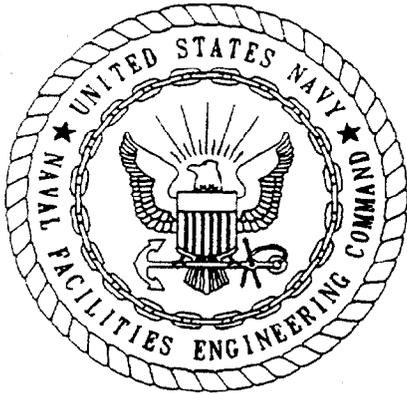


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INTERIM REMEDIAL ACTION REPORT FOR OPERABLE UNIT 3 (OU 3) NTC ORLANDO FL  
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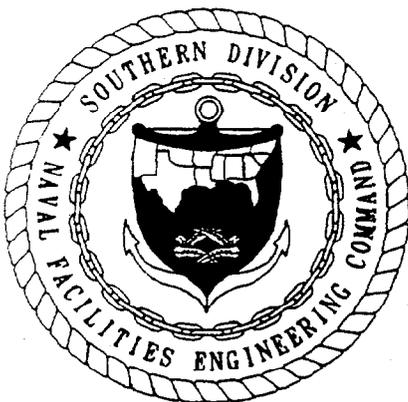
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**INTERIM REMEDIAL ACTION REPORT  
OPERABLE UNIT 3**

**NAVAL TRAINING CENTER  
ORLANDO, FLORIDA**

**UNIT IDENTIFICATION CODE: N65928  
CONTRACT NO.: N62467-89-D-0317/136**

**MAY 1997**



**SOUTHERN DIVISION  
NAVAL FACILITIES ENGINEERING COMMAND  
NORTH CHARLESTON, SOUTH CAROLINA  
29419-9010**

**INTERIM REMEDIAL ACTION REPORT  
OPERABLE UNIT 3**

**NAVAL TRAINING CENTER  
ORLANDO, FLORIDA**

**Unit Identification Code: N65928**

**Contract No.: N62467-89-D-0317/136**

**Prepared by:**

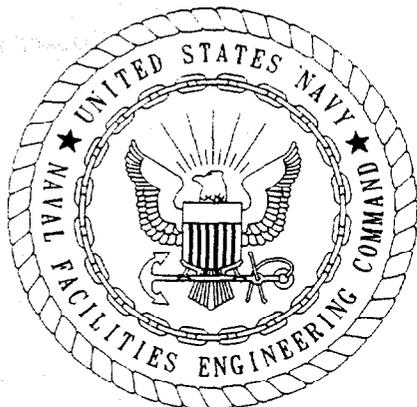
**ABB Environmental Services, Inc.  
2290 Executive Center Circle, East  
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**Prepared for:**

**Department of the Navy, Southern Division  
Naval Facilities Engineering Command  
2155 Eagle Drive  
North Charleston, South Carolina 29418**

**Barbara Nwokike, Code 1873, Engineer-in-Charge**

**May 1997**



CERTIFICATION OF TECHNICAL  
DATA CONFORMITY (MAY 1987)

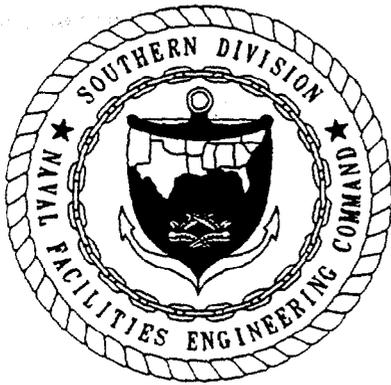
The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/136 are complete and accurate and comply with all requirements of this contract.

DATE: May 2, 1997

NAME AND TITLE OF CERTIFYING OFFICIAL: John P. Kaiser  
Installation Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Shannon B. Gleason  
Project Technical Lead

(DFAR 252.227-7036)



## FOREWORD

To meet its mission objectives, the U.S. Navy performs a variety of operations, some requiring the use, handling, storage, or disposal of hazardous materials. Through accidental spills and leaks and conventional methods of past disposal, hazardous materials may have entered the environment in ways unacceptable by today's standards. With growing knowledge of the long-term effects of hazardous materials on the environment, the Department of Defense (DOD) initiated various programs to investigate and remediate conditions related to suspected past releases of hazardous materials at their facilities.

