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ENVIRONMENTAL STATUS AND INSTITUTIONAL CONTROLS IMPLEMENTATION MANUAL
MAIN BASE PROPERTY NTC ORLANDO FL
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ENVIRONMENTAL STATUS AND INSTITUTIONAL CONTROLS IMPLEMENTATION MANUAL

MAIN BASE PROPERTY

NAVAL TRAINING CENTER ORLANDO, FLORIDA

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

TETRA TECH NUS, INC.
800 Oak Ridge Turnpike, A-600 ▪ Oak Ridge, Tennessee 37830
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00-E195

June 1, 2000

Commanding Officer
SOUTHNAVFACENGCOM
ATTN: Ms. Barbara Nwokike, Code 1873
P.O. Box 190010
2155 Eagle Drive
North Charleston, SC 29419-9010

Subject: Environmental Status and Institutional Controls Implementation Manual
McCoy Annex, NTC, Orlando

Dear Ms. Nwokike:

Enclosed is the subject manual for your reference. Nine copies have been shipped to Wayne Hansel for delivery to the persons and organizations on the distribution list provided in the manual but not listed below. It is expected that the manual will be updated periodically as changes in the conditions and status of sites at the Main Base occur.

Please contact me if you have questions regarding the manual or if you identify changes that should be included with the next revision.

Sincerely,

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

SBM:tko

Enclosure

c: Mr. Rick Allen, Harding Lawson Associates
Mr. David Grabka, FDEP
Mr. Wayne Hansel, SOUTHNAVFACENGCOM (9)
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Mr. Steve Tsangaris, CH2M Hill
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ENVIRONMENTAL STATUS AND INSTITUTIONAL CONTROLS IMPLEMENTATION MANUAL

MAIN BASE PROPERTY

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Southern Division
Naval Facilities Engineering Command
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North Charleston, South Carolina 29406

Submitted by:
Tetra Tech NUS, Inc.
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CONTRACT TASK ORDER 0024

JUNE 2000

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TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS

AST	aboveground storage tank
bgs	below ground surface
BGSV	background screening value
BRAC	Base Realignment and Closure
BTEX	benzene, toluene, ethylbenzene, xylene
CA	Contamination Assessment
CAR	Contamination Assessment Report
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DET	Environmental Detachment Charleston, S.C.
FDEP	Florida Department of Environmental Protection
GCTL	Groundwater Cleanup Target Level
HLA	Harding Lawson Associates
MCL	Maximum Contaminant Level
MCPP	2-(2-methyl-4-chlorophenoxy) propionic acid
MOP	Monitoring Only Plan
NFA	no further action
NTC	Naval Training Center
OPT	Orlando Partnering Team
OU	Operable Unit
PAH	polynuclear aromatic hydrocarbon
PCE	tetrachloroethene
PCB	polychlorinated biphenyl
PEL	probable effects level
POA	Plan of Action
RBC	risk-based concentration
SA	Study Area
SAP	Site Assessment Plan
SAR	Site Assessment Report
SARA	Site Assessment Report Addendum
SCTL	Soil Cleanup Target Level
TCAR	Tank Closure Assessment Report
TCE	trichloroethene
TCLP	Toxicity Characteristic Leaching Procedure
TRPH	total recoverable petroleum hydrocarbons
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
UXO	unexploded ordnance

1.0 INTRODUCTION

This manual is intended to provide information on the environmental condition of the property located on the Main Base of the former Naval Training Center (NTC), Orlando. The manual will be distributed to the developer (Orlando NTC Partners) and federal, state, and local governmental agencies involved with the redevelopment of the property. The objectives of the manual are to provide the following:

- Historical information to assist governmental agencies in making informed decisions regarding the use of the property.

- Information on site restrictions of which the developer and cognizant authorities must be aware during redevelopment activities and subsequent use.

Section 2 contains a status summary table of the active sites where environmental investigation or remediation activities are underway, and sites with restrictions. The summary provides a quick reference for identifying the restrictions at the Main Base.

Section 3 provides a detailed description of (1) actives sites and sites with restrictions and (2) former remediation sites which require no further remedial action. Each site narrative provides information on site location, intended reuse of the property, previous uses of associated buildings and property, contamination detected in both soil and groundwater, remedial actions implemented, current monitoring program (where applicable), and details of applicable institutional controls. A 22- x 34-inch map of the Main Base entitled "Soil and Groundwater Exceedances, Main Base" is provided as an attachment to the manual. The map shows the location of the Main Base study areas and the concentrations of chemicals detected in excess of acceptable regulatory values. A smaller 11- x 17-inch version of the map is provided in Section 2.

Section 4 provides details of the active aboveground and underground tank sites and a table listing all of the tank sites at the Main Base. Tank site information includes the number, type, and size of tanks, the dates of installation and/or removal, tank contents, and known contamination.

This manual will be distributed to the state and local authorities on the Controlled Distribution List to ensure that they are fully informed as to the status of the Main Base environmental sites. Members of the Orlando Partnering Team (OPT), which is responsible for investigating and remediating environmental contamination at the NTC, are also on distribution for the manual. The OPT consists of representatives

from the Navy and its contractors, the Florida Department of Environmental Protection (FDEP), and the U.S. Environmental Protection Agency (USEPA). The manual will be updated periodically to reflect the results of ongoing investigations and the progress of remedial activities.

If questions arise regarding the environmental status of the Main Base or to request permission from the Navy for access to a site, please contact Wayne Hansel, BRAC Environmental Coordinator, in Charleston, SC, at (843) 820-5572. Pertinent documents regarding the NTC, Orlando environmental program are available at the following location:

Orange County Public Library
Orlando Branch (2nd Floor)
101 East Central Boulevard
Orlando, Florida 32801
(407) 835-7323

2.0 STATUS SUMMARY

The table provided in this section, entitled *Status Summary of Active Sites/Sites with Restrictions,* is a listing of Main Base sites which are currently undergoing environmental actions or have restrictions due to the presence of chemical contaminants. The Developer and appropriate authorities must ensure that the restrictions listed in the right-hand column of the summary are implemented and followed. An 11- x 17-inch reduction of the map entitled "Soil and Groundwater Exceedances, Main Base" is provided for easy reference in this section. The full size map is located in a pocket at the end of the manual.

CURRENT STATUS

This column in the summary provides a quick reference to inform the reader of work completed or in progress at a site. A filled-in or blackened box ■ indicates the current status at a particular site. The entries are described below:

☐ Investigation in progress ■ Investigation complete

An investigation involves sampling and analysis to determine whether contamination is present in soil or groundwater and, if so, the nature and extent of the contamination. Soil samples are collected to characterize the soil, and monitoring wells are often installed to obtain groundwater samples. The hydrogeologic characteristics of the site are also evaluated by measuring water levels in monitoring wells and performing aquifer tests to determine the direction and transport rate of the contaminants.

■ Groundwater contamination

If groundwater contamination exceeding regulatory criteria (e.g., Florida Groundwater Cleanup Target Levels) is present at a site, this box will be filled in. The specific contaminants may be identified in parentheses.

■ Monitoring wells

Monitoring wells (including piezometers and small diameter microwells) are installed to determine whether the groundwater is contaminated, to evaluate trends in the contaminant concentrations, and to measure groundwater levels. The wells must be protected from damage until they are removed by the Navy or its contractors.

■ Soil contamination

If soil contamination exceeding regulatory criteria (e.g., Florida Soil Cleanup Target Levels) is present at a site, this box will be filled in. The specific contaminants may be identified in parentheses.

☐ Soil to be removed ■ Soil removed (3/00)

The left box will be filled in if contaminated soil is planned for removal. The right box will be filled in and the date provided if a removal has been performed.

■ Tank(s) in place ☐ Tank(s) removed

This entry is provided for aboveground or underground storage tank sites. If the tanks have been removed, the right box will be filled in.

Additional comments may be provided to further explain the site status.

SITE RESTRICTIONS

Restrictions may be placed upon the use of property or the underlying groundwater to prevent spread of contamination and exposure to hazardous materials. Institutional controls are restrictions established on the Navy property at the time of property transfer, employing deed restrictions, notices, and agreements. To provide for enforceability of the institutional controls by the FDEP, a Restrictive Covenant may be applied to the property. The restrictions for specific sites are listed in the "Restrictions" column of the *Status Summary.* The entries in the Restrictions column are explained below.

- Restricted to Non-Residential Use

A site may be limited to non-residential use due to presence of landfills, or the presence of soil contamination in higher concentrations than allowed by the FDEP for residential use.

- Protect monitoring wells from damage

Monitoring wells (including piezometers and microwells) must be protected until they are removed by the Navy or its contractors. The wells are expensive (>$3000 each) and are important for evaluating progress in site remediation.

- No intrusive activities (digging, drilling, excavation, trenching, etc.)

If former landfills are present, no intrusive activities (digging, drilling, excavation, trenching, etc.) may be permitted without special measures approved by the FDEP.

- Groundwater use restriction

If former landfills are present, there will be a prohibition against using groundwater beneath the landfill areas. Temporary prohibitions may be imposed against using groundwater currently above FDEP criteria, but expected to be cleaned up at some point in the future.

- Site access is allowed with Navy permission.

Access to a site may be restricted if an investigation or a remedial action is under way, or if surface soils are contaminated above FDEP criteria.

STATUS SUMMARY of ACTIVE SITES / SITES WITH RESTRICTIONS
MAIN BASE, NAVAL TRAINING CENTER, ORLANDO

■ Indicates the current status

Site	Building Numbers	Name	Current Status	Restrictions
TRANSFERRED SITES				
OU 1	21 4004 4005 4021 4022	RTC Fitness Trail North Grinder Landfill (paved) North Grinder Landfill (grass) South Grinder (paved) South Grinder (grass)	☐ Investigation in progress ■ Investigation complete ■ Groundwater contamination (gross alpha, gross beta; groundwater use restriction; groundwater monitoring to be performed) ■ Monitoring wells (31 wells: MW-1 to -3, OLD-OR-01, OLD-U1-01A to -27C; 3 piezometers: PZ-1 to -3) ☐ Soil contamination ☐ Soil to be removed ☐ Soil removed Comment: Quarterly Monitoring in progress	• Restricted to Non-Residential use • Protect monitoring wells from damage • No intrusive activities (digging, drilling, excavation, trenching, etc.) • Groundwater use restriction
SA 29	127	Grounds maintenance	☐ Investigation in progress ■ Investigation complete ☐ Groundwater contamination ☐ Monitoring wells ■ Soil contamination [benzo(a)pyrene, arsenic] ☐ Soil to be removed ☐ Soil removed Comment: No Further Action	• Restricted to Non-Residential use
UST 109	109		☐ Investigation in progress ■ Investigation complete ☐ Groundwater contamination ☐ Monitoring wells ☐ Soil contamination ☐ Soil to be removed ☐ Soil removed ☐ Tank(s) in place ■ Tank(s) removed Comment: Tanks to be closed in place; fieldwork completed 3/00. Soil Removal Closure Report in preparation.	• None
UST 128	128		■ Investigation in progress ☐ Investigation complete ☐ Groundwater contamination ☐ Monitoring wells ☐ Soil contamination ☐ Soil to be removed ■ Soil removed (3/00) ☐ Tank(s) in place ■ Tank(s) removed Comment: Soil Removal/Closure Report in preparation.	• None
UST 200	200	Former Fire Fighter Training School	☐ Investigation in progress ■ Investigation complete ■ Groundwater contamination (waste oil) ■ Monitoring wells (9 wells, 1 microwell) ☐ Soil contamination ☐ Soil to be removed ☐ Soil removed ☐ Tank(s) in place ■ Tank(s) removed Comment: Quarterly Monitoring to be performed	• Protect monitoring wells from damage • Groundwater use restriction

Site	Building Numbers	Name	Current Status	Restrictions
UST 369	369	NNPTC Barracks	■ Investigation in progress ☐ Investigation complete ■ Groundwater contamination ■ Monitoring wells (3 wells, 3 piezometers) ☐ Soil contamination ☐ Soil to be removed ■ Soil removed (3/00) ☐ Tank(s) in place ■ Tank(s) removed Comment: Source Removal Report in preparation.	• Protect monitoring wells from damage • Site access is allowed with Navy permission.
UST 2036	2036	Former M.I. Battalion Offices	■ Investigation in progress ☐ Investigation complete ■ Groundwater contamination (BTEX) ■ Monitoring wells (6 wells: MW-1 to -5, DW-1) ☐ Soil contamination ☐ Soil to be removed ■ Soil removed (3/00) ☐ Tank(s) in place ■ Tank(s) removed Comment: Source Removal Report in preparation.	• Protect monitoring wells from damage • Groundwater use restriction
USTs 2080-5, 2080-6, 2080-7	2080	Gov't Gas Dispensing Facility	■ Investigation in progress ☐ Investigation complete ■ Groundwater contamination ☐ Monitoring wells ☐ Soil contamination ☐ Soil to be removed ■ Soil removed (2/00) ☐ Tank(s) in place ■ Tank(s) removed Comment: Source Removal Report in preparation.	• Protect monitoring wells from damage • Groundwater use restriction
UST 2115	2115	Medical/Dental Facility	■ Investigation in progress ☐ Investigation complete ■ Groundwater contamination ☐ Monitoring wells ☐ Soil contamination ☐ Soil to be removed ■ Soil removed (3/00) ☐ Tank(s) in place ■ Tank(s) removed Comment: Source Removal Report in preparation.	• Protect monitoring wells from damage • Groundwater use restriction
UST 2273	2273	Former Gas Dispensing Facility	■ Investigation in progress ☐ Investigation complete ■ Groundwater contamination (BTEX) ■ Monitoring wells (replaced wells destroyed by utility contractor); downgradient well to be installed ☐ Soil contamination ☐ Soil to be removed ☐ Soil removed ☐ Tank(s) in place ■ Tank(s) removed Comment: Monitoring well was installed 4/00; preliminary results show benzene exceedance of 1.2 ppb. The well will be resampled in early 06/00.	• Protect monitoring wells from damage • Groundwater use restriction
AST 2426	2426	BOQ	☐ Investigation in progress ■ Investigation complete ■ Groundwater contamination ■ Free product ■ Monitoring wells (5 wells: MW-1 to -3, PZ-1 to -2) ☐ Soil contamination ☐ Soil to be removed ■ Soil removed (2/00) ☐ Tank(s) in place ■ Tank(s) removed Comment: Source Removal Report submitted 12/99 with NFA recommendations; awaiting FDEP decision.	• Protect monitoring wells from damage • Site access is allowed with Navy permission.

Site	Building Numbers	Name	Current Status	Restrictions
UST 2510	2510	Swimming Pool	■ Investigation in progress ☐ Investigation complete ☐ Groundwater contamination ☐ Monitoring wells ☐ Soil contamination ☐ Soil to be removed ■ Soil removed (2/00) ☐ Tank(s) in place ■ Tank(s) removed Comment: Source Removal Report in preparation. Monitoring well to be installed to confirm no groundwater contamination.	• Protect monitoring well from damage
NON-TRANSFERRED SITES				
OU 3 (SA 8)	2134	Greenskeeper Storage	☐ Investigation in progress ■ Investigation complete ■ Groundwater contamination (antimony, arsenic, lead, MCPP) ■ Monitoring wells (19 wells: OLD-08-01 to -19) ■ Soil contamination (arsenic) ☐ Soil to be removed ■ Soil removed (4/99) Comment: Bench-scale Treatability Study to be performed.	• Site access is allowed with Navy permission. • Restricted to Non-Residential use
OU 3 (SA 9)	UNF-14	Former Pesticide and Herbicide Storage	☐ Investigation in progress ■ Investigation complete ■ Groundwater contamination (antimony, arsenic, α-BHC, 2-4-dichlorophenol, Lindane, MCPP) ■ Monitoring wells (18 wells: OLD-09-01 to -18) ■ Soil contamination (chlordane) ☐ Soil to be removed ■ Soil removed (4/99)	• Site access is allowed with Navy permission. • Restricted to Non-Residential use
SA 35	2078 2079	Auto Maintenance Facility Auto Maintenance Facility Storage	☐ Investigation in progress ■ Investigation complete ☐ Groundwater contamination ■ Monitoring wells (4 wells: OLD-35-01 to -04) ■ Soil contamination (arsenic, TRPH, lead) ☐ Soil to be removed ■ Soil removed (5/99) Comment: Soil confirmation sampling performed 4/00; preliminary results available 5/00.	• Site access is allowed with Navy permission.
SA 36	2121 2122	Public Works Lumber Storage Public Works Shops	■ Investigation in progress ☐ Investigation complete ■ Groundwater contamination (antimony, TCE, TRPH) ■ Monitoring wells (12 wells) ■ Soil contamination [antimony, arsenic, barium, mercury, benzo(a)pyrene, TRPH] ☐ Soil to be removed ☐ Soil removed Comment: Site Investigation fieldwork (1st phase) completed 4/00.	• Site access is allowed with Navy permission.

Site	Building Numbers	Name	Current Status	Restrictions
SA 39	4060 4067 15109 UNF-10	Loading Platform (Bldg. 137) Loading Platform (Bldg. 137) Irrigation Well Open Area (west of Nuclear Power School)	☐ Investigation in progress ■ Investigation complete ■ Groundwater contamination (PCE) ■ Monitoring wells (26 wells) ■ Soil contamination [benzo(a)pyrene, dibenzo(a,h)anthracene, arsenic] ☐ Soil to be removed ☐ Soil removed Comment: Draft SI Report issued 5/00.	• Site access is allowed with Navy permission. • Restricted to Non-Residential use
SA 40	21022 21023 UNF-6	Softball Field Softball Field Bottle Landfill	■ Investigation in progress ☐ Investigation complete ☐ Groundwater contamination ■ Monitoring wells (4 wells) ■ Soil contamination [benzo(a)pyrene, arsenic] ☐ Soil to be removed ■ Soil removed (5/99) Comment: Soil confirmation sampling performed 4/00; preliminary results show arsenic exceedances in northeast portion site.	• Site access is allowed with Navy permission.

GLOSSARY

AST = aboveground storage tank
BTEX = benzene, toluene, ethylbenzene, and xylenes
OU = operable unit
PCE = perchloroethylene, or tetrachloroethene
SA = study area
TCE = trichloroethene
TRPH = total recoverable petroleum hydrocarbons
UST = underground storage tank

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OPERABLE UNIT 1

SOIL (NON-RESIDENTIAL)

ARSENIC	1.3 TO 2.9
BENZO(A)PYRENE	0.2-J TO 1.2
DIBENZ(A,H)ANTHRACENE	0.12-J TO 0.76
DIELDRIN	0.089 TO 0.180-D
IDENO(1,2,3-CD)PYRENE	2.3

GROUNDWATER

ALUMINUM	4410 TO 101000
BERYLLIUM	5-B TO 7.1
BIS(2-ETHYLHEXYL)PHTHALATE	30
CHLOROMETHANE	6-J
CHROMIUM	121
GROSS ALPHA	21.3 TO 257-J
GROSS BETA	57 TO 240-J
IRON	1290 TO 8030
MANGANESE	82 TO 116
LEAD	91.8-D
THALLIUM	2.1-J TO 4.6-B
VANADIUM	50.2 TO 104

STUDY AREA 1

GROUNDWATER

LEAD	17.1

STUDY AREA 3

GROUNDWATER

TETRACHLOROETHENE	5.3 TO 12

STUDY AREA 8

GROUNDWATER

GROSS ALPHA	0.39 TO 18.1
MANGANESE	69.8 TO 97.4
SODIUM	59800 TO 248000

STUDY AREA 43

SOIL

LEAD	432 TO 618-J

STUDY AREA 44

GROUNDWATER

BROMODICHLOROMETHANE	0.7-J
PENTACHLOROPHENOL	1

OPERABLE UNIT 3 / STUDY AREA 8

SOIL (NON-RESIDENTIAL)

ARSENIC	4 TO 90
BENZO(A)PYRENE	1.1

GROUNDWATER

ALUMINUM	4300-J TO 4310-J
ANTIMONY	12.2
ARSENIC	53 TO 609
DIELDRIN	0.019-J
IRON	1260 TO 33300
LEAD	21.1 TO 34.8
MANGANESE	51 TO 338
MCPA	640-J TO 1200-DJ
MCPP	99-J TO 900-J
NAPTHALENE	25

OPERABLE UNIT 3 / STUDY AREA 9

SOIL (NON-RESIDENTIAL)

ARSENIC	4.4 TO 20.2
BENZO(A)PYRENE	0.78 TO 0.94
4,4'-DDD	20-D

GROUNDWATER

2,4-D	110-J
2,4-DICHLOROPHENOL	2-J TO 200
4,4-DDE	0.1-J
ALDRIN	0.051-J
ALPHA-BHC	1-J TO 2.5-J
ALUMINUM	7740-J
ANTIMONY	17.7
ARSENIC	51.5 TO 1370
DIELDRIN	0.012-J
GAMMA-BHC(LINDANE)	0.04 TO 3.2
IRON	1290 TO 6350
MANGANESE	53.6 TO 159
MCPA	460-J TO 3100-J
MCPP	170-J TO 1900-J
NAPTHALENE	67.5 TO 160-D

STUDY AREA 4

STUDY AREA 5

STUDY AREA 6

LAKE BALDWIN

STUDY AREA 41

STUDY AREA 45

STUDY AREA 10

STUDY AREA 27

SOIL

ARSENIC	1.2-J
BENZO(A)ANTHRACENE	1.6 TO 2.6
BENZO(A)PYRENE	0.11 TO 7.8
BENZO(B)FLOURANTHENE	1.5 TO 7.5
BIS(2-ETHYLHEXY)PHTHALATE	87
DIBENZ(A,H)ANTHRACENE	0.22 TO 1.7
IDENO(1,2,3-CD)PYRENE	3.4 TO 3.9

