in groundwater, the OPT concluded that the elevated concentrations detected in groundwater were naturally occurring and not due to past site activities.

Remedial Actions

Tank Removal. The Navy Public Works Center, Pensacola, removed the 1,000-gallon UST and approximately 3 cubic yards (yd^3) of petroleum-stained soil in January 1997 and submitted a Closure Assessment Report to document the removal.⁸ Subsequent soil sampling near the UST pit showed that no additional excavation was required.

Surface Soil. Two surface soil removals were performed at SA 18. In May 1999, the Environmental Detachment Charleston excavated approximately 30 yd^3 of soil contaminated with PAHs and dieldrin from a 20 ft x 20 ft area along the eastern side of the site (Figure 3). In March 2002, CH2M Hill Constructors, Inc. excavated approximately 502 yd^3 of soil from four other locations with PAH, dieldrin, or barium

⁸ Navy Public Works Center, 1997. *Closure Assessment, Underground Storage Tank, Building 7182, Naval Training Center, McCoy Annex, Orlando, Florida.* May.

exceedances⁹(Figure 3). As a result of the removals, all surface soil contamination in excess of residential criteria was remediated.

Subsurface Soil. One subsurface soil sample contained the contaminant dibenzo(*a,h*)anthracene at a concentration of 0.11 mg/kg, slightly exceeding the SCTL of 0.1 mg/kg. This sample was collected in the southwest part of the site at a depth of 2 to 3 feet bgs under the asphalt lot surrounding the buildings. The subsurface sample results were evaluated using the 95% upper confidence limit (UCL) approach. Since the data were neither normally nor log-normally distributed, a non-parametric analysis was used. The analysis calculated an average concentration of 0.067 mg/kg for the dibenzo(*a,h*)anthracene, which is below the SCTL of 0.1 mg/kg. This analysis shows that exposure to dibenzo(*a,h*)anthracene in subsurface soil would not pose an unacceptable risk to human health or the environment for any future use of the property; therefore, no subsurface soil removal was performed.

Groundwater. Sampling of the background monitoring wells demonstrated that the elevated concentrations of aluminum and iron observed in groundwater samples from downgradient wells at SA 18 were naturally occurring and not due to past site activities. As a result, no remedial actions for groundwater are required.

Conclusions

Soil. The extent of contamination in surface soil that exceeded residential screening criteria in the Study Area was delineated during the Site Screening Investigation. As a result of soil removals conducted at SA 18, risks have been reduced at the site so as to be protective of human health and the environment for future unrestricted use of the property.

Groundwater. Based upon the findings of the Site Screening Investigation, the OPT concluded that SA 18 is suitable for future residential use without restrictions. Because the groundwater under SA 18 contains aluminum and iron at concentrations exceeding the State of Florida's GCTLs (based on secondary standards), it is recommended that future property owners be advised that the shallow aquifer may not be suitable as a potable drinking water source.

⁹ CH2M Hill Constructors, Inc., 2002. *Technical Memorandum, Summary of Soil Removal Activities and Results, Study Area 18, Naval Training Center, Orlando, Florida.* December 11.

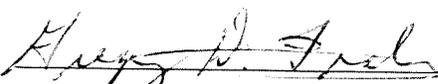
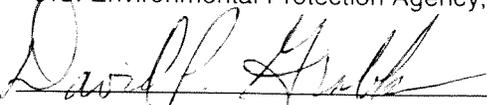
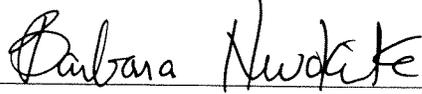
The Base Realignment and Closure Color Code will be changed to "4/Dark Green" to signify "an area where release, disposal, and/or migration of hazardous substances has occurred, and all remedial actions necessary to protect human health and the environment have been taken."

Community Acceptance

Community acceptance of the selected remedy for SA 18 was evaluated during meetings of the facility's Restoration Advisory Board (RAB). RAB meetings are open to the public and their bimonthly meetings are publicized in *The Orlando Sentinel*. The public was given an opportunity to comment during presentations on remedial actions, status updates for NTC sites, and annual reviews of the Base Realignment and Closure Business Plan. Comments and questions from the RAB and the general public about the SA 18 remedy were addressed at the RAB meetings.

Declaration

Based on the administrative record compiled for this corrective action, the Navy has determined that the remedy selected for SA 18 is appropriate and protective of human health and the environment and complies with Federal and State regulatory requirements. The OPT concurs with the selected remedy.

STUDY AREA 18	
 _____ U.S. Environmental Protection Agency, Region 4	<u>6/26/03</u> _____ Date
 _____ Florida Department of Environmental Protection	<u>6/26/03</u> _____ Date
 _____ U.S. Department of the Navy	<u>26 JUNE 2003</u> _____ Date