One of these programs is the Base Realignment and Closure (BRAC) Cleanup Program. This program complies with the Base Closure and Realignment Act of 1988 (Public Law [P.L.] 100-526, 102 Statute 2623) and the Defense Base Closure and Realignment Act of 1990 (P.L. 101-510, 104 Statute 1808), which require the DOD to observe pertinent environmental legal provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); the 1992 Community Environmental Response Facilitation Act (CERFA); Executive Order 12580; and the statutory provisions of the Defense Environmental Restoration Program (DERP), the National Environmental Policy Act (NEPA), and any other applicable statutes that protect natural and cultural resources.

CERCLA requirements, in conjunction with corrective action requirements under Subtitle C of the Resource Conservation and Recovery Act (RCRA), govern most environmental restoration activities. Requirements under Subtitles C, D, and I, of RCRA, as well as the Toxic Substances Control Act (TSCA), the Clean Water Act (CWA), the Clean Air Act (CAA), the Safe Drinking Water Act (SDWA), and other statutes, govern most environmental mission or operational-related and closure-related compliance activities. These compliance laws may also be applicable or relevant and appropriate requirements (ARARs) for selecting and implementing remedial actions under CERCLA. NEPA requirements govern the Environmental Impact Analysis and Environmental Impact Statement preparation for the disposal and reuse of BRAC installations.

The BRAC program centers on a single goal: expediting and improving environmental response actions to facilitate the disposal and reuse of a BRAC installation, while protecting human health and the environment.

The Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOCM), the U.S. Environmental Protection Agency; and the Florida Department of Environmental Protection collectively coordinate the cleanup activities through the BRAC cleanup team. This team approach is intended to foster partnership, accelerate the environmental cleanup process, and expedite timely, cost-effective, and environmentally responsible disposal and reuse decisions.

Questions regarding the BRAC program at Naval Training Center, Orlando should be addressed to the SOUTHNAVFACENGCOCM BRAC Environmental Coordinator, Mr. Way Hansel, Code 18B7, at (407) 646-5294 or SOUTHNAVFACENGCOCM Engineer-in-Charge, Ms. Barbara Nwokike, Code 1873, at (803) 820-5566.

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Naval Training Center  
Orlando, Florida

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## GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
AST	aboveground storage tank
bls	below land surface
ft <sup>3</sup>	cubic feet
IRA	Interim Remedial Action
NTC	Naval Training Center
OU	Operable Unit
PAH	polynuclear aromatic hydrocarbon
RI/FS	Remedial Investigation and Feasibility Study
SA	Study Area
SOUTHNAV- FACENCOM	Southern Division, Naval Facilities Engineering Command
WWTP	wastewater treatment plant
yd <sup>3</sup>	cubic yard