STUDY AREA 33

SOIL

BENZO(A)PYRENE	0.12-J TO 0.32-J

STUDY AREA 37

SOIL

ALDRIN	1.3
ALPHA-CHLORDANE	40
ARSENIC	3.0
BENZO(A)PYRENE	0.11
GAMMA-CHLORDANE	52
HEPTACHLOR	4.4
HEPTACHLOR EPOXIDE	2.9

STUDY AREA 28

STUDY AREA 34

STUDY AREA 38

STUDY AREA 42

SOIL

ARSENIC	1.2 TO 1.5
BENZO(A)PYRENE	0.1 TO 0.3

STUDY AREA 35

SOIL

ARSENIC	1.2-J TO 6
BARIUM	163
LEAD	1240
TRPH	1500 TO 85000

GROUNDWATER

METHYLENE CHLORIDE	12
PHENOL	11
THALLIUM	7.2-J

STUDY AREA 36

SOIL

ARSENIC	1.2-J TO 2.2-J
BARIUM	410 TO 499
BENZO(A)PYRENE	0.14-J TO 0.17-J
MERCURY	25.8
TRPH	430 TO 770

GROUNDWATER

ALUMINUM	5020 TO 6660
ANTIMONY	6.0-J TO 8.9-J
METHYLENE CHLORIDE	5.2
NAPTHALENE	32-B
TETRACHLOROETHENE	5.4
TRICHLOROETHENE	3.8 TO 840

STUDY AREA 31

STUDY AREA 29

SOIL

ARSENIC	1.1-J TO 2.2-J
BENZO(A)PYRENE	0.43

GROUNDWATER

BIS(2-ETHYLHEXYL)PHTHALATE	48
MANGANESE	50.6

LAKE SUSANNAH
STUDY AREA 7

STUDY AREA 40

SOIL

ARSENIC	1.1 TO 3.4
BENZO(A)PYRENE	0.12 TO 2.3
BENZO(B)FLOURANTHENE	1.5

GROUNDWATER

ANTIMONY	13.9

STUDY AREA 32

STUDY AREA 39

SOIL (NON-RESIDENTIAL)

ARSENIC	4.7 TO 6.7
BENZO(A)PYRENE	0.52 TO 1.44

GROUNDWATER

BENZENE	1.6-J TO 2.5-J
BROMODICHLOROMETHANE	0.71-J TO 1.7-J
CARBON TETRACHLORIDE	4.7-J
CHLOROFORM	9.9-J
IRON	1320-J
TETRACHLOROETHENE	3 TO 260
TRICHLOROETHENE	4.4-J

STUDY AREA 30

SOIL

ARSENIC	1.5-J TO 2.3-J
BENZO(A)PYRENE	0.14-J

GROUNDWATER

ALUMINUM	4130
CHROMIUM	113-J TO 392-J
IRON	1740-J
MANGANESE	86.8-J
MERCURY	0.15-J
METHYLENE CHLORIDE	8-J TO 20
NICKEL	151-J TO 435-J

MAIN BASE

LEGEND

LOCATION OF SAMPLES

STUDY AREA 30

SOIL

ARSENIC	1.5-J TO 2.3-J
BENZO(A)PYRENE	0.14-J

GROUNDWATER

CHROMIUM	113-J TO 392-J
METHYLENE CHLORIDE	8-J TO 20
NICKEL	151-J TO 435-J

ANALYTE

CONCENTRATION IN SOIL IN MILLIGRAMS PER KILOGRAM (mg/Kg)

CONCENTRATION IN GROUNDWATER IN MICROGRAMS PER LITER (ug/L)

INDICATES CONCENTRATION IS BETWEEN INSTRUMENT DETECTION LIMIT AND THE CONTRACT- REQUIRED DETECTION LIMIT	B
VALUE FROM DILUTION	D
ESTIMATED VALUE	J

TRPH - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS
MCPA AND MCPP ARE HERBICIDES
GROSS ALPHA & BETA IN PICOCURIES PER LITER (pCi/L)

SCREENING CRITERIA

EXCEEDANCES ARE IN REFERENCE TO APPLICABLE REGULATORY LIMITS AT THE TIME OF INVESTIGATION.

-N-

400 0 400 800 1200
SCALE IN FEET

GROUNDWATER AND SOIL EXCEEDANCES
MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

CAD FILE NO./DATE: 7457P003.dgn/5-31-00

3.0 OPERABLE UNITS AND STUDY AREAS

All of the environmental sites (operable units and study areas) at the Main Base are divided by the current status into the following three categories:

- Active Sites/Sites with Restrictions
- No Further Action Sites
- No Action Sites

These categories are explained below.

Active Sites/Sites with Restrictions. As explained in Section 2.0, these sites are currently undergoing environmental actions or have restrictions due to the presence of landfill areas and/or chemical contaminants. Thus the Developer and appropriate authorities should be cognizant of the ongoing actions and implement the restrictions at these sites.

No Further Action Sites. These sites have undergone and completed remedial action to cleanup environmental contamination to meet regulatory standards for residential reuse. No further action (NFA) is required for environmental cleanup and restrictions that limit use of the property or the underlying groundwater will not be applied to the site.

No Action Sites. Sites that have been investigated without contamination detected above regulatory criteria can be closed as environmental sites without any remedial action or use restrictions.

Descriptions of the Active Sites/Sites with Restrictions and NFA Sites are provided in this section. The remainder of environmental sites at the Main Base (i.e., the No Action Sites) are listed in a summary table.

OPERABLE UNIT 1

Site Name: North Grinder Landfill

Location: Easting: 547893 Northing: 1542411
Latitude: 28° 34′ 34.94548″ Longitude: 81° 20′ 14.44430″

Intended Reuse: Recreational (City of Orlando Reuse Plan, dated 12/30/94)

1.0 SITE DESCRIPTION

Operable Unit (OU) 1 is known as the North Grinder Landfill and is located at the northwest corner of the Main Base. The North Grinder Landfill is located under both lawn and an asphalt paved area known as the "grinder" parade area. The topography is flat, although elevation decreases to the north, east, and west of the site. Landfill operations at OU 1 began between 1939 and 1947, when the property was owned by the Air Force, and ceased when the property was transferred to the Navy in 1968. Wastes were disposed of in trenches dug at the site and were then assumed to have been burned and covered with soil. The wastes reportedly included such materials as film, photographic chemicals, paint thinner, mess hall garbage, medical waste, yard and construction debris, and tetrachloroethene (PCE) wastes from the laundry facility.

2.0 CONTAMINATION DETECTED

Soil. Surface soil sampling results showed concentrations of polynuclear aromatic hydrocarbons (PAHs), pesticides, polychlorinated biphenyls (PCBs), and inorganics (ABB-ES, 1996). The concentration ranges of contaminants exceeding the Florida Soil Target Goals (FDEP, 1995) are shown below:

Contaminant of Concern	Regulatory Criteria* (mg/kg)	Range of Exceedances** (mg/kg)
Arsenic	0.8	1.3 to 2.9
Benzo(a)pyrene	0.1	0.2 J to 1.2
Dibenz(a,h)anthracene	0.1	0.12 J to 0.76
Dieldrin	0.07	0.089 to 0.180 D
Indeno(1,2,3-cd)pyrene	1.4	2.3

* Florida Soil Target Cleanup Goal (FDEP, 1995)
** "J" indicates an estimated value. "D" indicates that the laboratory diluted the sample during analysis.

Groundwater. Contaminants detected in the groundwater that exceed regulatory criteria consisted of gross alpha and beta radioactivity and some inorganics. The ranges of exceedances are shown below:

Contaminant of Concern	Regulatory Criteria* (µg/L)	Range of Exceedances** (µg/L)
Aluminum	4067	4410 to 101,000
Beryllium	4	5 B to 7.1
Bis(2-ethylhexyl)phthalate	4	30
Chloromethane	2.7	6 J
Chromium	100	121
Gross alpha	15	21.3 to 257 J
Gross beta	-	57 to 240 J
Iron	1227	1290 to 8030
Manganese	50	82 to 116
Lead	15	91.8 D
Thallium	2	2.1 J to 4.6 B
Vanadium	49	50.2 to 104

* For an organic analyte, the regulatory criterion is the Florida Groundwater Cleanup Target Level (GCTL); for an inorganic analyte with an established GCTL and Background Screening Value (BGSV), the criterion is the greater of the GCTL or the BGSV.

** "B" qualifier indicates a value greater than or equal to the instrument detection limit but below the contract required detection limit.

There is evidence that naturally occurring radionuclides associated with phosphates in the Hawthorn Group are being mobilized by anaerobic microbial activity. Of the radionuclides scanned, significant contributions to the radioactivity measurements are due to the naturally occurring uranium-238 series and potassium-40. This suggests that the remaining contributors are naturally occurring as well.

3.0 REMEDIAL ACTIONS

The remedial actions for OU 1 are presented in the Record of Decision (ABB-ES, 1997) and summarized below.

Monitoring Program. A groundwater monitoring program has been implemented to evaluate changes in chemical concentrations in groundwater over time. These data will support the continued designation of

"no further action required" for groundwater at the site. At the end of the proposed monitoring period (3 years), the data will be evaluated to determine if continued monitoring is necessary.

Institutional Controls. The goals of the institutional controls at OU 1 are to protect human health and the environment by (1) preventing exposure of persons to soil that exceeds state and/or federal cleanup criteria; and (2) maintaining the integrity of the monitoring process. The following restrictions are applicable at OU 1:

- Prohibit the use of surficial aquifer groundwater in the vicinity of the landfill for drinking or irrigation.

- Limit intrusive activities within the landfill boundary. Within the landfill footprint, site workers must adhere to regulations for Hazardous Waste Site Workers (29 CFR Part 1910) during all excavation activities below a depth of 12 inches. A clean soil cover of at least 2 feet must be maintained over the area once excavation activities have ceased.

- Restrict the use of land within the landfill boundary to non-residential uses. Industrial or recreational uses are acceptable.

Implementing the Institutional Controls. These institutional controls will be established at the time of property transfer, employing deed restrictions, notices, and agreements in a layering strategy to mutually reinforce the goals of the institutional controls. The groundwater use restriction will include an advisory to the St. Johns River Water Management District and the Orange County Environmental Health that no surficial wells are to be permitted while the restriction is in effect.

Zoning and redevelopment activities for the OU 1 property must be consistent with land use and groundwater restrictions. Use restrictions will remain in place until such time that groundwater cleanup goals are met and the restrictions have been removed by the Navy with FDEP concurrence.

Inspections. While contamination remains, the Navy or its designee will conduct inspections to ensure the institutional controls are in place and operating effectively.

4.0 MODIFYING/TERMINATING INSTITUTIONAL CONTROLS

The length of time institutional controls are needed at OU 1 is directly related to the time required for groundwater remediation. When the FDEP determines that no additional sampling or monitoring is required, the institutional controls can be removed through the USEPA's Comprehensive Environmental

Response, Compensation, and Liability Act (CERCLA) site closure process. Appropriate federal, state, and local agencies will be notified once institutional controls are removed.

REFERENCES

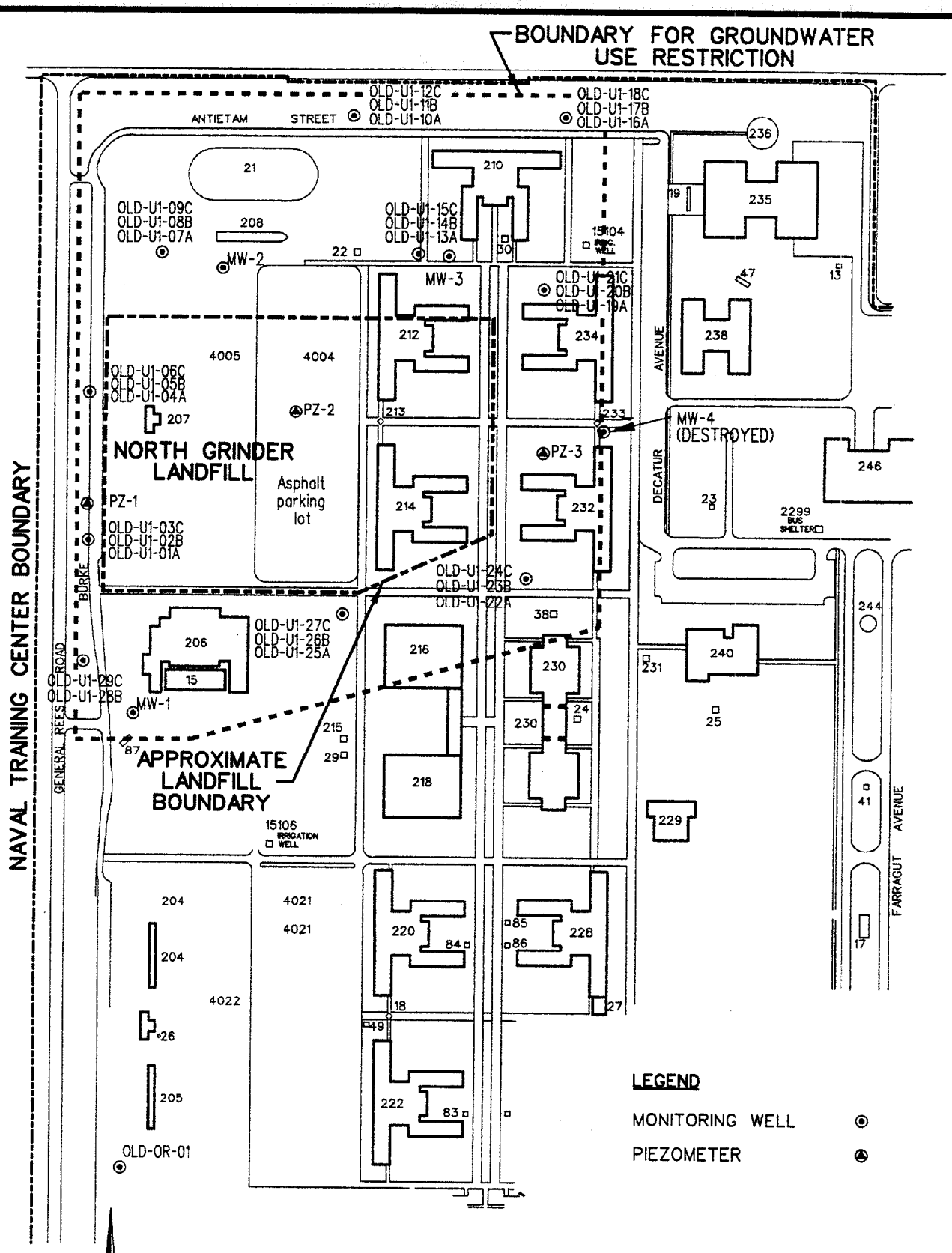
ABB-ES (ABB Environmental Services, Inc.), 1996. *Remedial Investigation Report, North Grinder Landfill, Operable Unit 1, Naval Training Center, Orlando, Florida.* Unit Identification Code N65928, Contract No. N62467-89-D-0317/107, December.

ABB-ES, 1997. *Record of Decision, Operable Unit 1, Naval Training Center, Orlando, Florida.* Unit Identification Code N65928, Contract No. N62467-89-D-0317/107, July.

FDEP (Florida Department of Environmental Protection), 1995. *Soil Cleanup Goals for Florida.* Memorandum from John M. Ruddell, Division of Waste Management, Tallahassee, Florida, September 9.

ATTACHMENT

Site Plan, Operable Unit 1 – Main Base



SITE PLAN
OPERABLE UNIT 1 - MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

CAD FILE NO./DATE: 7457P004.dgn/3-9-00

n8-5x11v.dgn

OPERABLE UNIT 3 - STUDY AREA 8

Site Name: Greenskeeper's Storage Area (Study Area 8)

Location: Easting: 544232 Northing: 1540040
Latitude: 28° 34′ 11.64149″ Longitude: 81° 19′ 03.27376″

Intended Reuse: Recreational (City of Orlando Reuse Plan, dated 12/30/94)

1.0 SITE DESCRIPTION

Two sites, Study Area (SA) 8 and SA 9, comprise Operable Unit (OU) 3. SA 8 and SA 9 lie about 600 feet apart on the southeast shore of Lake Baldwin, as shown on the attached map. SA 8, known as the Greenskeeper's Storage Area, is the northernmost of the two SAs. The Orlando Partnering Team (OPT) agreed to treat the two sites as an OU because the following criteria were met:

- The sites are close together.
- The sites have similar contaminant exposure histories.
- Remedial action, if required, would be similar for the two sites.

SA 8 originally included the area surrounding a former wastewater treatment plant that lies approximately ½ mile north of the Greenskeeper's Storage Area. Investigations around the former treatment plant revealed no significant contamination and the OPT approved that area for no further action in June 1997.

SA 8 was known as the Greenskeeper's Storage Area, which occupies about 1/3 of an acre on the Main Base between the shore of Lake Baldwin and the golf course. Trident Lane, the only paved area near SA 8, ended in a cul-de-sac in the storage area compound. The security fence and buildings were removed during soil remediation in May 1999.

The OPT investigated SA 8 because of concerns about potential soil and groundwater contamination from pesticide and herbicide handling operations that were conducted at the site. The projected land use is restricted to recreational activities. The attached site plan shows the boundary and major features that used to exist at SA 8.

2.0 CONTAMINATION DETECTED

Surface Soil. Investigations conducted between August 1994 and March 1998 detected arsenic, lead, and benzo(a)pyrene in surface soils at concentrations that exceeded regulatory criteria. The sampling locations at which lead exceeded the criteria lay within larger areas of arsenic contamination, so investigators concluded that remedial actions taken to reduce arsenic contamination would also remove the excessive lead.

Concentrations of several pesticides and benzo(a)pyrene slightly exceeded their respective regulatory criteria, but arsenic remained the primary contaminant of concern. The following table shows the contaminants of concern, their corresponding regulatory criteria, and the range of concentrations that exceeded regulatory criteria.

Contaminant of Concern	Regulatory Criteria* (mg/kg)	Range of Exceedances (mg/kg)
Arsenic	3.7	4 to 90
Benzo(a)pyrene	0.5	1.1

*Florida Commercial/Industrial Soil Cleanup Target Levels (SCTLs)

Groundwater. Investigators detected arsenic and other inorganics at concentrations exceeding regulatory criteria in the surficial aquifer. Arsenic is the only inorganic considered to pose a significant health risk at SA 8. Several pesticides and herbicides were also detected at concentrations exceeding regulatory criteria. The following table shows the principal contaminants of concern, their corresponding regulatory criteria, and the range of exceedances.

Contaminant of Concern	Regulatory Criteria* (µg/L)	Range of Exceedances** (µg/L)
Aluminum	4067	4,300 J to 4,310 J
Antimony	6	12.2
Arsenic	50	53 to 609
Iron	1227	1,260 to 33,300
Lead	15	21.1 to 34.8
Manganese	50	51 to 338

(Continued on next page)

Contaminant of Concern	Regulatory Criteria* (µg/L)	Range of Exceedances** (µg/L)
Dieldrin	0.005	0.019J
MCPA	3.5	640J to 1,200DJ
MCPP	7	99J to 900J
Naphthalene	20	25

* For an organic analyte, the regulatory criterion is the Florida Groundwater Cleanup Target Level (GCTL); for an inorganic analyte with an established GCTL and Background Screening Value (BGSV), the criterion is the greater of the GCTL or the BGSV.

** "J" indicates an estimated value. "D" indicates that the concentration was detected in a dilution sample.

3.0 REMEDIAL ACTIONS

The Interim Record of Decision (HLA, 2000) presents the actions selected to address the principle threats and risks at OU 3. The actions selected are necessary to protect the public health, welfare, or the environment from actual or threatened releases of hazardous substances or pollutants and consist of (1) groundwater monitoring, (2) site reviews, and (3) institutional controls. The final remedy for OU 3 will be chosen after identifying a cost-effective method of treating the groundwater to meet Florida GCTLs. These actions are described further in the following sections.

Soil Removal. Investigators recommended removing contaminated surface to prevent human exposure and minimize the likelihood of additional contaminants being washed downward into the surficial aquifer. The Environmental Detachment, Charleston (DET) completed the removal of 50 tons of contaminated soil from SA 8 in September 1997 and backfilled the excavation with clean soil. Another soil removal was performed in May 1999. The OPT recommended changing the site classification from residential to recreational, and no further action is anticipated for soils.

Groundwater Monitoring. Groundwater from selected monitoring wells at OU 3 will be sampled and analyzed on a quarterly basis for the first year and annually thereafter, unless data consistency between quarterly sampling episodes indicates that a different strategy is more appropriate. The attached figure shows the locations of monitoring wells at SA 8 which must be protected from damage. Recent data from the groundwater monitoring program have indicated that more proactive remedial measures may be necessary, and bench-scale tests are planned to evaluate three innovative remedial technologies that may be effective in cleaning up the groundwater.

Site Reviews. Site reviews will occur at a minimum of every 5 years until action levels are attained. Based on a review of groundwater data and site conditions, the Navy will recommend: (1) no further action; (2) continued monitoring; or (3) implementation of other remedial action.

Institutional Controls. The goals of the institutional controls at SA 8 are to protect human health and the environment by (1) preventing the exposure to or consumption of soil or groundwater that exceeds state and/or federal maximum contaminant levels (MCLs), Florida SCTLs, or Florida GCTLs; and (2) maintaining the integrity of the monitoring process. The following restrictions are applicable at OU 3:

- Reclassification of the site for recreational use will reduce potential exposure of persons to contaminated soil well below acceptable levels.

- The installation of new wells for any purpose other than assessing groundwater quality is prohibited at the site.

- The disturbance of existing or newly installed monitoring wells at the site is prohibited. The Developer is responsible for protecting these wells during redevelopment activities.

- Access to the monitoring wells shall be provided to the Navy for sampling purposes.

Implementing the Institutional Controls. These institutional controls will be established at the time of property transfer, employing deed restrictions, notices, and agreements in a layering strategy to mutually reinforce the goals of the institutional controls. The groundwater use restriction will include an advisory to the St. Johns River Water Management District and the Orange County Environmental Health that no surficial wells are to be permitted while the restriction is in effect.

Zoning and redevelopment activities for the OU 3 property must be consistent with land use and groundwater restrictions. Use restrictions shall remain in place until such time that groundwater cleanup goals are met and the restrictions have been removed by the Navy with FDEP concurrence.

Inspections. The Navy or its designee may conduct inspections to ensure the institutional controls are in place and operating effectively.