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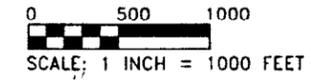
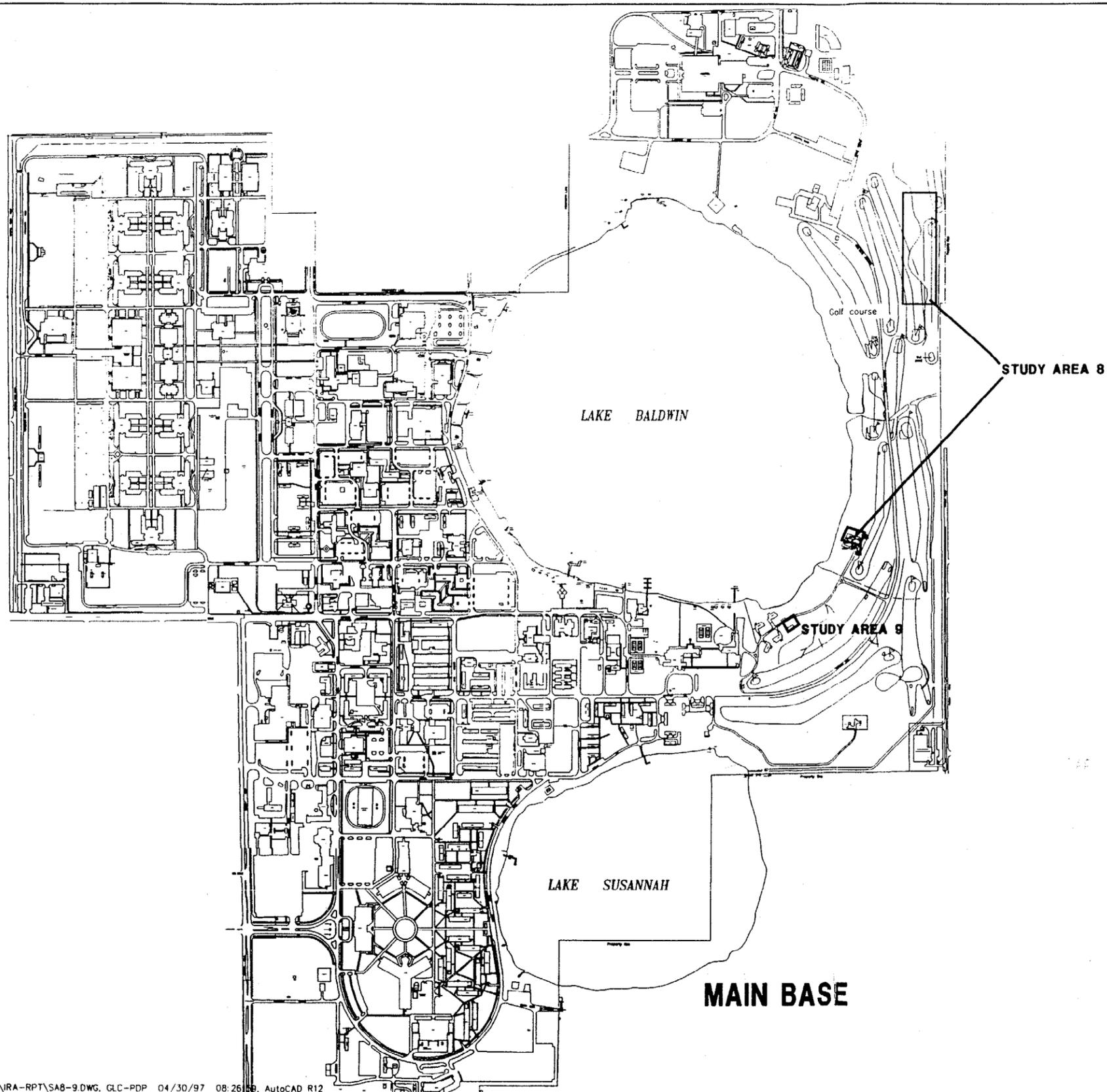
## 1.0 INTRODUCTION

ABB Environmental Services, Inc. (ABB-ES), under contract to Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), has prepared this Interim Remedial Action (IRA) Report for Operable Unit (OU) 3, composed of the Greenskeeper Storage Area (Study Area [SA] 8) and the Former Pesticide and Herbicide Storage Building (SA 9) and located at the Naval Training Center (NTC), in Orlando, Florida. The IRA report is being completed under contract number N62467-89-D-0317/136, and provides information to support possible soil removal at the SAs (collectively known as OU 3). This report also provides design considerations for the planned IRA.

Previous investigations for the SAs included site screening, which was conducted in 1995. This effort included site screening at SA 8, the Greenskeeper Storage Area and the Former Wastewater Treatment Plant Lagoons, and SA 9, the Former Pesticide and Herbicide Storage Building (see Figure 1-1). During site screening, surface soil samples were collected for analysis. Analytical results showed elevated levels of arsenic in SA 8 surface soils and polynuclear aromatic hydrocarbons (PAHs) and pesticides in one sample from SA 9. Based on these results, SAs 8 and 9 were designated as OU 3, and an IRA was directed by the Navy. Site histories, site screening activities, and recommendations for each SA based on site screening are discussed in detail in the *Base Realignment and Closure Site Screening Report* (ABB-ES, 1996). It should be noted that future investigations are planned for this OU (i.e., the Remedial Investigation) to complete the characterization of the nature and extent of contamination.

Based on these site screening data, the Navy has indicated interest in an IRA consisting of excavation of surface soil from these SAs (defined as soil from 0 to 2 feet below land surface [bls]) with disposal at a Navy-approved offbase location. Other options that might be considered include fencing or capping of the affected surface soils; these options could be implemented if excavation and disposal are determined not to be feasible.

The removal actions for SAs 8 and 9 are summarized in Chapters 2.0 and 3.0, respectively. Chapter 4.0 provides design considerations for the removal contractor.



SOURCE: ABB-ES 1994b.

**FIGURE 1-1  
LOCATIONS OF STUDY AREAS 8 AND 9**



**INTERIM REMEDIAL ACTION  
REPORT**

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## 2.0 INTERIM REMOVAL ACTION FOR STUDY AREA 8

2.1 SITE HISTORY AND LOCATION. SA 8 consists of the Greenskeeper Storage Area (Building 2134 and associated facilities) and the former Wastewater Treatment Plant (WWTP) Lagoons (see Figure 1-1). The removal action for this SA considers only surface soil from the vicinity of the Greenskeeper Storage Area because analytical results from environmental media sampling at the WWTP Lagoons indicated remedial action was necessary, and a Finding of Suitability for Transfer was recommended and approved by the Base Realignment and Closure Clean-up Team for the area (ABB-ES, 1996).

The Greenskeeper Storage Area, Building 2134, is located on the north end of Trident Lane near the southern end of the golf course and east of Lake Baldwin. The building is currently used for storage and routine maintenance of the greenskeeper's equipment and materials. Several storage sheds and containers, located on the subject property, contain various pesticides, herbicides, paints, gasoline, and motor oil.

2.2 ANALYTICAL RESULTS FROM SITE SCREENING. Surface soil samples collected from SA 8 and analyzed by an offsite laboratory during site screening activities revealed elevated levels of arsenic. The presence of arsenic in surface soils at this SA may indicate the use of pesticides containing arsenic for maintenance of the golf course and possible spills during mixing activities inside the greenskeeper's area. The results of the sample analyses (per sample location for those locations where arsenic was detected), along with the specific northing and easting coordinates for each sample location, are listed in Table 2-1.