4.0 MODIFYING/TERMINATING INSTITUTIONAL CONTROLS

The duration of institutional controls is directly related to the time needed for groundwater in the surficial aquifer to meet regulatory requirements. Monitoring wells may be properly abandoned when the OPT agrees that no additional sampling is required. Other controls can be removed through the USEPA's CERCLA site closure process. Appropriate federal, state, and local agencies will be notified once institutional controls are removed.

REFERENCES

HLA (Harding Lawson Associates), 1999a. *Remedial Investigation and Feasibility Study, Operable Unit 3, Naval Training Center, Orlando, Florida.* Unit Identification Code N65928, Contract No. N62467-89-D-0317/107, June

HLA, 1999b. *Proposed Plan, Operable Unit 3, Naval Training Center, Orlando, Florida.* Unit Identification Code N65928, Contract No. N62467-89-D-0317/107, July.

HLA, 2000. *Interim Record of Decision, Operable Unit 3, Naval Training Center, Orlando, Florida.* Unit Identification Code N65928, Contract No. N62467-89-D-0317/107, April.

ATTACHMENT

Site Features and Soil Excavation Areas, Study Area 8

00226A022

BASE MAP: HLA, 1999

LEGEND

MONITORING WELL ⊙

TEMPORARY MONITORING WELL ✕

DESTROYED WELL ⊗

SITE BOUNDARY

WOODED AREA

OLD-08-21

OLD-08-15

OLD-08-05

OLD-08-18

LAKE BALDWIN

WOODS

OLD-08-11

OLD-08-20

OLD-08-14

OLD-08-03

OLD-08-04

OLD-08-06

OF

FORMER BUILDING (TYP.)

OLD-08-19

OLD-08-13

EDGE

OLD-08-12

OLD-08-02

OLD-08-10

OLD-08-01

OLD-08-07

OLD-08-16

SHORELINE

OLD-08-09 ABANDONED

OLD-08-08

DIRT ROAD

OLD-08-17

WOODED AREA

TRIDENT LANE

LAKEVIEW AVENUE

DRAINAGE DITCH

N

50 0 50

SCALE IN FEET

SITE PLAN
OPERABLE UNIT 3 - STUDY AREA 8

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

n11x17b.dgn

CAD FILE NO./DATE: 7457P015.dgn/5-31-00

OPERABLE UNIT 3 - STUDY AREA 9

Site Name: Former Pesticide Handling and Storage Area (Study Area 9)

Location: Easting: 553787 Northing: 1539480
Latitude: 28° 34′ 06.08515″ Longitude: 81° 19′ 08.24799″

Intended Reuse: Recreational (City of Orlando Reuse Plan, dated 12/30/94)

1.0 SITE DESCRIPTION

Two sites, SA 8 and SA 9, comprise OU 3. SA 8 and SA 9 lie about 600 feet apart on the southeast shore of Lake Baldwin, as shown on the attached map. SA 8, known as the the Greenskeeper's Storage Area, is the northernmost of the two SAs. The OPT agreed to treat the two sites as an OU because the following criteria were met:

- The sites are close together.
- The sites have similar contaminant exposure histories.
- Remedial action, if required, would be similar for the two sites.

SA 9 is known as the Former Pesticide Handling and Storage Area and occupies about 1/2 acre between the shore of Lake Baldwin and the golf course. The OPT investigated SA 9 because of concerns about potential soil and groundwater contamination from pesticide and herbicide handling operations that were conducted at the site. The projected land use is restricted to recreational activities. The attached site plan shows the boundary and major features that used to exist at SA 9.

2.0 CONTAMINATION DETECTED

Surface Soil. Investigations conducted between August 1994 and March 1998 detected arsenic and organic compounds in surface soils at concentrations that exceeded regulatory criteria. The following table shows the principal contaminants of concern, their corresponding regulatory criteria, and the range of concentrations that exceeded regulatory criteria.

Contaminant of Concern	Regulatory Criteria* (mg/kg)	Range of Exceedances (mg/kg)
Arsenic	3.7	4.4 to 20.2
Benzo(a)pyrene	0.5	0.78 to 0.94
4-4'-DDD	18	20 D

* Florida Commercial/Industrial Soil Cleanup Target Levels (SCTLs).
** "D" indicates that the concentration was detected in a dilution sample.

Groundwater. Investigators detected inorganics and several pesticides in groundwater in the surficial aquifer, with Chlordane being the principal contaminant of concern. The following table shows the principal contaminants of concern, their corresponding regulatory criteria, and the range of observed concentrations the exceeded regulatory criteria.

Contaminant of Concern	Regulatory Criteria* (µg/L)	Range of Exceedances** (µg/L)
Aluminum	4067	7,740J
Antimony	6	17.7
Arsenic	50	51.5 to 1,370
Iron	1227	1,290 to 6,350
Manganese	50	53.6 to 159
Aldrin	0.005	0.051J
alpha-BHC	0.006	1J to 2.5J
2,4-D	70	110J
2,4-Dichlorophenol	0.5	2J to 200
4,4-DDE	0.1	0.1J
Dieldrin	0.005	0.012J
gamma-BHC (Lindane)	0.2	0.04 to 3.2
MCPA	3.5	460J to 3,100J
MCPP	7	170J to 1,900J
Naphthalene	20	67.5 to 160D

* For an organic analyte, the regulatory criterion is the Florida Groundwater Cleanup Target Level (GCTL); for an inorganic analyte with an established GCTL and Background Screening Value (BGSV), the criterion is the greater of the GCTL or the BGSV.

** J indicates an estimated value. D indicates that the concentration was detected in a dilution sample.

3.0 REMEDIAL ACTIONS

The Interim Record of Decision presents the actions selected to address the principal threats and risks at OU 3. The actions selected are necessary to protect the public health, welfare, or the environment from actual or threatened releases of hazardous substances or pollutants and consist of (1) groundwater

monitoring, (2) site reviews, and (3) institutional controls. The final remedy for OU 3 will be chosen after identifying a cost-effective method of treating the groundwater to meet Florida GCTLs. These actions are described further in the following sections.

Soil Removal. Investigators recommended removing contaminated surface soil to prevent human exposure and minimize the likelihood of additional contaminants being washed downward into the surficial aquifer. The Environmental Detachment Charleston completed the removal of 3,000 tons of contaminated soil from SA 9 in September 1997 and backfilled the excavation with clean soil. Another soil removal was performed in May 1999. The OPT recommended changing the site classification from residential to recreational, and no further action is anticipated for soils.

Groundwater Monitoring. Groundwater from selected monitoring wells at OU 3 will be sampled and analyzed on a quarterly basis for the first year and annually thereafter, unless data consistency between quarterly sampling episodes indicates that a different strategy is more appropriate. The attached figure shows the locations of monitoring wells at SA 9 which must be protected from damage. Recent data from the groundwater monitoring program have indicated that more proactive remedial measures may be necessary and bench-scale tests are planned to evaluate three innovative remedial technologies that may be effective in cleaning up the groundwater.

Site Reviews. Site reviews will occur at a minimum of every 5 years until action levels are attained. Based on a review of groundwater data and site conditions, the Navy will recommend: (1) no further action; (2) continued monitoring; or (3) implementation of other remedial action.

Institutional Controls. The goals of the institutional controls at SA 8 are to protect human health and the environment by (1) preventing the exposure to or consumption of soil or groundwater that exceeds state and/or federal maximum contaminant levels (MCLs), Florida SCTLs, or Florida GCTLs; and (2) maintaining the integrity of the monitoring process. The following restrictions are applicable at OU 3:

- Reclassification of the site for recreational use will reduce potential exposure of persons to contaminated soil well below acceptable levels.

- The installation of new wells for any purpose other than assessing groundwater quality is prohibited at the site.

- The disturbance of existing or newly installed monitoring wells at the site is prohibited. The Developer is responsible for protecting these wells during redevelopment activities.

- Access to the monitoring wells will be provided to the Navy for sampling purposes.

Implementing the Institutional Controls. These institutional controls will be established at the time of property transfer, employing deed restrictions, notices, and agreements in a layering strategy to mutually reinforce the goals of the institutional controls. The groundwater use restriction will include an advisory to the St. Johns River Water Management District and the Orange County Environmental Health that no surficial wells are to be permitted while the restriction is in effect.

Zoning and redevelopment activities for the OU 3 property must be consistent with land use and groundwater restrictions. Use restrictions will remain in place until groundwater cleanup goals are met and the restrictions have been removed by the Navy with FDEP concurrence.

Inspections. The Navy or its designee may conduct inspections to ensure the institutional controls are in place and operating effectively.

4.0 MODIFYING/TERMINATING INSTITUTIONAL CONTROLS

The duration of institutional controls is directly related to the time needed for groundwater in the surficial aquifer to meet regulatory requirements. Monitoring wells may be properly abandoned when the OPT agrees that no additional sampling is required. Other controls can be removed through the USEPA's CERCLA site closure process. Appropriate federal, state and local agencies will be notified once institutional controls are removed.

REFERENCES

HLA (Harding Lawson Associates), 1999a. *Remedial Investigation and Feasibility Study, Operable Unit 3, Naval Training Center, Orlando, Florida.* Unit Identification Code N65928, Contract No. N62467-89-D-0317/107, June

HLA, 1999b. *Proposed Plan, Operable Unit 3, Naval Training Center, Orlando, Florida.* Unit Identification Code N65928, Contract No. N62467-89-D-0317/107, July.

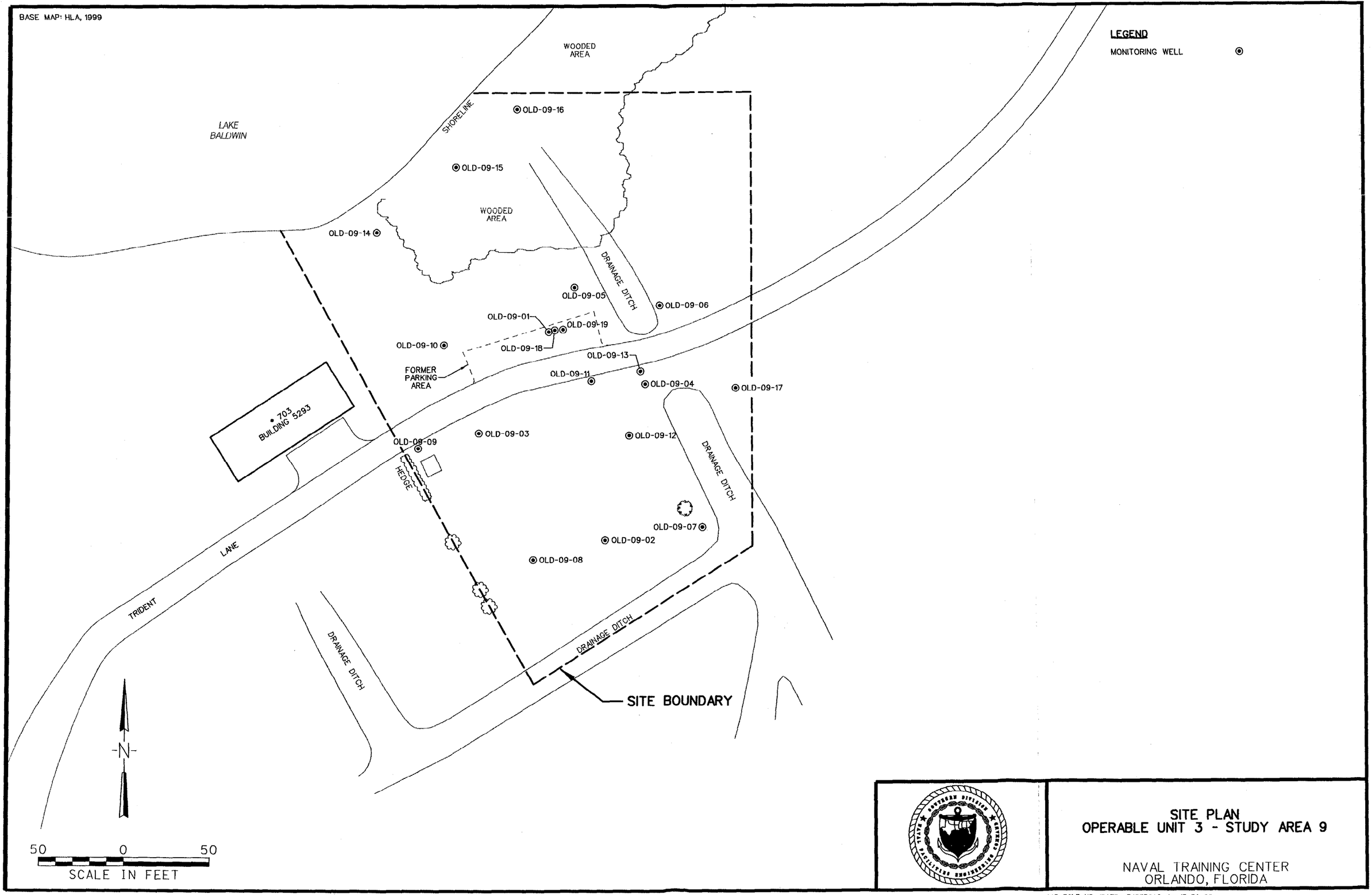
HLA, 2000. *Interim Record of Decision, Operable Unit 3, Naval Training Center, Orlando, Florida.* Unit Identification Code N65928, Contract No. N62467-89-D-0317/107, April.

ATTACHMENT

Site Features and Soil Excavation Areas, Study Area 9

00226A032

BASE MAP: HLA, 1999



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SITE PLAN
OPERABLE UNIT 3 - STUDY AREA 9

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

CAD FILE NO./DATE: 7457P016.dgn/5-31-00

STUDY AREA 29

Site Name: Grounds Maintenance Facility

Location: Easting: 551667 Northing: 1537983
Latitude: 28° 33′51.20670″ Longitude: 81° 19′ 31.97910″

Intended Reuse: Recreational (City of Orlando Reuse Plan, dated 12/30/94)

1.0 SITE DESCRIPTION

SA 29 lies in the eastern part of the Main Base along the northern shoreline of Lake Susannah. It lies south of Langley Street and includes Building 127. The building was constructed in 1975 and used as a sail loft. Since 1988, the building has been used for storage and maintenance of groundskeeping equipment. The investigated areas included the flammable storage lockers on the west end of the building and an area on the east side of the compound where unlabeled drums were previously stored.

2.0 CONTAMINATION DETECTED

Soil. Concentrations of arsenic and benzo(a)pyrene that exceeded the screening criteria were detected in surface soil samples. No screening criteria exceedances were observed in subsurface soil samples. The ranges of exceedances in surface soil are shown below.

Contaminant of Concern	Regulatory Criteria (mg/kg)	Range of Exceedances (mg/kg)
Arsenic	1.0 *	1.1 J to 2.2 J
Benzo(a)pyrene	0.1**	0.43

* Background Screening Value
** Florida Soil Cleanup Goal

Site screening activities took place between June 24 and June 26, 1997. Regulatory screening criteria for surface and subsurface soil was the greater of either the BGSV, for inorganic analytes, or the Soil Cleanup Goal for residential use. The current regulatory guidance for soil at the time of investigation was the FDEP memorandum dated September 29, 1995.

Groundwater. Analysis of the groundwater collected at SA 29 detected volatile organics, semivolatile organics, and inorganics. One organic compound and one metal were detected at concentrations exceeding the Florida MCL and the Florida secondary standard, respectively. Bis(2-ethylhexyl)phthalate was detected in temporary well OLD-29-02 at a concentration of 48 µg/L. This compound is a common laboratory artifact and was not detected in the duplicate sample collected at this location. Manganese was detected in temporary well OLD-29-02 at a concentration of 50.6 µg/L, slightly above the Florida secondary standard of 50 µg/L. The ranges of exceedances in groundwater are shown below.

Contaminant of Concern	Regulatory Criteria* (µg/L)	Range of Exceedances (µg/L)
bis(2-ethylhexyl)phthalate	6	48
Manganese	50	50.6

*Florida Maximum Contaminant Level

The regulatory guidance for groundwater at the time of investigation was the FDEPG Maximum Contaminant Level list dated June 1994 and the Federal MCL Primary Drinking Water Regulations and Health Advisories, October 1996. The findings of the site screening report (ABB-ES, 1998) noted that no groundwater contamination was found.

3.0 REMEDIAL ACTIONS

Institutional Controls. The goals of the institutional controls at SA 29 are to protect human health and the environment by preventing exposure of persons to soil that exceeds state and/or federal cleanup criteria. The following restrictions are applicable at SA 29:

- A non-residential land-use restriction is imposed for the area shown on the attached figure.
- Two temporary wells remain at SA 29. Although no further groundwater monitoring is planned, these wells must be protected from damage until the FDEP and the USEPA approve their removal.
- The installation of new wells for any purpose other than groundwater and/or assessing groundwater quality is prohibited within the restriction boundary.
- Access to the property shall be provided to the Navy to continue remedial activities.

Implementing the Institutional Controls. These institutional controls will be established at the time of property transfer, employing deed restrictions, notices, and agreements in a layering strategy to mutually

reinforce the goals of the institutional controls. The land-use restriction will include an advisory to the Orange County Environmental Protection Department, the FDEP Central District Office, and the City of Orlando. The land-use restriction will be specified by the Navy in property transfer documents to ensure that future owners and users of the property are provided with notice of the site conditions.

4.0 MODIFYING/TERMINATING INSTITUTIONAL CONTROLS

In order to remove existing restrictions and permit unrestricted land use, contaminated soils must be remediated or have decreased to acceptable residential levels. This process would require the involvement of appropriate local, State, and Federal regulatory agencies.

REFERENCES

ABB-ES (ABB Environmental Services, Inc.), 1998. *Base Realignment and Closure Environmental Site Screening Report, Study Area 29, Naval Training Center, Orlando, Florida.* Unit Identification Code N65928, Contract No. N62467-89-D-0317/107, January.

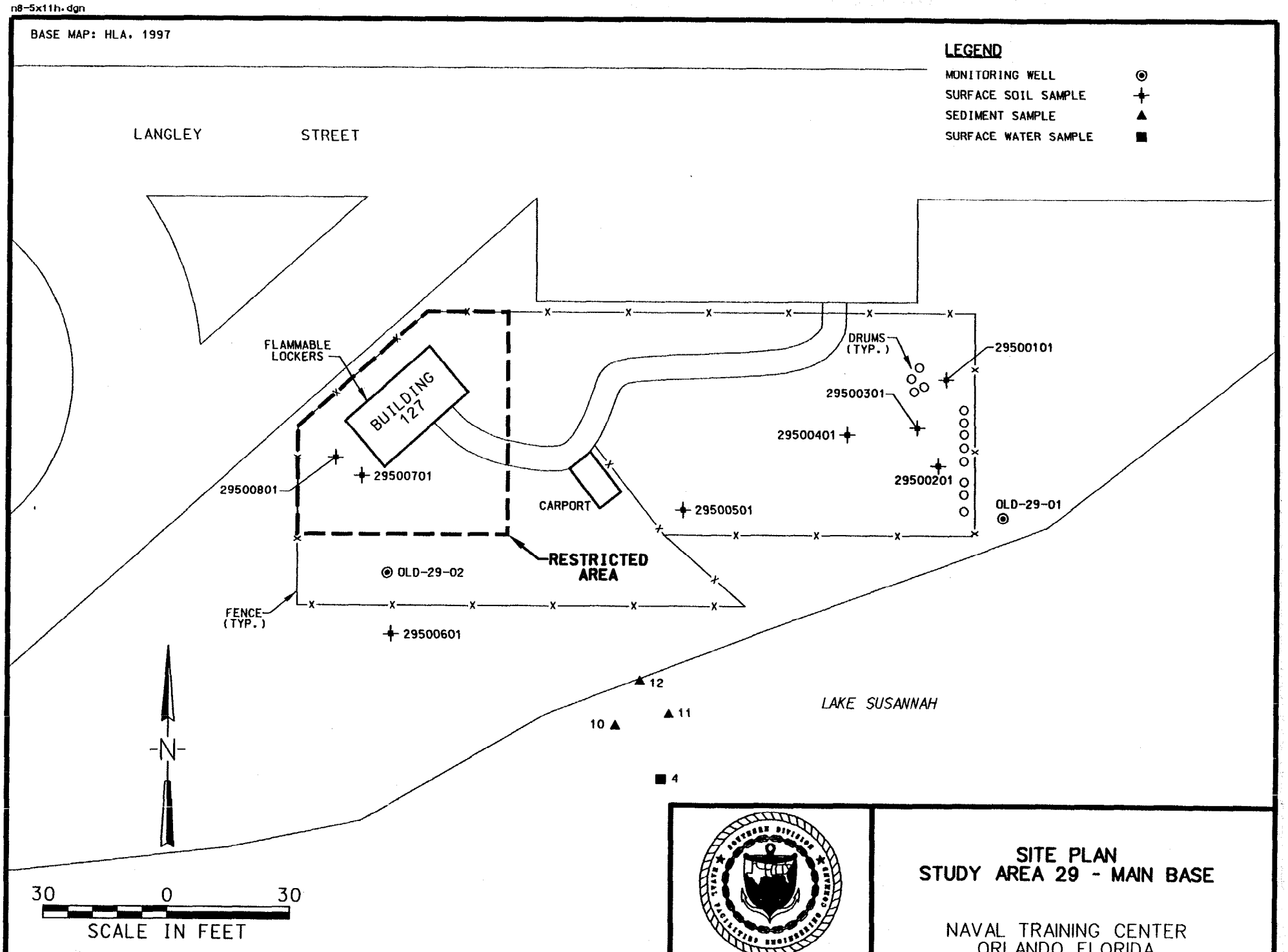
FDEP (Florida Department of Environmental Protection), 1995. *Soil Cleanup Goals for Florida.* Memorandum from John M. Ruddell, Division of Waste Management, Tallahassee, Florida, September 9.