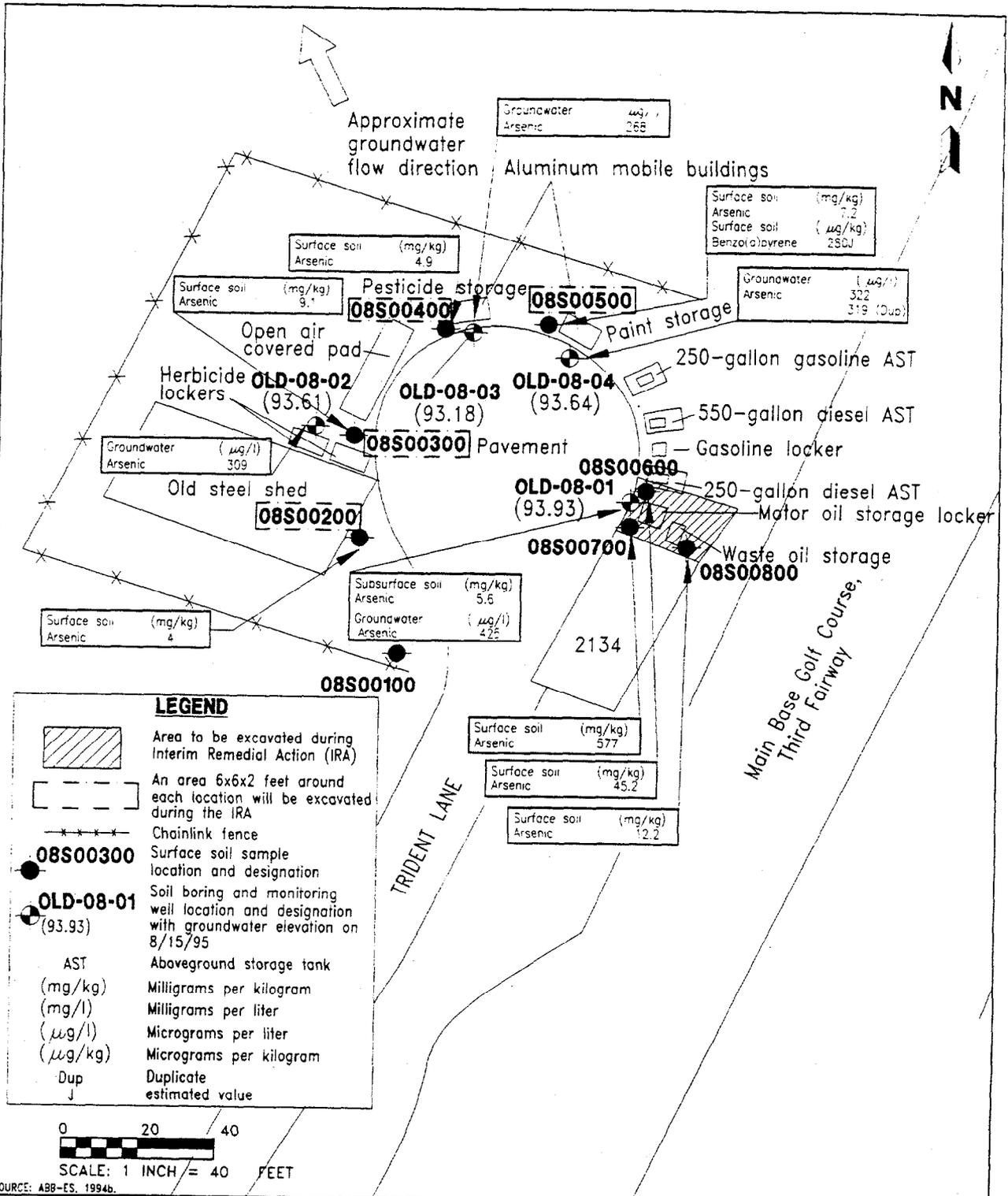
**Table 2-1**  
**Analytical Results from Site Screening**  
**Study Area 8**

Interim Remedial Action Report, Operable Unit 3  
Naval Training Center  
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Sample ID Number	Arsenic Concentration (mg/kg)	Northing	Easting
08S00200	4	1540018.5	554300.5
08S00300	9.1	1540039.3	554289.9
08S00400	4.9	1540115.4	554300.0
08S00500	7.2	1540088.1	554335.2
08S00600	45.2	1540024.9	554341.8
08S00700	577	1540015.9	554344.1
08S00800	12.2	1539994.8	554366.7

Notes: ID = Identification.  
mg/kg = milligrams per kilogram.

Analytical results for all environmental media samples collected at SA 8 during site screening are provided in the *Base Realignment and Closure Site Screening Report* (ABB-ES, 1996).



**FIGURE 2-1**  
**SURFACE SOIL SAMPLE LOCATIONS,**  
**STUDY AREA 8**



**INTERIM REMEDIAL ACTION**  
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### 3.0 INTERIM REMOVAL ACTION FOR STUDY AREA 9

3.1 SITE HISTORY AND LOCATION. SA 9 is located on Trident Lane near the southeastern shore of Lake Baldwin. A pesticide and herbicide storage building and mixing area was formerly at this location. This building was used by the U.S. Air Force and the U.S. Navy for the storage and mixing of herbicides and pesticides. It was used from the early 1950s to 1972 and was demolished in 1981.

Investigations at this SA are summarized in two reports: the site screening report (ABB-ES, 1996) and the Verification Study (Geraghty & Miller, 1986).

3.2 ANALYTICAL RESULTS FROM SITE SCREENING. One surface soil sample collected and analyzed during site screening activities at SA 9 revealed elevated levels of one PAH (benzo(a)pyrene), alpha-chlordane, and gamma-chlordane (see Figure 3-1). The analytical results for this sample are listed in Table 3-1.

**Table 3-1  
Analytical Results from Site Screening  
Study Area 9**

Interim Remedial Action Report, Operable Unit 3  
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Sample ID Number	Chemical Concentration ( $\mu\text{g}/\text{kg}$ )	Northing	Easting
09S00100	benzo(a)pyrene = 780 alpha-chlordane = 2,300 gamma-chlordane = 2,400	1539450*	553800*

Notes: ID = Identification.

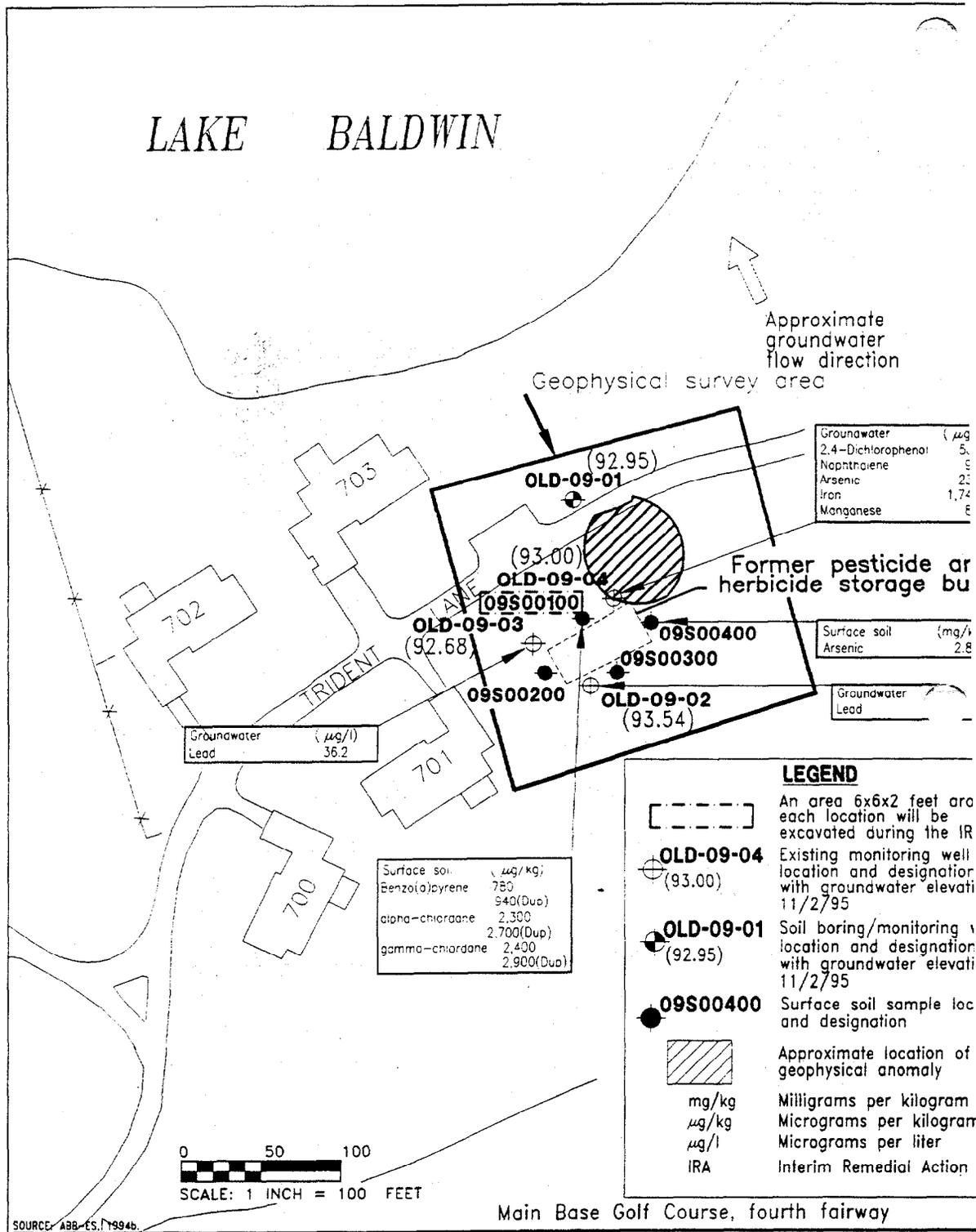
$\mu\text{g}/\text{kg}$  = micrograms per kilogram.