ATTACHMENT

Site Plan, Study Area 29 – Main Base

n8-5x11h.dgn

BASE MAP: HLA, 1997



SITE PLAN
STUDY AREA 29 - MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

STUDY AREA 35

Site Name: Auto Maintenance Facility

Location: Easting: 551571 Northing: 1538210
Latitude: 28° 33′ 53.45168″ Longitude: 81° 19′ 33.06266″

Intended Reuse: Residential (City of Orlando Reuse Plan, dated 12/30/94)

1.0 SITE DESCRIPTION

Study Area 35 occupies the southern part of the block formed by Langley and Iwo Jima Streets and Mitscher and Leahy Avenues. Most of the site is a large, paved parking area fringed with grassy swales and lawn. Buildings 2078 and 2079 are included in the study area. Building 2078 is a former aircraft hangar used since 1968 for vehicle maintenance. Building 2079 was used to store tires, batteries, and hazardous materials.

2.0 CONTAMINATION DETECTED AT THE SITE

Soil. During the site screening investigation (HLA, 1999), concentrations of arsenic and total recoverable petroleum hydrocarbons (TRPH) that exceeded Florida Soil Cleanup Target Levels (SCTLs) were detected in surface soil samples collected from several locations. Lead, barium, and heptachlor were detected infrequently. Three subsurface soil samples contained arsenic at concentrations that exceed residential SCTLs. These three samples were collected at depths of 4.5 to 7.5 feet and the observed arsenic concentrations only slightly exceeded the arsenic SCTL.

Contaminant of Concern	Regulatory Criteria* (mg/kg)	Range of Exceedances (mg/kg)
Arsenic	1.0	1.2 J to 6**
Barium	105	163
Lead	500	1240
TRPH	350	1500 to 85,000

* Florida Soil Cleanup Target Levels
** "J" qualifier indicates an estimated value.

Groundwater. Groundwater samples collected at the site met Florida GCTLs. Concentrations of aluminum observed in samples from wells OLD-35-01, OLD-35-02, and OLD-35-03 have exceeded Federal Secondary Drinking Water Standards but were below the observed background concentration. The detections of methylene chloride, thallium, and phenol shown in the table below exceeded GCTLs, but are thought to be artifacts of the sampling process and not representative of actual site conditions.

Contaminant of Concern	Regulatory Criteria* (µg/L)	Range of Exceedances (µg/L)
Methylene chloride	5	12
Phenol	10	11
Thallium	2	7.2 J

* Florida Groundwater Cleanup Target Levels

3.0 REMEDIAL ACTIONS

Soil Removal Actions. Surface soils found to contain contaminants at concentrations exceeding the SCTL were excavated, removed from the site, and replaced with clean fill soil (DET, 1999). The attached map shows the excavated areas. No subsurface soils were removed because detections exceeding SCTLs were infrequent and at depths that would preclude exposure to site occupants. Additional sampling to confirm that the soil removal was successful in achieving the GCTLs was performed in April 2000, and the results will be available in May 2000.

Groundwater Monitoring. No groundwater monitoring is required, but potential site developers must be aware of the need to protect existing monitoring wells and observe caution if soils near the foundation of Building 2079 are disturbed.

Property Access. The goals of the institutional controls at SA 35 are to protect human health and the environment by preventing the exposure of persons to soil that exceeds State and/or Federal cleanup criteria. The following restrictions are applicable at SA 35:

- Limited access to the site is allowed for demolition and utility installation with written permission from the Navy.

- Access to the property shall be provided to the Navy to continue remedial activities.

Institutional Controls. Institutional controls, if required, will be established at the time of property transfer, employing deed restrictions, notices, and agreements in a layering strategy to mutually reinforce the goals of the institutional controls.

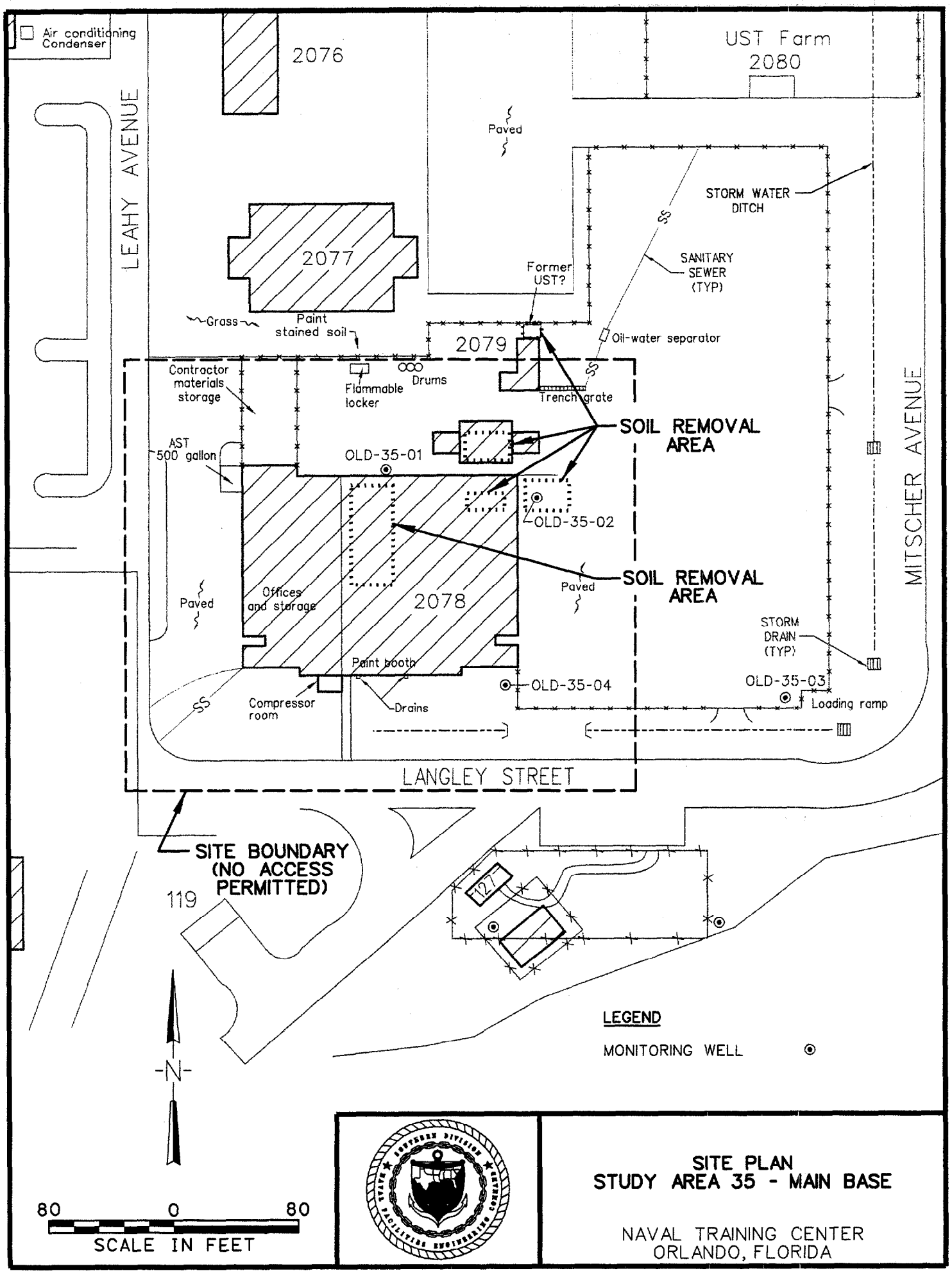
REFERENCES

DET (Environmental Detachment, Charleston, S.C.), 1999. *Completion Report, Interim Remedial Action, SA 17, 18, 23, 35, 37, 40, 42, and OU 3 & 4, Naval Training Center and McCoy Annex, Orlando, Florida.* August 18.

HLA (Harding Lawson Associates), 1999. *Base Realignment and Closure Environmental Site Screening Report (Final Draft), Study Area 35, Naval Training Center, Orlando, Florida.* Unit Identification Code N65928, Contract No. N62467-89-D-0317/107, November.

ATTACHMENT

Site Plan, Study Area 35 – Main Base


Air conditioning Condenser
2076
UST Farm
2080
LEAHY AVENUE
Paved
STORM WATER DITCH
SS
SANITARY SEWER (TYP)
2077
Former UST?
Grass
Paint stained soil
2079
Oil-water separator
Contractor materials storage
Flammable locker
Drums
Trench grate
SOIL REMOVAL AREA
AST 500 gallon
OLD-35-01
OLD-35-02
SOIL REMOVAL AREA
Paved
Offices and storage
2078
Paved
STORM DRAIN (TYP)
MITSCHER AVENUE
Paint booth
OLD-35-04
OLD-35-03
Compressor room
Drains
Loading ramp
LANGLEY STREET
SITE BOUNDARY (NO ACCESS PERMITTED)
119
127
LEGEND
MONITORING WELL
-N-
80 0 80
SCALE IN FEET
SITE PLAN
STUDY AREA 35 - MAIN BASE
NAVAL TRAINING CENTER
ORLANDO, FLORIDA
n8-5x11v.dgn
CAD FILE NO./DATE: 7457P005.dgn/5-31-00

STUDY AREA 36

Site Name: Public Works Lumber Storage and Shops

Location: Easting: 549635 Northing: 1537825
Latitude: 28° 33′ 49.58713″ Longitude: 81° 19′ 54.76306″

Intended Reuse: Residential (City of Orlando Reuse Plan, dated 12/30/94)

1.0 SITE DESCRIPTION

SA 36 is bounded to the north by Langley Street, to the east by Building 2025 and its grounds, to the south by a paved area serving Building 2026, and to the west by Building 109 and its grounds. The study area includes a Paint Shop (Building 2122), a two-story lumber storage facility (Building 2121), and the western half of the Public Works Yard (see attached site plan). Paint and paint thinner were stored in Building 2122. A drainage swale located on the western edge of the site receives runoff from paved storage areas of SA 36.

The North Storage Area is a paved area north and east of Building 2122. A flammable materials storage cabinet, a 55-gallon drum containing used motor oil, and stockpiles of sand and gravel were observed there during the 1994 Environmental Baseline Survey (ABB-ES, 1994). Paint residue and stained soil was observed in the swale south and north of the storm drain adjacent to Building 2122.

The South Storage Area is an unpaved area south of Building 2121 that was used to store bulky items including pipes, fire hydrants, and bricks. The paved area east of the lumber storage facility was used to store a variety of hazardous and non-hazardous materials prior to disposal, including waste oil drums, transformers, and batteries. Stained soil was once removed from this area along the southern fence line.

2.0 CONTAMINATION DETECTED

Soil. The analysis of soil samples collected at SA 36 during the site screening investigation (HLA, 1999) revealed the presence of the following compounds at concentrations that exceeded Florida SCTLs, base-wide background screening levels, and USEPA Region III Risk-Based Concentrations (RBCs):

- Total recoverable petroleum hydrocarbons (TRPH) in surface soils beneath the pavement in the north storage area and at one location adjacent to the flammable storage cabinet.

- Mercury in one surface soil sampling location at the presumed downgradient (east) location in the north storage area.

- Benzo(a)pyrene, TRPH, and barium in surface soils in the drainage swale north of the storm drain that lies beside Building 2122.

- TRPH in surface soils in the drainage swale south of the same storm drain.

- Arsenic in surface soils, subsurface soils (at depths of 4.5 to 7.5 feet), and near the edge of the pavement in the gravelled portion of the south storage area.

- Antimony in surface soils of the south storage area near the southern fence line.

- TRPH and arsenic in surface soils of the south storage area at the presumed downgradient (east) location (-03).

The concentration ranges of contaminants exceeding regulatory criteria are shown below:

Contaminant of Concern	Regulatory Criteria* (mg/kg)	Range of Exceedances (mg/kg)
Arsenic	1.0	1.2 J to 2.2 J
Barium	110	410 to 499
Benzo(a)pyrene	0.1	0.14 J to 0.17 J
Mercury	3.4	25.8
TRPH	340	430 to 770

* Florida SCTLs except for the arsenic criterion which is the background screening value.

Groundwater. Groundwater samples collected in November 1997 and June 1998 were found to contain the following compounds at concentrations that exceeded Florida Groundwater Cleanup Target Levels (GCTLs), Federal MCLs, and USEPA Region III RBCs.

- Antimony at one sampling location in the North Storage Area and at one sampling location in the gravelled portion of the South Storage Area. Both detections were identified as estimated concentrations.

- Aluminum in the presumed downgradient (east) location of the North Storage Area.

- Trichloroethene (TCE) at a sampling location adjacent to the flammables locker in the North Storage Area.

- Tetrachloroethene (PCE) in a deep well located near the north fence.

Groundwater monitoring revealed TCE and PCE concentrations in groundwater that exceeded GCTLs over an area of about 6,000 ft^2 in the northern part of the site and to depths of about 35 feet. The concentration ranges of contaminants in groundwater exceeding regulatory criteria are shown below:

Contaminant of Concern	Regulatory Criteria* (µg/L)	Range of Exceedances (µg/L)
Aluminum	4067	5020 to 6660
Antimony	6	6.0 J to 8.9 J
Methylene Chloride	5	5.2
Naphthalene	20	32 B
Tetrachloroethene	3	5.4
Trichloroethene	3	3.8 to 640

* Florida GCTLs except for the aluminum criterion which is the background screening value.

3.0 REMEDIAL ACTIONS

Soil Removal Actions. Investigators plan to conduct additional soil sampling to determine the extent of contaminated soil. The most likely remedial action is excavation and removal of contaminated soil for off-site treatment or disposal. Excavated areas will be backfilled with clean soil and paved or sown with grass, as appropriate.

Groundwater Remedial Actions. Additional sampling may show that contaminated groundwater at SA 36 is amenable to remediation by natural attenutation, air sparging, or in situ chemical oxidation. Other processes may be evaluated, if appropriate. At a minimum, these process will require access to the existing wells. Remediation by air sparging or other active processes will require additional space for equipment, routes for vehicle access, and access to electrical power lines.

Property Access. The goals of the temporary restrictions at SA 36 are to protect human health and the environment by preventing the exposure of persons to soil or groundwater that exceed state and/or federal cleanup criteria. The following restrictions are applicable at SA 36:

- Site access will be restricted until the surface soil characterization and remediation and groundwater remediation, if required, are complete.

- Nine monitoring wells are currently installed at SA 36. These wells must be protected from damage until they are properly abandoned by the Navy or its contractors.

- Limited access to the site is allowed for demolition and utility installation with written permission from the Navy.

Institutional Controls. If institutional controls are deemed necessary, they will be established at the time of property transfer, employing deed restrictions, notices, and agreements in a layering strategy to mutually reinforce the goals of the institutional controls.

REFERENCES

HLA (Harding Lawson Associates), 1999. *Base Realignment and Closure Environmental Site Screening Report, Study Area 36, Naval Training Center, Orlando, Florida.* Unit Identification Code N65928, Contract No. N62467-89-D-0317/107, July.

ABB-ES (ABB Environmental Services), 1994. *Baseline Realignment and Closure (BRAC) Environmental Baseline Survey Report*, Naval Training Center, Orlando, Florida. Unit Identification Code N65928, Contract No. N62467-89-D-0317, December.

ATTACHMENT

Site Plan, Study Area 36 – Main Base

00226A042

LANGLEY STREET

HOPPER AVENUE

GRACE

OLD-36-12C
OLD-36-11C
OLD-36-10B
36-Q018
DRUM RACK
bldg-ecorner
GATE
bldg-wcorner
36-Q011
36-Q021
36-Q013
2017
GATE
36-Q019
OLD-36-01A
OLD-36-13D
OLD-36-09C
STAINED SOIL
OLD-36-08B
OLD-36-02A
OLD-36-07A
36S00701
OLD-36-14D
bldg-sout
OLD-36-06A
PAVED
SITE BOUNDARY
PAINT RESIDUE
FLAME CABINET
36-Q003
36S00801
36-Q002
2122
ABOVEGROUND STORAGE TANK (AST)
2025
109
NALCO AST
PAVED
DRAINAGE SWALE
2121
HAZARDOUS WASTE STORAGE AREA
PAVED
DRUMS
36S00901
OLD-36-05A
FENCE (TYP.)
CATCH BASIN (TYP.)
OLD-36-03A
STORAGE YARD (UNPAVED)
2026
STAINED SOIL REMOVED
OLD-36-04A

LEGEND

- MONITORING WELL
- SOIL SAMPLE
- DIRECT PUSH/TEMP. WELL
- ABANDONED MONITORING WELL

-N-

50 0 50
SCALE IN FEET

SOURCE:
BUILDINGS AND STREETS TAKEN FROM HLA, 1999
AND ARE SHOWN IN THEIR APPROXIMATE LOCATIONS.

SITE PLAN
STUDY AREA 36 - MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

CAD FILE NO./DATE: 7457P006.dgn/3-9-00

11x17b.dgn

STUDY AREA 39

Site Name: SA 39

Location: Easting: 549520 Northing: 1535848
Latitude: 28° 33′ 30.00944″ Longitude: 81° 19′ 55.99131″

Intended Reuse: Nonresidential (City of Orlando Reuse Plan, dated 12/30/94)

1.0 SITE DESCRIPTION

SA 39 is in the southwest corner of the main base. It is a 10-acre parcel bounded on the east by Grace Hopper Avenue, on the north by Nautilus Street, and on the west and south by the installation boundary. About 200 feet of the northern shore of Lake Gear lies along the southeast corner of the site. Most of the western side of the SA is undeveloped and covered with grass except for a small stand of trees in the southwest corner. The two northern corners of the SA serve as parking areas for base personnel. The northern and southern portions of the SA are separated by a narrow retention pond.

Building 137, in the southeast portion of the SA, once served as a Hazardous Waste Storage Area. A maintenance contractor once worked from a temporary structure just west of Building 137. Two dumpster loading ramps (Structures 4060 and 4067) lie further east of Building 137. Areas near the loading ramps have been used for temporary storage of large waste items awaiting disposal such as trees and brush. The southeast corner of the SA was used for coal storage when the installation utilities were powered by coal.

The OPT initiated investigations at SA 39 because of concerns about potential groundwater contamination from Public Works activities. SA 39 was originally projected for residential use, but the classification was changed to nonresidential in 1999.

2.0 CONTAMINATION DETECTED

Soil and groundwater sampling points are shown on the attached site map. The final Site Screening Report (HLA, 1999) was approved in April 1999. Subsequently a groundwater investigation was begun in July 1999 and was completed in March 2000. A draft Site Investigation Report (Tetra Tech NUS, 2000) was issued in May 2000 for review.

Surface Soil. Investigations conducted between March 1996 and September 1997 detected inorganics and polynuclear aromatic hydrocarbons (PAHs) in surface soils at concentrations that exceeded nonresidential criteria. The ranges of exceedances in surface soil are shown below.

Contaminant of Concern	Regulatory Criteria* (mg/kg)	Range of Exceedances** (mg/kg)
Arsenic	3.7	4.7 - 6.7
Benzo(a)pyrene	0.5	0.52 – 1.44

* Florida Commercial/Industrial Soil Cleanup Target Levels
** HLA, 1999

The greatest concentrations of arsenic were observed in the southern portion of the site in an area that includes Building 137 and Structure 4060 and extends about 300 feet west of Structure 4060.

Preliminary information about the site suggested that the former landfill areas might contain unexploded ordnance (UXO). A UXO survey was performed but none was detected. The projected reuse for this parcel is nonresidential and no soil remediation is required.

Groundwater. PCE was the principal contaminant detected during the site screening investigation. The subsequent groundwater investigation completed in March 2000 confirmed the presence of PCE and other volatile organic chemicals. The ranges of contaminants exceeding regulatory criteria during both investigations are presented below:

Contaminant of Concern	Regulatory Criteria* (µg/L)	Range of Exceedances (µg/L)
Benzene	1	1.6 J – 2.5 J
Bromodichloromethane	0.6	0.71 J – 1.7 J
Carbon tetrachloride	3	4.7 J
Chloroform	5.7	9.6 J
Iron	1227	1320 J
Tetrachloroethene (PCE)	3	3 to 260
Trichloroethene (TCE)	3	4.4 J

* Florida Groundwater Cleanup Target Levels

3.0 REMEDIAL ACTIONS

Groundwater. Final preparations are under way to install an active remediation system in the summer of FY 2000.

Property Access. The goals of the temporary restrictions at SA 39 are to protect human health and the environment by preventing the exposure of persons to soil that exceeds State and/or Federal cleanup criteria. The following restrictions are applicable at SA 39:

- Limited access to the site is allowed for demolition and utility installation with written permission from the Navy.

- Access to the property shall be provided to the Navy to continue remedial activities.

Implementing the Institutional Controls. Institutional controls, if required, will be established at the time of property transfer, employing deed restrictions, notices, and agreements in a layering strategy to mutually reinforce the goals of the institutional controls.

REFERENCES

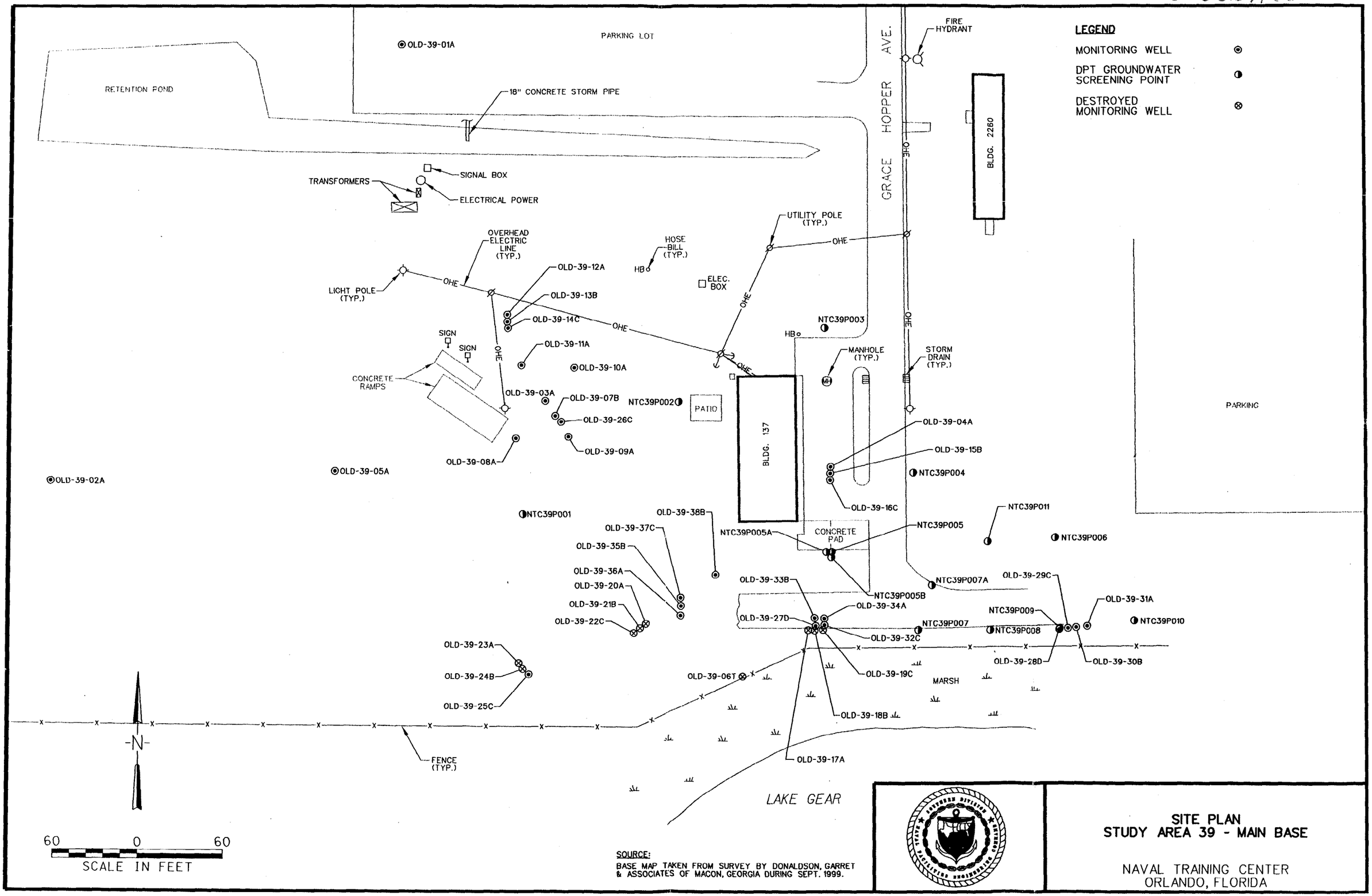
HLA (Harding Lawson Associates), 1999. *Base Realignment and Closure Environmental Site Screening Report, Study Area 39, Naval Training Center, Orlando, Florida.* Unit Identification Code N65928, Contract No. N62467-89-D-0317/107, April.

Tetra Tech NUS, 2000. *Site Investigation Report for Study Area 39, Naval Training Center, Orlando, Florida (Draft).* Contract No. N62467-94D-D-0888, Contract Task Order 0024, May.

ATTACHMENT

Site Plan, Study Area 39 – Main Base

00226A057



LEGEND

MONITORING WELL ⊙

DPT GROUNDWATER SCREENING POINT ◑

DESTROYED MONITORING WELL ⊗

SOURCE:

BASE MAP TAKEN FROM SURVEY BY DONALDSON, GARRET & ASSOCIATES OF MACON, GEORGIA DURING SEPT. 1999.

SITE PLAN
STUDY AREA 39 - MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

CAD FILE NO./DATE: 7457P007.dgn/3-9-00

n11x17b.dgn

STUDY AREA 40

Site Name: Former Bottle Landfill

Location: Easting: 549465 Northing: 1536529
Latitude: 28° 33′ 36.75060″ Longitude: 81° 19′ 56.62928″

Intended Reuse: Residential (City of Orlando Reuse Plan, dated 12/30/94)

1.0 SITE DESCRIPTION

SA 40 is in the southwest corner of the main base. It is an 8-acre parcel bounded on the south by Nautilus Street, on the west by the installation boundary, on the north by Mcguire Boulevard, and on the east by Grace Hopper Avenue. Two softball fields were constructed in the northern portion of the site sometime after 1945. A facility designated UNF-6 and known as the "Bottle Landfill" existed near the intersection of Nautilus Street and Bennett Road.

The OPT initiated investigations at SA 40 because of concerns about potential contamination from previous landfill operations. A small portion of the landfill was in SA 39, immediately south of SA 40. The landfill may have been used for disposal of asbestos-containing materials, small armaments, medical wastes, and household refuse.

2.0 CONTAMINATION DETECTED

Major site features, including an area excavated to remediate surface soil contamination, are shown on the attached site map.

Surface Soil. The analysis of surface soil samples conducted during the initial site screening activities conducted in 1996 revealed elevated concentrations of the PAH benzo(a)pyrene (HLA, 1999). Additional screening conducted in 1997 and 1998 confirmed concentrations of benzo(a)pyrene and another PAH, benzo(b)fluoranthene, that exceeded Florida SCTLs. In some sampling locations, the concentrations of arsenic exceeded the site-specific background concentration of 1 mg/kg. The contaminants of concern, their corresponding regulatory criteria, and the range of concentrations exceeding regulatory criteria are shown below.

Contaminant of Concern	Regulatory Criteria* (mg/kg)	Range of Exceedances ** (mg/kg)
Arsenic	1.0	1.1 - 15
Benzo(a)anthracene	1.4	2.1
Benzo(a)pyrene	0.1	0.12 - 1.5
Benzo(b)fluoranthene	1.4	1.5

* Florida Soil Cleanup Target Levels (SCTLs) except the criterion for arsenic which is the background screening value.

Preliminary information about the site suggested that the former landfill areas might contain UXO. No UXO was discovered and no explosives were detected in soil samples collected during site screening activities

Subsurface Soil. No subsurface soil samples exhibited contaminant concentrations exceeding regulatory criteria during the initial or subsequent investigations.

Groundwater. Investigators installed two monitoring wells in borings advanced for subsurface soil sampling. Antimony was detected in one groundwater sample at a concentration of 13.9 µg/L, exceeding the Florida MCL of 6 µg/L but not the USEPA Region III RBC of 15 µg/L. Gross beta activity in one sample (31.8 pCi/L) exceeded the background level of 9.5 pCi/L, but was well below the level at which Florida requires additional analyses and total body dose calculations (50 pCi/L).

3.0 REMEDIAL ACTIONS

Soil Removal. Results of the investigations indicated that PAH and arsenic concentrations exceeding screening criteria were confined to the upper 2 feet of soils in the two areas shown on the attached map. The OPT authorized the DET to excavate the areas, dispose of the contaminated soil, and return the excavated areas to grade with Florida-certified clean fill. The DET completed the activities in May 1999 (DET, 1999). Additional sampling to confirm that the soil removal was successful in achieving the GCTLs was performed in April 2000, and the results will be available in May 2000.

Property Access. The goals of the institutional controls at SA 40 are to protect human health and the environment by preventing the exposure of persons to soil that exceeds State and/or Federal cleanup criteria. The following restrictions are applicable at SA 40:

- Limited access to the site is allowed for demolition and utility installation with written permission from the Navy.

- Access to the property shall be provided to the Navy to continue remedial activities.

Institutional Controls. Institutional controls, if required, will be established at the time of property transfer, employing deed restrictions, notices, and agreements in a layering strategy to mutually reinforce the goals of the institutional controls.

REFERENCES

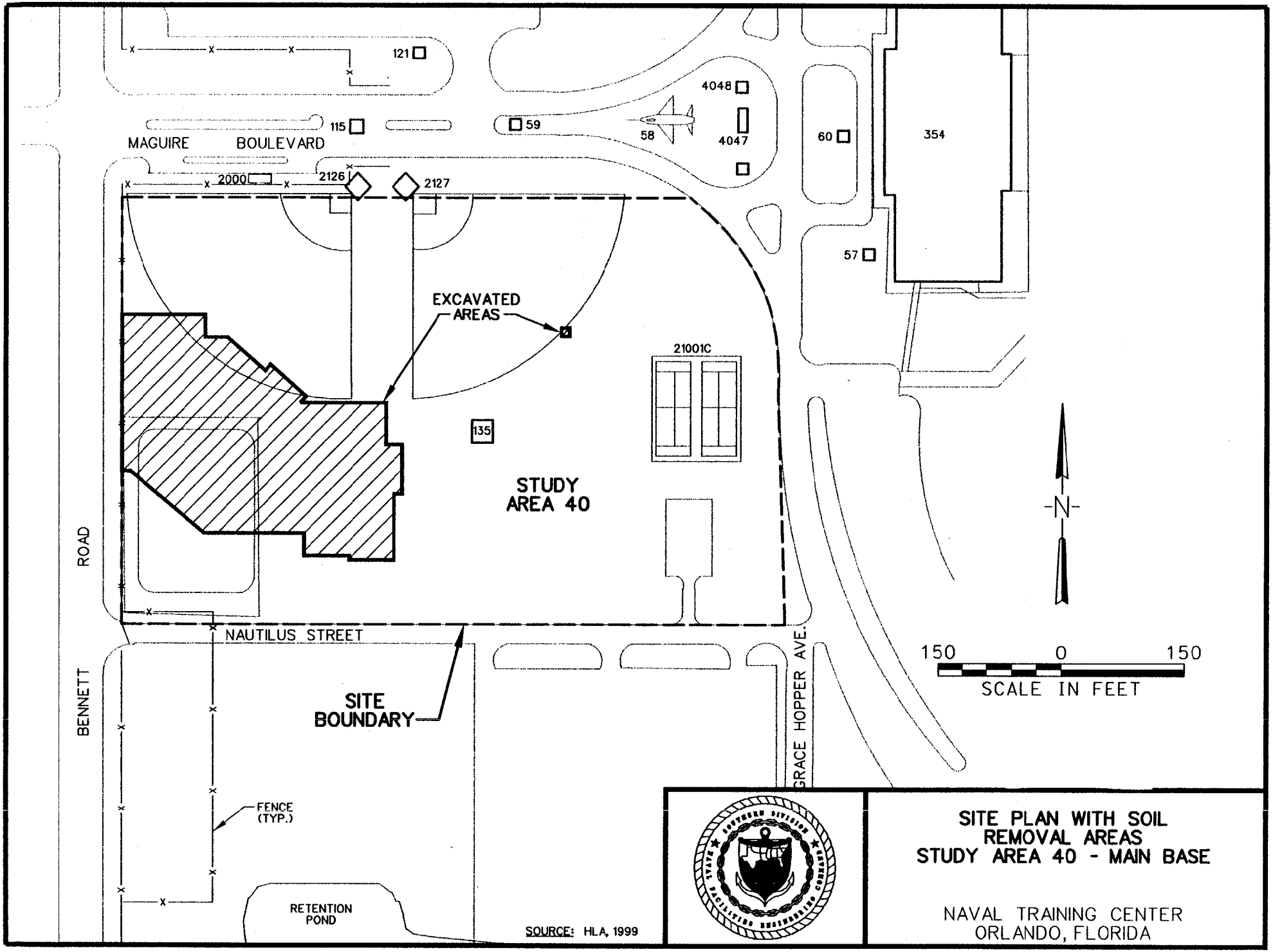
DET (Environmental Detachment Charleston, S.C.), 1999. *Completion Report, Interim Remedial Action, SA 17, 18, 23, 35, 37, 40, 42, and OU 3 & 4, Naval Training Center and McCoy Annex, Orlando, Florida.* August 18.

HLA (Harding Lawson Associates), 1999. Base Realignment and Closure Environmental Site Screening Report, Study Area 40 (Final Draft), Naval Training Center, Orlando, Florida. Unit Identification Code N65928, Contract No. N62467-89-D-0317/107, November.

ATTACHMENT

Site Plan with Soil Removal Areas, Study Area 40 – Main Base

n8-5x11h.dgn



SOURCE: HLA, 1999

SITE PLAN WITH SOIL REMOVAL AREAS STUDY AREA 40 - MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

CAD FILE NO./DATE: 74570051.dgn/4-18-00

STUDY AREA 3

Site Name: Hazardous Materials Storage Area

Location: Easting: 548850 Northing: 1540597
Latitude: 28° 34′ 17.01144″ Longitude: 81° 20′ 3.65354″

Intended Reuse: Residential (City of Orlando Reuse Plan, dated 12/30/94)

1.0 SITE DESCRIPTION

SA 3 is a former Hazardous Materials Storage area that included Buildings 73, 2816, and 2817. The SA is located on the western side of the former Main Base Golf Course, east of Decatur Avenue. Building 73 was a fenced containment facility located west of the intersection of Farragut Avenue and Dahlgren Street in the northwestern part of the NTC Main Base. Building 2816 was a storage building located west of Farragut Avenue and Building 73. In 1994, Building 2816 was renovated into a hazardous materials storage area. Prior to 1984, Building 2817 was used to store out-of-commission airplanes, but most recently was used to house the offices and shop for the First Lieutenant. Shop activities include carpentry, electrical repair, flag making, engraving, and silk screening. Buildings 2816 and 2817 are reported to have been used for spray painting and temporary storage of hazardous materials, and it has been reported that solvents used in the maintenance of flight simulators were open-dumped in the area. Aboveground fuel oil storage tanks that were once located on the north side of Buildings 2816 and 2817 were removed in 1995.

2.0 CONTAMINATION DETECTED

Soil. No contaminant concentrations were found in surface or subsurface soil that exceeded regulatory criteria.

Groundwater. Groundwater analytical results indicated that PCE exceeded the Florida GCTL:

Contaminant of Concern	Regulatory Criteria (µg/L)	Range of Exceedances (µg/L)
Tetrachloroethene (PCE)	3	5.3 to 12

Samples collected from wells OLD-01-02 and OLD-03-04 in November 1994 contained aluminum concentrations that exceeded Federal Secondary Drinking Water Standards but were below background concentrations.

3.0 REMEDIAL ACTIONS

Monitoring Program. The site was approved for "monitoring only" in August 1997. Sampling of well OLD-03-04 was discontinued in December 1998 as PCE concentrations remained below the GCTL for two consecutive sampling events. The Navy, USEPA, and FDEP agreed that quarterly groundwater monitoring would continue for a period of one year, through March 1999 or until the results of two successive sampling events met regulatory standards. Wells OLD-03-02, OLD-03-03, and OLD-03-04 have been abandoned.

Well OLD-03-01 was dry during subsequent sampling attempts and a new, deeper well (OLD-03-05) was installed next to OLD-03-01 in July 1999. Both wells were sampled in October 1999 and the results show that the concentrations of PCE (2.2 µg/L in OLD-03-01 and 1.6 µg/L in OLD-03-05) were below the FDEP GCTL of 3 µg/L for the second consecutive sampling event. As a result, quarterly sampling was discontinued.

Institutional Controls. The following temporary groundwater use restrictions imposed at SA 3 are to protect human health and the environment by (1) preventing the exposure/consumption of groundwater that exceeds state and/or federal MCLs, and state groundwater cleanup target levels; and (2) maintaining the integrity of the monitoring process:

- The use of groundwater for all purposes was prohibited (including drinking and irrigation) in the surficial aquifer within 50-foot radii of well OLD-03-01 or the former location of OLD-03-04.

- The installation of new wells for any purpose other than groundwater and/or assessing groundwater quality was prohibited within the restriction boundary.

- The disturbance of the monitoring wells was prohibited.

- Access to the property will be provided to the Navy to continue remedial activities.

Since the PCE concentrations in groundwater have decreased to below the GCTLs, the temporary restrictions are being removed. The monitoring wells have been properly abandoned.

REFERENCES

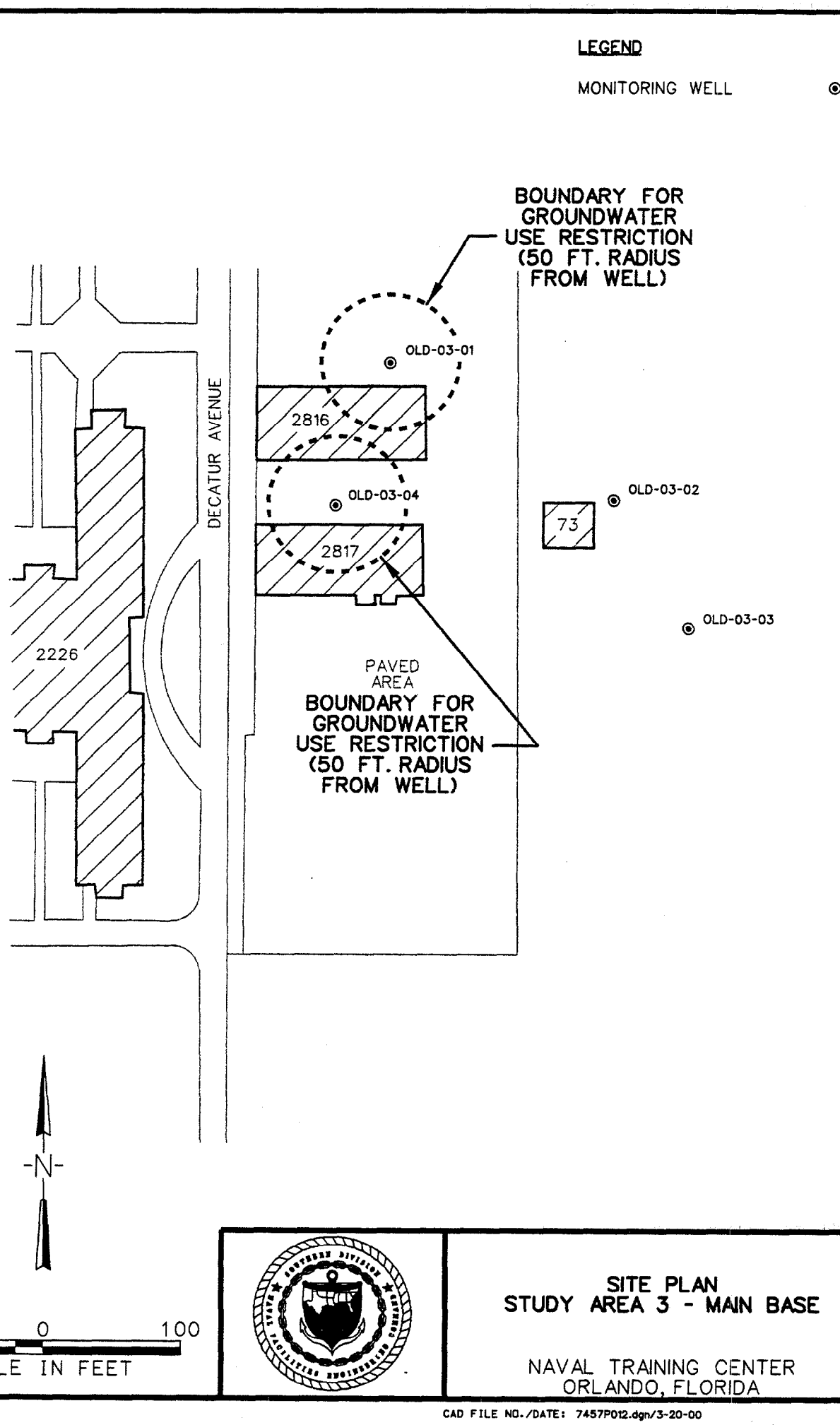
ABB-ES (ABB Environmental Services, Inc.), 1997. *Base Realignment and Closure Environmental Site Screening Report, Study Area 3, Naval Training Center, Orlando, Florida.* Unit Identification Code N65928, Navy CLEAN District 1, Contract No. N62467-89-D-0317/107, June.

ABB-ES, 1998. *Decision Document, Study Area 3, Naval Training Center, Orlando, Florida.* Unit Identification Code N65928, Navy CLEAN District 1, Contract No. N62467-89-D-0317/107, February.

Tetra Tech NUS, 2000. *Closure Report, Study Area 3, Naval Training Center, Orlando, Florida.* Contract No. N62467-94-D-0888/0024, April.

ATTACHMENT

Site Plan, Study Area 3 – Main Base



SITE PLAN
STUDY AREA 3 - MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

n8-5x11v.dgn

CAD FILE NO./DATE: 7457P012.dgn/3-20-00

STUDY AREA 27

Site Name: Security Building, Armory/Hurricane Storage Locker

Location:	Easting:	549526	Northing:	1539229
	Latitude:	81° 19′ 56.02915″	Longitude:	28° 34′ 03.48532″

Intended Reuse: Residential (City of Orlando Reuse Plan, dated 12/30/94)

1.0 SITE DESCRIPTION

SA 27 consists of the area surrounding Buildings 111, 2010, and 2073, and the retention pond north of Building 2073. Studies and a search of available records indicated the use and storage of chemicals in and around Buildings 2010 and 2073; in addition, these studies reported allegations of dumping of liquid residual wastes (paint residues and cleaning solutions) into the retention pond.

2.0 CONTAMINANTS DETECTED

Soil. During the site screening investigation, surface soil sampling showed concentrations of bis(2-ethylhexyl)phthalate (BEHP) and PAHs (HLA, 1998). The concentration ranges of contaminants exceeding regulatory criteria are shown below:

Contaminant of Concern	Regulatory Criteria* (mg/kg)	Range of Exceedances (mg/kg)
Arsenic	1	1.2
Benzo(a)anthracene	1.4	1.6 – 26
Benzo(a)pyrene	0.1	0.11 – 7.8
Benzo(b)fluoranthene	1.4	1.5 – 7.5
Dibenz(a,h)anthracene	0.1	0.22 – 1.7
bis(2-Ethylhexyl)phthalate	48	87
Indeno(1,2,3-cd)pyrene	1.4	3.4 – 3.9

* Florida Residental Soil Cleanup Goal (FDEP, 1995) except the criterion for arsenic which is the Background Screening Value.
** "J" qualifier indicates an estimated value.

Groundwater. Groundwater samples collected at SA 27 did not contain concentrations of analytes greater than screening criteria.

3.0 REMEDIAL ACTIONS

Soil. The OPT determined that a soil removal would be necessary to meet the regulatory criteria for residential soil. The soil removal and verification sampling were completed by the Navy's DET during April 1998. The excavated area was brought back to the original grade with clean soil. With the soil removal and backfilling with clean soil, SA 27 was deemed suitable for transfer with no further action and no restrictions.