\* = estimated.

This sample location, 09S00100, was not surveyed during site screening activities; approximate northing and easting coordinates for the sample location are listed in Table 3-1 and are based on the survey data obtained for other sample locations at the SA.

Analytical results for all environmental media samples collected at SA 8 during site screening are provided in the *Base Realignment and Closure Site Screening Report* (ABB-ES, 1996).

3.3 RECOMMENDED EXCAVATION FOR STUDY AREA 9. The recommended excavation surrounding sample location 09S00100 is 6 feet long by 6 feet wide by 2 feet deep. The four corners of this excavation area will be demarcated with pin flags by ABB-ES prior to excavation. The amount of soil to be removed may be modified by ABB-ES based on field observations.



**FIGURE 3-1**  
**SURFACE SOIL SAMPLE LOCATIONS,**  
**STUDY AREA 9**



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3.4 ESTIMATED SOIL VOLUME REMOVAL FOR STUDY AREA 9 DURING THE IRA. Based on the recommended area of excavation presented in Section 2.2, the estimated volume of soil to be removed during the IRA at SA 9 is 72 ft<sup>3</sup> or 3 yd<sup>3</sup> (in-place volume).

3.5 CONFIRMATORY SAMPLING. Confirmatory sampling will not be conducted for the IRA at Study Area 9. The RI/FS for this area will be completed in the fall of 1997, and surface soil sampling will be included in this investigation; therefore, confirmatory sampling in the vicinity of the excavated areas will be postponed until the RI/FS investigation.

#### 4.0 DESIGN CONSIDERATIONS FOR IRA AT OU 3

This chapter summarizes considerations for the IRA. The removal contractor conducting the IRA should review these items prior to initiating the IRA.

4.1 HEALTH AND SAFETY. Health and safety during the implementation of the interim removal action will be the responsibility of the removal contractor. Health and safety air monitoring conducted during site screening activities has not indicated the need for respiratory protection. Level D personnel protection has been adequate for site assessment activities to date. However, excavation increases the potential for personnel exposure to contaminated soil. Dust monitoring and dust suppression may also be required to control exposure to airborne contaminants. Unanticipated site conditions discovered during routine health and safety monitoring of the interim removal action activities may result in the need for an upgrade to higher levels of protection.

4.2 DISPOSAL. The removal contractor should conduct this interim removal action in accordance with U.S. Environmental Protection Agency and Florida Department of Environmental Protection regulations. ABB-ES believes that the soils at SAs 8 and 9 are considered listed hazardous wastes as defined by the Resource Conservation and Recovery Act because pesticide chemicals not used for their intended purpose (known as P-listed wastes) have most likely contaminated soils at these study areas.

Soils at the SAs have not been characterized for disposal purposes; this characterization is the responsibility of the removal contractor. Analytical requirements for this characterization should be determined by the disposal facility receiving the excavated soil.

NTC, Orlando is considered the generator of these wastes. The removal contractor should coordinate with the facility for signing of manifests for transportation and disposal.

4.3 SITE RESTORATION. After excavation, each area should be brought back to original grade with clean fill and reseeded.

## REFERENCES

ABB Environmental Services, Inc. (ABB-ES). 1996. *Base Realignment and Closure Site Screening Report, Naval Training Center, Orlando, Florida*. Prepared for Southern Division, Naval Facilities Engineering Command, North Charleston, South Carolina, Draft, July.

Geraghty & Miller, 1986. *Verification Study, Assessment of Potential Soil and Ground-Water Contamination at Naval Training Center, Orlando, Florida*. Prepared for Southern Division, Naval Facilities Engineering Command, North Charleston, South Carolina, December.