REFERENCES

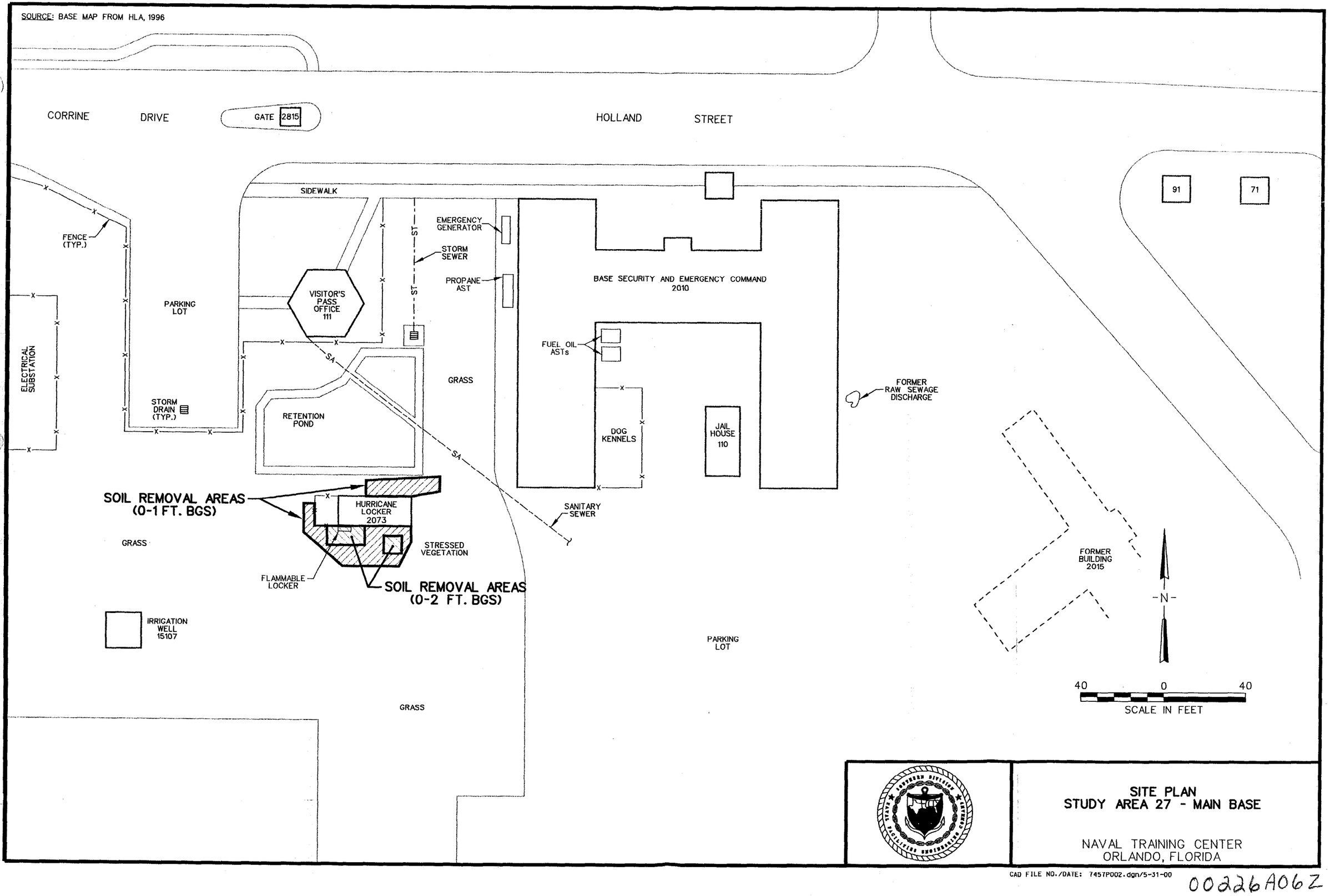
HLA (Harding Lawson Associates), 1998. *Base Realignment and Closure Environmental Site Screening Report, Study Area 27, Naval Training Center, Orlando, Florida.* Unit Identification Code N65928, Navy CLEAN District 1, Contract No. N62467-89-D-0317/107, June.

FDEP (Florida Department of Environmental Protection), 1995. *Soil Cleanup Goals for Florida.* Memorandum from John M. Ruddell, Division of Waste Management, Tallahassee, Florida, September 9.

ATTACHMENT

Site Plan, Study Area 27 – Main Base

SOURCE: BASE MAP FROM HLA, 1996



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SITE PLAN
STUDY AREA 27 - MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

CAD FILE NO./DATE: 7457P002.dgn/5-31-00

00226A06Z

STUDY AREA 33

Site Name: Command Headquarters Area

Location: Easting: 550150 Northing: 1538689
Latitude: 28°33'58.15580" Longitude: 81°19'49.01407"

Intended Reuse: Residential (City of Orlando Reuse Plan, dated 12/30/94)

1.0 SITE DESCRIPTION

Four large buildings on SA 33 (Buildings 2001, 2002, 2003, and 2004) were constructed in 1945 to house administrative offices of the Command Headquarters. Each of these buildings had a separate boiler room and air conditioner condenser. The boilers were initially coal fired, but were later converted to burn heating oil supplied from aboveground storage tanks. Coal fragments were still visible on the ground surface around the boiler rooms during the site screening investigation.

2.0 CONTAMINANTS DETECTED

Soil. Benzo(a)pyrene was detected in three surface soil samples at concentrations above the Florida Soil Cleanup Goal (FDEP, 1995). Each of the samples was collected in areas that receive surface water runoff from the boiler roooms associated with each building. This area of the base had been developed and urbanized since the base was established. Semivolatile compounds, including benzo(a)pyrene, are not uncommon in urban areas where petroleum products have been used. The concentration range of benzo(a)pyrene exceeding regulatory criteria is shown below (HLA, 1998):

Contaminant of Concern	Regulatory Criteria* (mg/kg)	Range of Exceedances** (mg/kg)
Benzo(a)pyrene	0.1	0.12 J – 0.32 J

* Florida Residental Soil Cleanup Goal (FDEP, 1995)
** "J" qualifier indicates an estimated value.

Groundwater. Groundwater samples collected at SA 33 did not contain concentrations of analytes greater than screening criteria.

3.0 REMEDIAL ACTIONS

Soil. The OPT determined that a soil removal would be necessary to meet the regulatory criteria for residential soil. The soil removal and verification sampling were completed by the NTC Orlando Public Works Department in early 1998. Surface soil was excavated to a depth of 6 to 8 inches in radii of approximately 5 feet around sample locations 33S00201, 33S00301, and 33S00501. Following the soil removal, samples were collected from the base of each excavation. These samples did not have any detectable chemicals above regulatory criteria, and SA 33 was deemed suitable for transfer with no further action or restrictions.

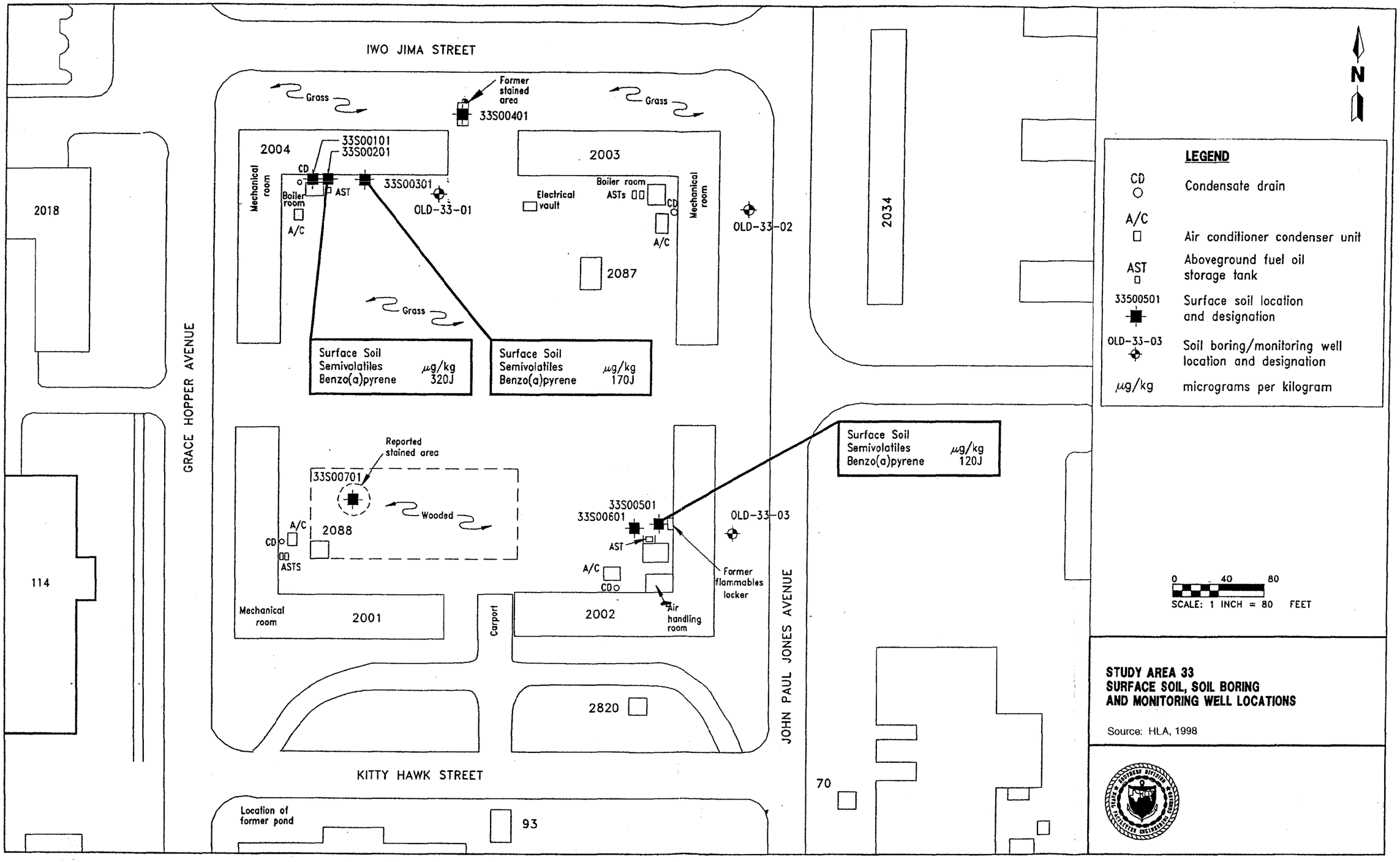
REFERENCES

FDEP (Florida Department of Environmental Protection), 1995. *Soil Cleanup Goals for Florida.* Memorandum from John M. Ruddell, Division of Waste Management, Tallahassee, Florida, September 9.

HLA (Harding Lawson Associates), 1998. *Base Realignment and Closure Environmental Site Screening Report, Study Area 33, Naval Training Center, Orlando, Florida.* Unit Identification Code N65928, Navy CLEAN District 1, Contract No. N62467-89-D-0317/107, May.

ATTACHMENT

Study Area 33, Surface Soil, Soil Boring and Monitoring Well Locations



STUDY AREA 33
SURFACE SOIL, SOIL BORING AND MONITORING WELL LOCATIONS

Source: HLA, 1998

00226A07Z

STUDY AREA 37

Site Name: Flammable Hazardous Waste Storage Area

Location: Easting: 552370 Northing: 1538513
Latitude: 28° 33′ 56.47315″ Longitude: 81° 19′ 24.11100″

Intended Reuse: Residential (City of Orlando Reuse Plan, dated 12/30/94)

1.0 SITE DESCRIPTION

SA 37 is in the eastern part of the Main Base (see attached site map). The contaminated area at SA 37 was associated with Building 2414, a former Flammable Hazardous Waste Storage area. The building once served as a storage area for a Bachelor Officers Quarters, but most recently was used for the storage of golf carts and spare towels. Paint and other chemicals were once stored in flammable materials storage lockers in a gravel-floored wooden shed attached to the north side of the building. The shed and lockers have been removed.

Initial site investigations conducted between June and November 1997 detected benzo(a)pyrene, arsenic, and several pesticides in surface soils and low concentrations of organics and inorganics in groundwater. The OPT authorized additional investigations to determine the area extent of contamination. Additional soil studies conducted in March 1998 led to an interim remedial soil removal action during April and May 1999. A supplemental groundwater investigation was conducted between July and September 1999, and there were no detections above screening values. The site was approved for closure with no further action or any restrictions in January 2000.

2.0 CONTAMINATION DETECTED AT THE SITE

Surface Soil. Benzo(a)pyrene, arsenic, and several pesticides were detected in surface soils during the site screening investigation (HLA, 2000). The concentration ranges of contaminants exceeding regulatory criteria are shown below:

Contaminant of Concern	Regulatory Criteria (mg/kg)	Range of Exceedances (mg/kg)
Aldrin	0.07	1.3
Arsenic	1.0	3.0
Benzo(a)pyrene	0.1	0.11
alpha-Chlordane	3.1	40
gamma-Chlordane	3.1	52
Heptachlor	0.2	4.4
Heptachlor Epoxide	0.1	2.9

Groundwater. Investigators installed two monitoring wells, OLD-37-01 and OLD-37-02, during the initial investigation. Samples from the wells contained low concentrations of organics and inorganics. One sample from well OLD-37-01 contained thallium at a concentration of 3.0 µg/L, exceeding the Florida GCTL of 0.8 µg/L. No thallium was detected in a duplicate sample from the same well and filtered samples from both wells, leading investigators to conclude that the thallium detected was in suspended sediment, not dissolved in the groundwater.

3.0 REMEDIAL ACTIONS

Soil Removal. The OPT decided that surface soil removal would be an appropriate interim remedial action to address the pesticide exceedances. The DET was contracted to perform the work and excavated 44 tons of soil from an area approximately 20 feet by 25 feet by 2 feet in depth and replaced it with Florida-certified clean fill. The excavation area includes an additional 5 feet removed from the eastern side of the excavation based on samples collected and analyzed during the removal. The analysis of confirmation soil samples collected from the sidewalls and bottom of the excavated area revealed no detections that exceeded Florida SCTLs.

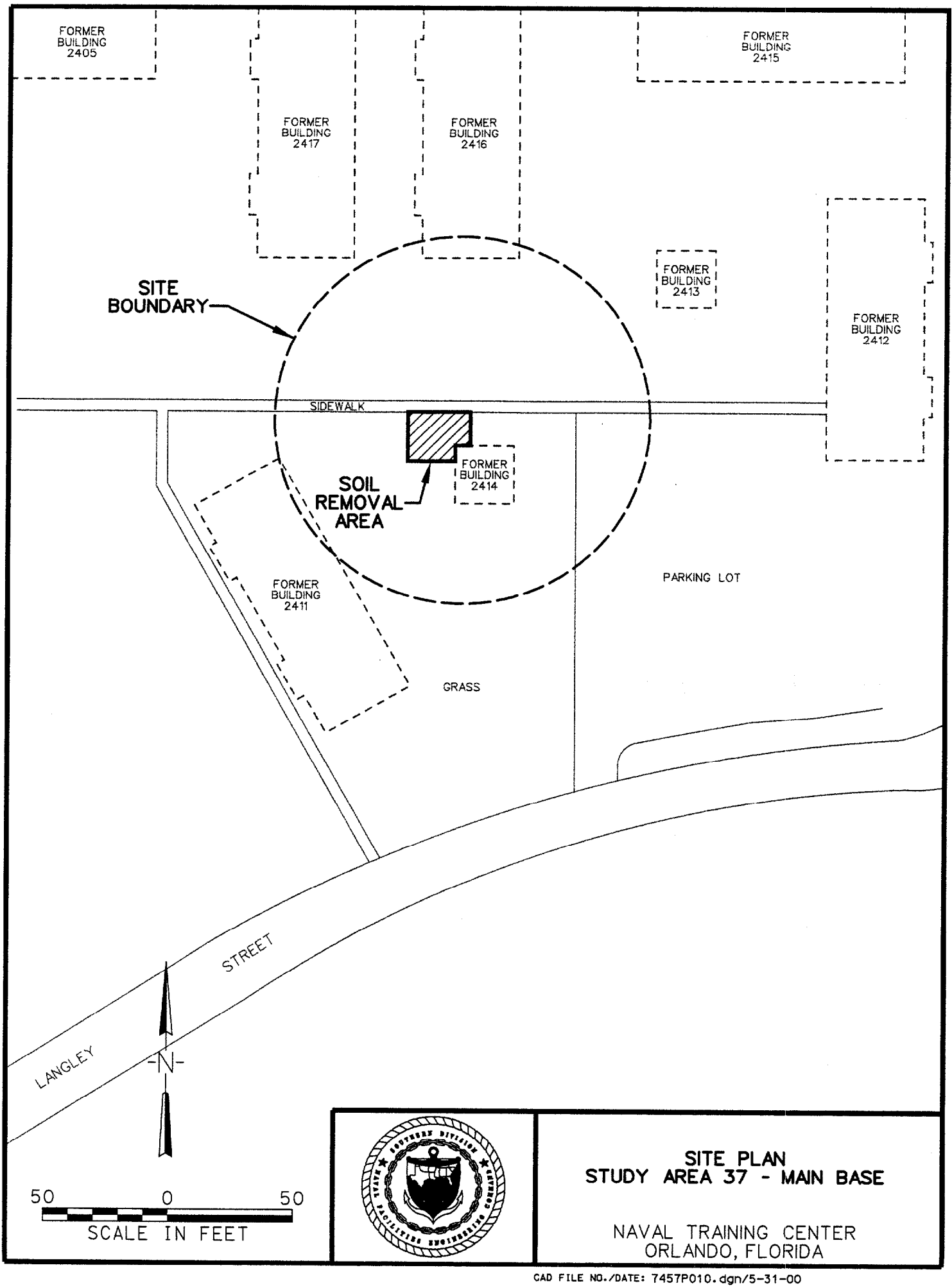
Investigators installed four microwells in and around the excavated area to determine if pesticides mobilized during the excavation had reached groundwater beneath the site (see attached site map). The pesticide alpha-BHC and arsenic were detected in groundwater samples, but none of the detections exceeded Florida GCTLs. All of the monitoring wells at this site have been properly abandoned.

REFERENCES

HLA (Harding Lawson Associates), 2000. *Base Realignment and Closure Environmental Site Screening Report, Study Area 37, Naval Training Center, Orlando, Florida.* Unit Identification Code N65928, Contract No. N62467-89-D-0317/107, January.

ATTACHMENT

Site Plan, Study Area 37 – Main Base



SITE PLAN
STUDY AREA 37 - MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

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CAD FILE NO./DATE: 7457P010.dgn/5-31-00

STUDY AREA 42

Site Name: Hazardous Waste Storage Area

Location: Easting: 551219 Northing: 1538541
Latitude: 28° 33′ 56.71946″ Longitude: 81° 19′ 37.02049″

Intended Reuse: Residential (City of Orlando Reuse Plan, dated 12/30/94)

1.0 SITE DESCRIPTION

SA 42 is in the central part of the Main Base, east of Leahy Avenue and south of Iwo Jima Street (see attached site plan). Buildings 2055 and 2056 were built in 1943 and connected by an addition built in 1969. The connected buildings were then formally identified as Building 2055. Drawings of the buildings indicated that both contained laboratories.

The buildings at SA 42 served as classrooms until portions of Building 2055 were converted to shops that serviced vending and air conditioning equipment. The eastern portion of Building 2055 was used for vending machine maintenance. The western portion housed the NTC, Orlando, air conditioning maintenance contractor mechanical shops, administrative offices, and storage rooms.

The OPT initiated investigations at SA 42 due to concerns about potential contamination near former flammable materials storage lockers at the northwest and southeast corners of the building, a stained air conditioner pad at the east end of the building, and concrete sumps on the north side of the building. Laboratory sinks may have been connected to the sumps on the north side of the building.

Benzo(a)pyrene and arsenic were detected in surface soil above regulatory criteria. A soil removal was performed in April 1999, and the OPT approved the site in November 1999 for closure with no further action or restrictions.

2.0 CONTAMINATION DETECTED

Surface Soil. An initial investigation conducted in June 1997 included the collection and analysis of three surface soil samples, one each from points near the former flammable materials storage lockers and one

from a point near the stained air conditioner pad. The following table shows the principal contaminants of concern, their corresponding regulatory criteria, and the ranges of exceedances.

Contaminant of Concern	Regulatory Criteria* (mg/kg)	Range of Exceedances (mg/kg)
Arsenic	1.0	1.2 to 1.5
Benzo(a)pyrene	0.1	0.1 to 0.3

*Florida Soil Cleanup Target Level

Additional site screening conducted included the collection and analysis of seven additional surface soil samples from grassy areas surrounding Building 2055. Benzo(a)pyrene, a PAH, was detected at a concentration equal to the Florida SCTL in a sample collected near Leahy Avenue. This detection was attributed to vehicle traffic, not site-related waste handling activities.

Subsurface Soil. Six subsurface soil samples were collected at four sampling locations during the initial investigation. The sample depths ranged from 3.5 to 6 feet. None of the observed concentrations exceeded screening criteria, so investigators concluded that soil contamination was confined to surface soils.

Groundwater. Investigators installed three monitoring wells during the initial investigation. Samples from the wells contained volatile organic compounds, semivolatile organic compounds, pesticides, and metals, but no concentrations exceeded Florida GCTLs. All of the wells at this site have been properly abandoned.

3.0 REMEDIAL ACTIONS

Soil Removal. Results of the investigations indicated that contaminant concentrations exceeding regulatory criteria were confined to surface soils near the westernmost former flammable materials storage locker and the air conditioner pad. The OPT authorized the DET to excavate a 10 foot by 12 foot by 1 foot deep area near the westernmost storage area and a 10 foot by 10 foot by 1 foot deep area near the air conditioner pad (see the attached map). No observed PAH concentrations in samples collected around the excavated areas exceeded the Florida SCTLs. The DET disposed of the contaminated soil and returned the excavated areas to grade with Florida-certified clean fill.

REFERENCES

HLA (Harding Lawson Associates), 1999. *Base Realignment and Closure Environmental Site Screening Report, Study Area 37, Naval Training Center, Orlando, Florida.* Unit Identification Code N65928, Contract No. N62467-89-D-0317/107, November.

ATTACHMENT

Site Plan, Study Area 42 – Main Base

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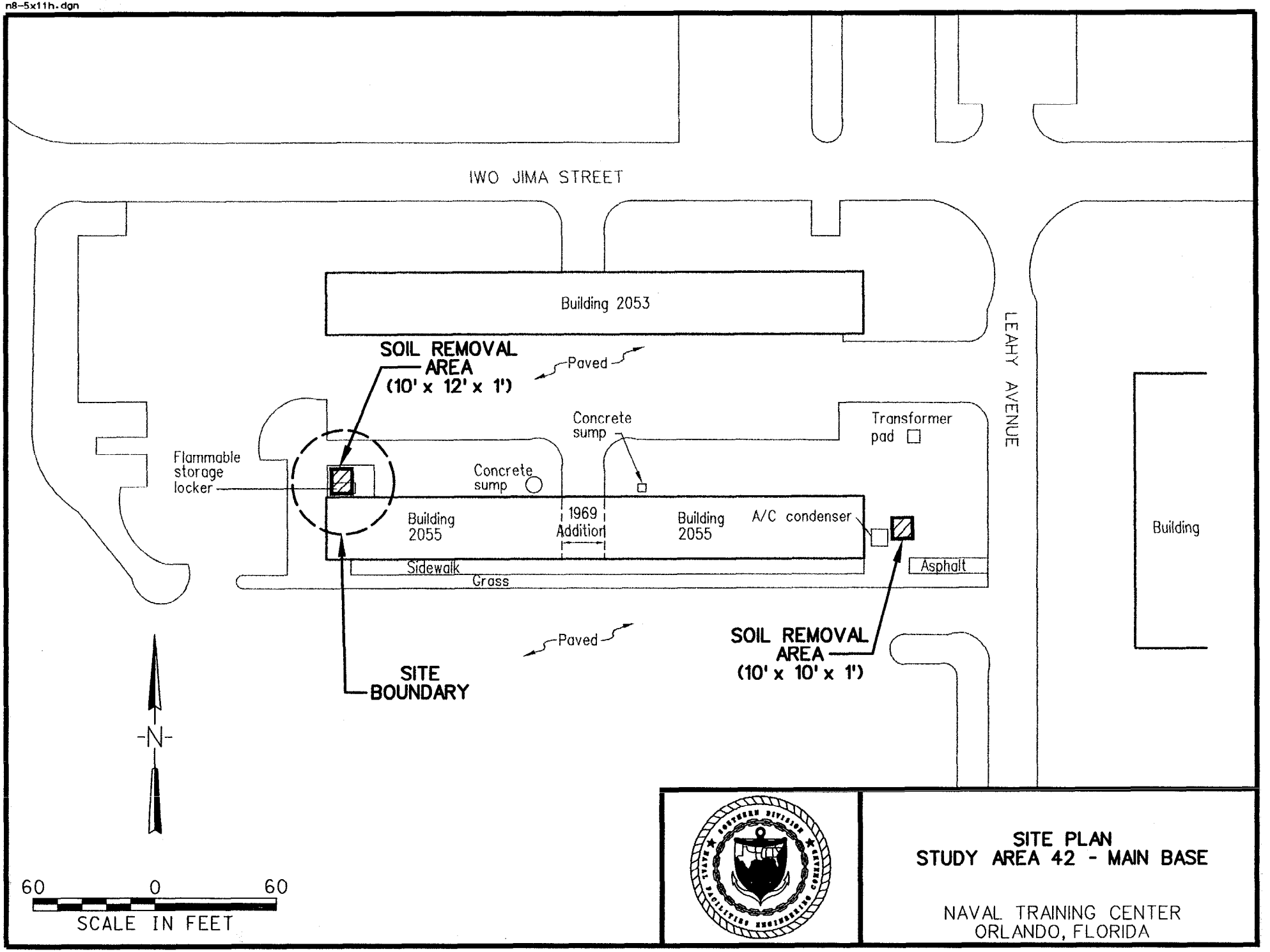

SITE PLAN
STUDY AREA 42 - MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

NO ACTION SITES*
MAIN BASE, NAVAL TRAINING CENTER, ORLANDO

* Study areas that were investigated but required no remedial actions or restrictions.

Site	Building Numbers	Name	Reason for Investigation	Investigation Results
1	3126	Hospital Civilian BEQ	40 square-foot stain on ground outside mechanical room.	No significant detections in soil or groundwater. One groundwater sample had a lead level of 17.1 µg/L vs. a FL MCL of 15 µg/L. The monitoring well was resampled 6/7/95 and no lead was detected. There was no evidence of landfilling operations. Property was approved for no further action (NFA) by OPT 7/24/96.
	UNF-12	Alleged Hospital Landfill	Used as a landfill in the late 1970s, contents unknown.	
4	250/8	Rusk Memorial Chapel and covered walkways	PCB spill of unknown quantity in the mid 1980s.	No significant detections in soil. No groundwater samples taken. Property was approved for NFA by OPT 7/24/96.
	251	Rusk Memorial Chapel Annex	PCB spill at adjoining property (Bldg. 250) of unknown quantity.	
5	UNF-13	Septic Tank/Leachfield	Unknown environmental impacts from a previously existing motorboat rental/maintenance facility and septic tank.	No significant detections in soil or groundwater. Geophysical surveys showed some buried pipes/metal objects. Property was approved for NFA by OPT 7/24/96.
6		Lake Baldwin	Likelihood of contamination from stormwater runoff from golf course, photo lab, lead from former skeet range, drainage from firefighter training facility and motorboat maintenance facility, and alleged drum disposal in lake	Surface water had no significant detections. Sediments had elevated levels of lead and 4,4'-DDE, though below the FL probable effects level (PEL). One sample had elevated PAHs. Divers have investigated seven magnetic anomalies and observed various ferrous debris, but no items of environmental significance. Property was approved for NFA by OPT 7/96.
7		Lake Susannah	Receives stormwater runoff from other suspect areas and alleged drum disposal in lake	Surface water had no significant detections. Sediments had elevated metals and PAHs, but below FL PELs. OPT approved for NFA 7/96.
10	IAS-4	Former Yard Waste Disposal Area	Contents of disposal area unknown	No significant detections in soil or groundwater. Property was approved for NFA by OPT 7/24/96.
28	114	Bowling/Arts & Crafts Center	Drip drying of silk screen operation may have impacted soil and/or groundwater	Fieldwork completed 8/97 and data evaluation completed 12/97. OPT approved for NFA 1/98.
30	129	Automotive Hobby Shop	Waste oil storage and antifreeze/water separator	Fieldwork began 6/97 and included a geophysical survey (EM-61 and magnetometer) and a soil gas survey. Groundwater sampled 10/97. Resampling of two wells with chromium/nickel exceedances resulted in values well below action levels. Property was approved for NFA by OPT 7/1/98.
	131	Paint Shop Materials Storage	Diesel fuel staining and stressed vegetation under an AST	
	2262	Custodial Contractor	Past use as a pest control facility	

Site	Building Numbers	Name	Reason for Investigation	Investigation Results
31	354	Nuclear Power Field "A" School	Impacts from UST and the oil/water separator	Fieldwork began 6/97. OPT approved for NFA 12/97.
32	358	BEQ/Heating Plant	Alleged dumping of paints, thinners, and petroleum products when this area was a motor pool	Fieldwork began 6/97 and included a soil gas survey. Groundwater sampled 10/97. OPT approved for NFA 3/19/98.
34	2024	NTC Supply	Unused supply well onsite	Appropriate well abandonment recommended for the former A/C supply well. St. John's River Water Management District removed the pump, logged and grouted the well. OPT approved NFA on 3/19/98.
38	4001	Storage and use of pesticides and herbicides	Extensive oil and fuel staining to the floor.	Fieldwork completed in 8/97. OPT approved for NFA 12/97.
41	UNF-8	Open Area	Previous existence of buildings and storage tanks warrant further investigation.	Former USTs/ASTs will be evaluated in the Tank Management Plan. Site screening evaluated potential PCB releases at former transformer sites. Fieldwork completed in 8/97. OPT approved for NFA 12/97.
43		North Grinder Landfill skeet range	Potential lead contamination.	Six surface soil samples (and one duplicate) collected and submitted for lead analysis 12/95. No exceedances were noted.
	229	Indoor rifle and pistol range	Potential lead contamination. (See also Herndon Annex, Building 601.)	18 surface soil samples (and 2 duplicates) submitted for lead analysis 12/95. One sample slightly exceeded screening criteria. TCLP analysis for lead at the location of the highest lead concentration was below the RCRA regulatory limit. This site was approved for NFA on 12/10/96.
44		Former motor pool and Missile Training Range	Possible PCE plume (Missile Training Range) and BTEX contamination (former motor pool).	Site screening studies completed 11/95. Field screening indicates localized BTEX and possible PCE/TCE contamination, but neither confirmed by monitoring wells. Six piezometers installed to evaluate groundwater flow anomaly. OPT approved for NFA 7/97.
	2721	Silk screening facility	Alleged disposal area for solvents and paints when silk screening operation closed.	Site screening studies completed 11/95. Geophysical anomalies were investigated with two monitoring wells. Groundwater has no exceedances, but HLA recommended a limited test pitting program to determine source of geophysical anomalies. Test pitting completed 9/96 uncovered the buried foundations of Bldgs 2721 and 2722. Site approved for NFA.
45	125	Alleged disposal area near Bldg. 125	Alleged landfill with unknown contents.	Field screening completed 3/96. The analytical results indicate no environmental concerns. Site was reviewed for exceedances of Florida secondary drinking water standards in groundwater and approved for NFA 6/19/97.

4.0 TANK SITES

This section contains information on the status of the aboveground and underground tanks at the Main Base. This information is provided as (1) a summary of the activities and status for active tank sites, and (2) a comprehensive list of all the tanks installed at the Main Base.

Summary of Active Tank Sites. At each of the active tank sites where environmental investigation or remediation are under way, the recent activities are summarized and schedule dates are provided. For example, the highlights of sampling and analytical results, and the dates and volumes of contaminated soil removals are presented in the site summaries.

Comprehensive List of Tanks. All of the tanks known to have been installed at the Main Base are included in this list. For each tank, the following information is provided:

- The number and name of the building the tank was installed.
- The dates (year) that the tank was installed, removed, and assessed (investigated).
- The tank capacity.
- A brief history of the environmental activities for the tank.

Both the Summary and the Comprehensive List will be updated as the environmental investigation and remediation activities progress at the active tank sites, thereby changing the status of those sites. The revision dates in the upper right corner will be updated and the changes in the documents will be identified in bold italics.

ACTIVE TANK SITES
MAIN BASE, NAVAL TRAINING CENTER, ORLANDO, FLORIDA

The status of tank sites at the Main Base that are currently undergoing assessment and/or remediation is summarized below.

Bldg 128. AST 128B was removed by the DET the week of 2/14/99. UST 128 was removed by the DET the week of 2/21/99. A temporary monitoring well was installed and sampled on 4/14/99. A Tank Closure Assessment Report (TCAR) was prepared and submitted to the FDEP on 6/15/99. The FDEP issued a response on 7/7/99 indicating that additional assessment was required. A draft-final Site Assessment Plan (SAP) was prepared and submitted to the Navy on 10/25/99. The Navy issued approval of the draft-final SAP on 11/19/99. The final SAP was submitted to the Navy on 12/19/99. Site Assessment field activities began on 1/5/00. The DPT investigation was performed 1/12/00 through 1/13/00. Preliminary data are currently being tabulated and plotted for submittal to the Navy and FDEP for review. Soil removal was performed by EEG (formerly the Detachment) during the week of 2/28/00. Source Removal Reports are in preparation. Anticipate submittal in late May 2000.

Bldg 200. The Monitoring Only Plan (MOP) Approval Order was issued by FDEP on 7/6/99. Tetra Tech NUS will perform future monitoring at this site (the Statement of Work for the monitoring is to be issued). Tetra Tech NUS submitted the Plan of Action (POA) to add MOP sampling to CTO-50. Currently awaiting notice to proceed.

Bldg 369. FDEP issued a letter on 10/20/98, requesting additional soil sampling. Soil samples were collected on 12/10/98. Laboratory analytical results for soil sample SS-1, collected at 4 to 6 feet below land surface reported TRPH of 660 mg/kg. This concentration is above the residential SCTL of 350 mg/kg, but is below the industrial SCTL. On 2/17/99, HLA submitted a Site Assessment Report (SAR) addendum to FDEP requesting NFA for the site. FDEP responded that the site would need either (1) soil removal and backfill, (2) deed restrictions to prevent exposure of residents to subsurface soil, (3) change property use to nonresidential, or (4) quantify TRPH as to equivalent carbon number in accordance with "Technical Basis for the TRPH SCTLs" (4/21/99 handout to OPT by David Grabka). Per discussions at the May OPT meeting, Southern Division has decided to remove the contaminated soil. Contaminated soil volume estimates were sent to the Navy on 7/20/99. An estimated 130 yd^3 (180 tons) of soil will need to be removed. Monitoring well MW-1 was abandoned on 2/21/00 in preparation of the site for soil removal, which was completed the week of 2/21/00. Source Removal Reports are in preparation. Anticipate submittal in late May 2000.

Bldg 2036. The first quarter MOP report was submitted to FDEP on 10/2/98. Sampling for the second quarter MOP was conducted on 11/25/98. The second quarter MOP report was submitted to FDEP on 1/8/99 and has been approved. Sampling for the third quarter was conducted on 2/19/99. During the sampling event, free-floating product was discovered in monitoring well MW-1. The third quarter MOP report was submitted to FDEP on 03/31/99. HLA requested that the MOP be discontinued and that another remedial strategy be implemented (HLA recommends dig and haul as overdevelopment has been conducted over last 2-3 years). Per discussions at the May 1999 OPT meeting, Southern Division decided to remove the contaminated soil. Contaminated soil volume estimates were sent to the Navy on 7/20/99. An estimated 210 yd^3 (300 tons) of soil will need to be removed. Monitoring well MW-1 was abandoned on 2/21/00 in preparation of site for soil removal, which was performed the week of 2/28/00. Source Removal Reports are in preparation. Anticipate submittal in late May 2000.

Bldg 2080. USTs 2080-5, 2080-6 and 2080-7 were removed by the DET the week of 2/14/99. A temporary well was installed and sampled on 4/14/99. A TCAR was prepared and submitted to the FDEP on 6/15/99. The FDEP issued a response on 7/7/99 indicating that additional assessment was required. DPT investigation performed 1/14/00 through 1/15/00. Preliminary data currently being tabulated and plotted for submittal to the Navy and FDEP for review. Soil removal was performed the week of 2/21/00. Source Removal Reports are in preparation. Anticipate submittal in late May 2000.

Bldg. 2115. UST 2115 was removed by the DET the week of 2/21/99. A temporary monitoring well was installed and sampled on 4/14/99. A TCAR was prepared and submitted to the FDEP on 6/15/99. The FDEP issued a response on 7/7/99 indicating that additional assessment was required. A draft-final SAP was prepared and submitted to the Navy on 10/25/99. The Navy issued approval of the draft-final SAP on 11/19/99. The final SAP was submitted to the Navy on 12/19/99. Site Assessment field activities began on 1/5/00. DPT investigation was performed 1/16/00 through 1/17/00. Preliminary data are currently being tabulated and plotted for submittal to the Navy and FDEP for review. Soil removal was performed the week of 2/28/00. Source Removal Reports are in preparation. Anticipate submittal in late May 2000.

Bldg. 2273. Analytical results from sampling performed by ABB-ES in 1996-97 detected BTEX exceedances. Tetra Tech NUS replaced the monitoring wells destroyed by the City of Orlando's contractors and performed a round of sampling in September 1999. A downgradient deep well was installed by Tetra Tech NUS in April 2000. The preliminary, unvalidated results show an exceedance of 1.2 ppb benzene.

Bldg. 2426. The SAR was completed on 5/29/98. FDEP approved recommendations for the excavation of petroleum-impacted soil and free-product removal on 7/7/98. The petroleum-impacted soil was

removed by the DET during the week of 2/22/99. HLA installed a temporary well and sampled it the week of 4/19/99. A Source Removal Report was submitted to FDEP on 6/1/99. FDEP requested additional assessment in a letter dated 7/19/99, although the source had been removed and lab results from the groundwater sample from the former source area were clean. HLA conducted further soil assessment using HLA's Geoprobe to complete assessment at the edges of the excavated area. A source removal report addendum was submitted to FDEP on 12/2/99 with NFA recommendations for the site. The Navy is awaiting a decision from the State on this site.

Bldg. 2510. UST 2510 was removed by the DET the week of 2/21/99. A TCAR was prepared and submitted to the FDEP on 6/15/99. The FDEP issued a response on 7/8/99 indicating that additional assessment was required. A draft-final SAP was prepared and submitted to the Navy on 10/25/99. The Navy issued approval of the draft-final SAP on 11/19/99. The final SAP was submitted to the Navy on 12/19/99. Site Assessment field activities began on 1/5/00. DPT investigation was performed 1/18/00 through 1/19/00. Preliminary data are currently being tabulated and plotted for submittal to the Navy and FDEP for review. Soil removal was performed the week of 2/21/00. Source Removal Reports are in preparation. Anticipate submittal in late May 2000.

COMPREHENSIVE LIST OF TANKS
MAIN BASE, NAVAL TRAINING CENTER, ORLANDO, FLORIDA

Bldg. No.	Tank No.	Building Name	Year Installed	Year Removed	Year to Assess	Capacity	Tank Type	History
109	109R1	SERVICE STATION	94	STAY	96	20000	UST	1998 REMOVAL, May remain in service after base closure. NFA on original tank:
109	109R2	SERVICE STATION	94	STAY	96	20000	UST	1998 REMOVAL, May remain in service after base closure. NFA on original tank:
109	109R3	SERVICE STATION	94	STAY	96	20000	UST	1998 REMOVAL, May remain in service after base closure. NFA on original tank:
109	109-1	SERVICE STATION	73	94	96	20000	UST	CA COMPLETED 9/3/96, CAR COMPLETED 10/4/96 NFA APPROVED BY FDEP 11/25/96
109	109-2	SERVICE STATION	73	94	96	20000	UST	CA COMPLETED 9/3/96, CAR COMPLETED 10/4/96, NFA APPROVED BY FDEP 11/25/96
109	109-3	SERVICE STATION	73	94	96	20000	UST	CA COMPLETED 9/3/96, CAR COMPLETED 10/4/96, NFA APPROVED BY FDEP 11/25/96
109	109-4	SERVICE STATION	74	96	97	280	UST	REMOVED BY PWC, CLEAN CLOSURE 4/11/97
109	109R4	SERVICE STATION	96	99	99	1000	AST	USED OIL AST. NFA on original UST. TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/25/99. TCAR submitted to FDEP 6/15/99. FDEP requested additional information 7/8/99. Additional information submitted. TCAR and clean closure approvd by FDEP on 9/9/99
128	128A	DENTAL CLINIC	77	97	97	250	UST	UST REMOVED BY DET ON 4/18/98, FDEP APPROVED CLEAN CLOSURE 7/6/9
128	128B	DENTAL/CLINIC	96	99	99	250	AST	REPLACEMENT FOR UST, TANK INSTALLED 11/18/96, ALSO KNOWN AS 4053. TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/20/99. A TEMPORARY MW WAS INSTALLED AND SAMPLED ON 4/15/99. TCAR submitted to FDEP 6/15/99. FDEP requested additional information 7/8/99. Additional information submitted. TCAR and clean closure approved by FDEP on 9/9/9
137	137-1	GROUNDS MAINTENANCE	93	97	98	500	AST	CONTRACTOR REMOVED, NEEDS TO BE ASSESSED
137	137-2	GROUNDS MAINTENANCE	93	98	98	500	AST	CONTRACTOR REMOVED, NEEDS TO BE ASSESSED
200	200A	FORMER FIREFIGHTING TRAINING SCHOOL	70	95	96	500	UST	REMOVED 1995, CAR COMPLETED 6/13/97 LETTER TO FDEP REQUESTING MOP/NFAP. SARA SUBMITTED TO FDEP ON 8/10/98. FDEP REQUESTED ADDITIONAL SAMPLING ON 8/24/98. MONITORING WELLS SAMPLED 10/16/98. A SARA REQUESTING AN MOP WAS SUBMITTED TO FDEP ON 1/8/99. FDEP ISSUED COMMENTS ON MOP ON 2/6/99. MOP ADDENDUM SUBMITTED ON 4/14/99. MOP approved by FDEP 7/6/99. TtNUS will perform all future monitoring at this sit
200	200B	FORMER FIREFIGHTING TRAINING SCHOOL	95	99	99	1000	AST	REPLACED 200A UST. TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/24/99. TCAR submitted to FDEP 6/15/99. FDEP requested additional information 7/8/99. Additional information submitted. TCAR and clean closure approved by FDEP on 9/9/99.
208	208	BLUE JACKET	69	96	97	1000	UST	REMOVED BY PWC, CLEAN CLOSURE 4/11/97
502	502-A	HOSPITAL PLANT	81	STAY	N/A	30000	UST	TRANSFERED TO V.A., IN COMPLIANCE
502	502-B	HOSPITAL PLANT	81	STAY	N/A	30000	UST	TRANSFERED TO V.A., IN COMPLIANCE
2001	2001-1	ADMIN/NTC BTO	59	98	98	550	AST	BLDG CLOSED 9/30/97, AST REMOVED 4/8/98 BY DET, FDEP APPROVED CLEAN CLOSURE 7/6/98.
2001	2001-2	ADMIN/NTC BTO	59	98	98	550	AST	BLDG CLOSED 9/30/97, AST REMOVED BY DET 4/8/98, FDEP APPROVED CLEAN CLOSURE ON 7/6/98.
2008	2008	SECURITY	43	REM	NA	1000	UST	NO TANKS FOUND, FUEL IS PROVIDED FROM BLDG 2011, LETTER TO FDEP 10/14/97 REQUESTED NFA
2011	2011	LEGAL TAP/RAP	43	99	99	300	AST	TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/18/99. TCAR submitted to FDEP 6/15/99. FDEP requested additional information 7/8/99. Additional information submitted. TCAR and clean closure approved by FDEP on 9/9/99.
2033	2033-1	SERVICE STATION	?	83	97	10000	UST	REMOVED WHEN BLDG DEMOLISHED, CLEAN CLOSURE 8/7/96
2033	2033-2	SERVICE STATION	?	83	97	10000	UST	REMOVED WHEN BLDG DEMOLISHED, CLEAN CLOSURE 8/7/96
2033	2033-3	SERVICE STATION	?	83	97	10000	UST	REMOVED WHEN BLDG DEMOLISHED, CLEAN CLOSURE 8/7/96
2036	2036A	OLD NAVY CAMPUS	43	95	95	600	AST	CA COMPLETED 1/30/98, CAR 3/18/96, REQUEST FOR MOP 4/15/98, FDEP APPROVED MOP ON 4/22/98. 1 ST QURT. MOP REPORT SUBMITTED 10/2/98. 2ND QURT. MOP REPORT SUBMITTED ON 1/8/99. 3rd QTR SAMPLING PERFORMED 2/19/99. 3rd QTR MOP REPORT SUBMITTED 3/31/99. HLA requested that the MOP be discontinued and that another remedial strategy be implemented. HLA recommends dig and haul as overdevelopment has been conducted over the last 2-3 years. Per discussions at the May OPT meeting, Southern Division decided to remove the contaminated soil. Contaminate soil volume estimates wre sent to the Navy on 7/20/99. An estimated 210 cu. yds. (300 tons) of contaminated soil will need to be removed.
2036	2036B	OLD NAVY CAMPUS	51	95	95	600	UST	CLEAN CLOSURE 3/12/96
2040	2040-1	NAVY RECRUITING	61	95	96	650	AST	CA COMPLETED 9/3/96, CAR COMPLETED 12/6/96, SOIL SAMPLED ON 11/5/98, A SARA WAS SUBMITTED REQUESTING AN NFA ON 1/8/99. FDEP REQUESTED SAMPLING OF TW-01 AND MW-01. SAMPLING CONDUCTED ON 3/9/99. The No Further Action proposal was approved by the FDEP on 6/14/9
2040	2040-2	NAVY RECRUITING	61	95	96	650	AST	CA COMPLETED 9/3/96, CAR COMPLETED 12/6/96, SOIL SAMPLED ON 11/5/98, A SARA WAS SUBMITTED REQUESTING AN NFA ON 1/8/99. FDEP REQUESTED SAMPLING OF TW-01 AND MW-01. SAMPLING CONDUCTED ON 3/9/99. The No Further Action proposal was approved by the FDEP on 6/14/9
2040	2040-3	NAVY RECRUITING	43	95	96	1400	UST	CA COMPLETED 9/3/96, CAR COMPLETED 12/6/96, SOIL SAMPLED ON 11/5/98, A SARA WAS SUBMITTED REQUESTING AN NFA ON 1/8/99. FDEP REQUESTED SAMPLING OF TW-01 AND MW-01. SAMPLING CONDUCTED ON 3/9/99. The No Further Action proposal was approved by the FDEP on 6/14/9
2041	2041	BLDG DEMOLISHED	43	REM	N/A	1400	UST	BUILDING DEMOLISHED (SEE NOTE 1)
2059	2059	NTSC	43	REM	95	500	AST	TANK REMOVED, BLDG DEMOLISHED (SEE NOTE 1)
2065	2065-1	NTSC	43	REM	N/A	2500	UST	TANK REMOVED, BLDG DEMOLISHED, NO ASSESSMENT REQUIRED
2065	2065-2	NTSC	78	REM	N/A	650	AST	TANK REMOVED, BLDG DEMOLISHED, NO ASSESSMENT REQUIRED
2065	2065-3	NTSC	78	REM	N/A	650	AST	TANK REMOVED, BLDG DEMOLISHED, NO ASSESSMENT REQUIRED
2078	2078-1	VEHICLE MAINTENANCE	63	98	98	600	AST	BLDG CLOSED 9/30/97, AST REMOVED BY DET, FDEP APPROVED CLEAN CLOSURE 7/6/98.
2078	2078-3	VEHICLE MAINTENANCE	63	98	98	200	AST	BLDG CLOSED 9/30/97, AST REMOVED BY DET, FDEP APPROVED CLEAN CLOSURE ON 7/6/98.
2078	2078-2	VEHICLE MAINTENANCE	63	98	98	500	UST	1998 REMOVAL, BLDG CLOSED 9/30/97

COMPREHENSIVE LIST OF TANKS
MAIN BASE, NAVAL TRAINING CENTER, ORLANDO, FLORIDA

Bldg. No.	Tank No.	Building Name	Year Installed	Year Removed	Year to Assess	Capacity	Tank Type	History
2080	2080-5	NTC SUPPLY GAS STATION	88	99	99	10000	UST	TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/19/99. A TEMPORARY MW WAS INSTALLED AND SAMPLED ON 4/14/99. TCAR submitted to FDEP 6/15/99. The FDEP issued a response on 7/7/99 indicating that additional assessment was required. A draft-final Site Assessment Plan (SAP) was prepared and submitted to the Navy on 10/25/99. The Navy issued approval of the draft-final SAP on 11/19/99. The final SAP is in preparation. Site Assessment field activities are tentatively scheduled to begin on 1/3/00
2080	2080-6	NTC SUPPLY GAS STATION	88	99	99	10000	UST	TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/19/99. A TEMPORARY MW WAS INSTALLED AND SAMPLED ON 4/14/99. TCAR submitted to FDEP 6/15/99. The FDEP issued a response on 7/7/99 indicating that additional assessment was required. A draft-final Site Assessment Plan (SAP) was prepared and submitted to the Navy on 10/25/99. The Navy issued approval of the draft-final SAP on 11/19/99. The final SAP is in preparation. Site Assessment field activities are tentatively scheduled to begin on 1/3/00
2080	2080-7	NTC SUPPLY GAS STATION	88	99	99	10000	UST	TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/19/99. A TEMPORARY MW WAS INSTALLED AND SAMPLED ON 4/14/99. TCAR submitted to FDEP 6/15/99. The FDEP issued a response on 7/7/99 indicating that additional assessment was required. A draft-final Site Assessment Plan (SAP) was prepared and submitted to the Navy on 10/25/99. The Navy issued approval of the draft-final SAP on 11/19/99. The final SAP is in preparation. Site Assessment field activities are tentatively scheduled to begin on 1/3/00
2080	2080A	NTC SUPPLY GAS STATION	72	88	98	1000	UST	REPLACED IN 1988, FDEP Approved Clean Closure 6/2/92
2080	2080B	NTC SUPPLY GAS STATION	72	88	98	7000	UST	REPLACED IN 1988, FDEP Approved Clean Closure 6/2/92
2080	2080C	NTC SUPPLY GAS STATION	72	88	98	10000	UST	REPLACED IN 1988, FDEP Approved Clean Closure 6/2/92
2080	2080D	NTC SUPPLY GAS STATION	72	88	98	10000	UST	REPLACED IN 1988, FDEP Approved Clean Closure 6/2/92
2091	2091-1	SAILOR'S CHAPEL	61	99	99	1000	AST	BLDG CLOSES 1/31/99. TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/20/99. TCAR submitted to FDEP 6/15/99. FDEP requested additional information 7/8/99. Additional information submitted. TCAR and clean closure approved by FDEP on 9/9/99.
2091	2091-2	SAILOR'S CHAPEL	61	99	99	550	AST	BLDG CLOSES 1/31/99. TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/20/99. TCAR submitted to FDEP 6/15/99. FDEP requested additional information 7/8/99. Additional information submitted. TCAR and clean closure approved by FDEP on 9/9/99.
2091	2091-3	SAILOR'S CHAPEL	61	99	99	550	AST	BLDG CLOSES 1/31/99
2093	2093-1	BEQ	58	95	95	2500	UST	BLDG DEMOLISHED, CLEAN CLOSURE 5/7/96
2093	2093-2	BEQ	75	REM	95	550	AST	BLDG DEMOLISHED, CLEAN CLOSURE 5/7/96
2093	2093-3	BEQ	75	REM	95	550	AST	BLDG DEMOLISHED, CLEAN CLOSURE 3/12/96
2095	2095-1	OLD CAACNADSAP	55	95	95	500	AST	CLEAN CLOSURE 1/2/96
2095	2095-2	OLD CAACNADSAP	55	95	95	500	AST	CLEAN CLOSURE 1/2/96
2110	2110-1	FORMER GAS STATION	61	86	93	5,000	UST	TANK REMOVED BLDG DEMOLISHED MCDONALDS SITE (SEE NOTE 1). No record of tank removal can be located. FDEP has requested that a groundwater sample be collected downgradient of the suspected tank location. TtNUS will install a temporary monitoring well and collect a groundwater sample in January, 2000
2110	2110-2	FORMER GAS STATION	61	86	93	5,000	UST	TANK REMOVED, BLDG DEMOLISHED (SEE NOTE 1)
2110	2110-3	FORMER GAS STATION	61	86	93	5,000	UST	TANK REMOVED, BLDG DEMOLISHED (SEE NOTE 1)
2110	2110-4	FORMER GAS STATION	74	86	93	15,000	UST	TANK REMOVED, BLDG DEMOLISHED (SEE NOTE 1)
2110	2110-5	FORMER GAS STATION	61	86	93	550	UST	TANK REMOVED, BLDG DEMOLISHED (SEE NOTE 1)
2134	2134-1	GOLF COURSE MAINTENANCE	85	98	98	100	AST	1998 REMOVAL, COURSE CLOSES 6/30/98
2134	2134-2	GOLF COURSE MAINTENANCE	95	98	98	250	AST	1998 REMOVAL, COURSE CLOSES 6/30/98
2134	2134-3	GOLF COURSE MAINTENANCE	95	98	98	550	AST	1998 REMOVAL, COURSE CLOSES 6/30/98
2273	2273-1	NTC SUPPLY BULK FUEL STORAGE	44	93	97	11750	UST	CA COMPLETED 1/2/97, CAR 3/13/97 CARA 9/5/97, SEVEN MONITORING WELLS DESTROYED BY OUC, AWAITING FDEP REVIEW. WORKING WITH CITY AND CONTRACTOR TO INSTALL UTILITY, INVESTIGATE DISCHARGE. THE ENVIRONMENTAL DETACHMENT CHARLESTON REMOVED THE SOIL STOCKPILE THE WEEK OF 2/22/99. TtNUS replaced the monitoring wells destroyed by the City of Orlando's contractors and performed a round of sampling in September 199
2273	2273-2	NTC SUPPLY BULK FUEL STORAGE	44	93	97	11750	UST	CA COMPLETED 1/2/97, CAR 3/13/97 CARA 9/5/97, SEVEN MONITORING WELLS DESTROYED BY OUC, AWAITING FDEP REVIEW. WORKING WITH CITY AND CONTRACTOR TO INSTALL UTILITY, INVESTIGATE DISCHARGE. THE ENVIRONMENTAL DETACHMENT CHARLESTON REMOVED THE SOIL STOCKPILE THE WEEK OF 2/22/99. TtNUS replaced the monitoring wells destroyed by the City of Orlando's contractors and performed a round of sampling in September 199
2273	2273-3	NTC SUPPLY BULK FUEL STORAGE	44	96	97	11750	UST	CA COMPLETED 1/2/97, CAR 3/13/97 CARA 9/5/97, SEVEN MONITORING WELLS DESTROYED BY OUC, AWAITING FDEP REVIEW. WORKING WITH CITY AND CONTRACTOR TO INSTALL UTILITY, INVESTIGATE DISCHARGE. THE ENVIRONMENTAL DETACHMENT CHARLESTON REMOVED THE SOIL STOCKPILE THE WEEK OF 2/22/99. TtNUS replaced the monitoring wells destroyed by the City of Orlando's contractors and performed a round of sampling in September 199
2273	2273-4	NTC SUPPLY BULK FUEL STORAGE	44	96	97	11750	UST	CA COMPLETED 1/2/97, CAR 3/13/97 CARA 9/5/97, SEVEN MONITORING WELLS DESTROYED BY CITY, AWAITING FDEP REVIEW. WORKING WITH CITY AND CONTRACTOR TO INSTALL UTILITY, INVESTIGATE DISCHARGE. THE ENVIRONMENTAL DETACHMENT CHARLESTON REMOVED THE SOIL STOCKPILE THE WEEK OF 2/22/99. TtNUS replaced the monitoring wells destroyed by the City of Orlando's contractors and performed a round of sampling in September 199
2415	2415	BOQ (BACHELOR OFFICER QUARTERS)	56	96	98	265	AST	REMOVED BY NTC PUBLIC WORKS, NEED TO ASSESS, SUBMITTED TO FDEP 11/19/97
2418	2418	BOQ (BACHELOR OFFICER QUARTERS)	43	REM	97	265	AST	TANK REMOVED, TCAR SUBMITTED TO FDEP 10/15/97, FDEP APPROVED CLEAN CLOSURE 11/13/97

COMPREHENSIVE LIST OF TANKS
MAIN BASE, NAVAL TRAINING CENTER, ORLANDO, FLORIDA

Bldg No.	Tank No.	Building Name	Year Installed	Year Removed	Year to Assess	Capacity	Tank Type	History
2427	2427	BOQ (BACHELOR OFFICER QUARTERS)	43	REM	95	265	AST	TANK REMOVED, TCAR SUBMITTED TO FDEP 2/18/98, FDEP APPROVED TCAR 4/9/98
2434	2434-2	BRASS ANCHOR	43	98	98	650	AST	BLDG CLOSED 6/1/97, AST REMOVED BY DET, FDEP APPROVED A CLEAN CLOSURE ON 7/6/98.
2434	2434-3	BRASS ANCHOR	43	98	98	650	AST	BLDG CLOSED 6/1/97, AST REMOVED BY DET. FDEP APPROVED CLEAN CLOSURE ON 7/6/98.
2434	2434-1	BRASS ANCHOR	43	REM	98	3500	UST	TANK REMOVED
2516	2516-1	OLD ANCHOR (VACANT)	55	95	95	550	AST	CLEAN CLOSURE 3/12/96
2516	2516-2	OLD ANCHOR (VACANT)	55	95	95	550	AST	CLEAN CLOSURE 3/12/96
4053	4053B	STAND BY GEN. FOR DENTAL CLINIC 128	76	99	99	110	AST	REPLACE UST WITH AST, ALSO KNOWN AS 128B. IN COMPLIANCE. TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/21/99. TCAR submitted to FDEP 6/15/99. FDEP requested additional information 7/8/99. Additional information submitted. TCAR and clean closure approved by FDEP on 9/9/99.
4053	4053A	STAND BY GEN. FOR DENTAL CLINIC 128	77	98	98	280	UST	1998 REMOVAL, REPLACE UST WITH AST, ALSO KNOWN AS 128A
106	106	TPD (TRANSIENT PERSONNEL DEPT.)	70	97	97	2000	UST	REMOVED BY PWC, FDEP APPROVED A CLEAN CLOSURE 7/13/98.
113	113	NEX MALL	73	99	99	2500	UST	ALTERNATE HEAT SOURCE. TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/28/99. TCAR submitted to FDEP on 6/15/99. FDEP approved clean closure 7/8/99.
128	128	DENTAL CLINIC	77	99	99	4000	UST	ALTERNATE HEAT SOURCE. TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/22/99. A TEMPORARY MW WAS INSTALLED AND SAMPLED ON 4/15/99. TCAR submitted to FDEP 6/15/99. FDEP response issued 7/7/99. Draft-final Site Assessment Plan (SAP) prepared and submitted to the Navy on 10/25/99. Th Navy issued approval of the draft-final SAP on 11/19/99. The final SAP is in preparation. Sit Assessment field activities are tentatively scheduled to begin on 1/3/00.
129	129	AUTO HOBBY SHOP	74	97	97	500	UST	REMOVED BY PWC, SAR AWAITING INSTALLATION OF UTILITY. THREE MW INSTALLED ON 1/28/99. THREE MW SAMPLED AND THREE SOIL SAMPLES COLLECTED ON 3/9/99. SAR submitted 6/1/99. FDEP requested that wells be resampled for metals using field filtering. HLA collected field filtered samples from the three monitoring wells on 8/27/99. Analytical results indicate that CoC concentrations were below Florida GCTLs. A SAR Addendum was submitted to the FDEP on 10/07/99 recommending No Further Action. FDEP issued a Site Rehabilitation Completion Order for Building 129 on 10/28/99.
129	129A	AUTO HOBBY SHOP	96	99	99	1000	AST	REPLACEMENT FOR USED OIL UST, TANK INSTALLED 11/18/96. TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/20/99. A TEMPORARY MW WAS INSTALLED AND SAMPLED ON 4/15/99. A TCAR was prepared and submitted to the FDEP on 6/15/99. FDEP approved clean closure on 7/7/99.
131	131	AUTO HOBBY PAINT SHOP	?	96	97	265	AST	REMOVED BY PWC, FDEP APPROVED CLEAN CLOSURE 7/13/98
138	138	MARINER'S CLUB	75	97	98	2000	UST	UST REMOVED BY DET ON 4/10/98, FDEP APPROVED A CLEAN CLOSURE 7/6/98
150	150	WATER SPORTS FACILITY	82	95	95	500	UST	TCAR COMPLETED 2/20/96 CLEAN CLOSURE 3/12/96
200	200	FORMER FIREFIGHTING TRAINING SCHOOL	70	95	95	10000	UST	REMOVED 1995. CAR COMPLETED 6/13/97 LETTER TO FDEP REQUESTING MOP/NFAP, SARA SUBMITTED TO FDEP ON 8/10/98. FDEP REQUESTED ADDITIONAL SAMPLING ON 8/24/98. MONITORING WELLS SAMPLED 10/16/98. A SARA REQUESTING AN MOP WAS SUBMITTED TO FDEP ON 1/8/99. FDEP ISSUED COMMENTS ON MOP ON 2/6/99. MOP ADDENDUM SUBMITTED ON 4/14/99. MOP approved by FDEP 7/6/99. TtNUS will perform all future monitoring at this sit
2002	2002	NTC HEADQUARTERS	59	98	98	500	AST	BLDG CLOSED 9/30/97, AST REMOVED BY DET, 4/8/98, FDEP APPROVED CLEAN CLOSURE ON 7/6/98.
2003	2003	VACANT	59	95	95	250	AST	CLEAN CLOSURE 1/2/96
2003	2003A	VACANT	52	95	95	250	AST	CLEAN CLOSURE 4/8/96
2004	2004	VACANT	59	95	95	500	AST	CLEAN CLOSURE 1/2/96
2005	2005	NEX PERSONNEL	59	96	97	1000	UST	REMOVED BY PWC, CLEAN CLOSURE 4/11/97
2006	2006	UNITED WAY	59	99	99	600	AST	ONLY HEAT SOURCE. TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/22/99. TCAR submitted to FDEP 6/15/99. FDEP requested additional information 7/8/99. Additional information submitted. TCAR and clean closure approved by FDEP on 9/9/99.
2009	2009	THRIFT SHOP	44	REM	NA	500	AST	NO TANKS FOUND, FUEL IS PROVIDED FROM BLDG 2011, LETTER TO FDEP 10/14/97 REQUESTED NFA
2010A	2010A	SECURITY	43	97	98	300	AST	REMOVED BY PWC, FDEP APPROVED CLEAN CLOSURE 6/16/98.
2010B	2010B	USO	43	97	97	300	AST	REMOVED BY PWC, FDEP APPROVED CLEAN CLOSURE 7/13/98.
2011A	2011A	LEGAL TAP/RAP	43	99	99	300	AST	TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/18/99. TCAR submitted to FDEP 6/15/99. FDEP requested additional information 7/8/99. Additional information submitted. TCAR and clean closure approved by FDEP on 9/9/99.
2011B	2011B	LEGAL TAP/RAP	43	99	99	300	AST	TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/18/99. TCAR submitted to FDEP 6/15/99. FDEP requested additional information 7/8/99. Additional information submitted. TCAR and clean closure approved by FDEP on 9/9/99.
2012	2012	FIRE ALARM TECHS/ADMIN	59	95	95	550	UST	CLEAN CLOSURE 3/12/96
2013	2013	FIRE STATION	57	REM	98	265	AST	TANK REMOVED, BLDG DEMOLISHED (SEE NOTE 1)
2015	2015	SERVICE CLUB	57	94	95	825	AST	TANK REMOVED, BLDG DEMOLISHED, FDEP APPROVED CLEAN CLOSURE 6/16/97
2018	2018	NEX DRY CLEANERS	59	99	99	500	UST	ONLY HEAT SOURCE. TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/23/99. TCAR submitted to FDEP 6/15/99. FDEP approved TCAR and clean closure on 7/8/99.
2020	2020	NTC CHAPEL	59	98	98	265	AST	BLDG CLOSED 7/30/97, AST REMOVED BY DET, FDEP APPROVED CLEAN CLOSURE 7/6/98.
2022	2022	CHAPLAIN'S OFFICES	59	98	98	600	AST	BLDG CLOSED 7/30/97, AST REMOVED BY DET, FDEP APPROVED CLEAN CLOSURE 7/6/98.

COMPREHENSIVE LIST OF TANKS
MAIN BASE, NAVAL TRAINING CENTER, ORLANDO, FLORIDA

Bldg. No.	Tank No.	Building Name	Year Installed	Year Removed	Year to Assess	Capacity	Tank Type	History
2025	2025	PUBLIC WORKS DEPARTMENT	75	99	99	500	AST	ONLY HEAT SOURCE. TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/23/99. TCAR submitted to FDEP 6/15/99. FDEP requested additional information 7/8/99. Additional information submitted. TCAR and clean closure approved by FDEP on 9/9/99.
2026	2026	MAXI- MART	43	95	95	500	UST	CLEAN CLOSURE 5/7/96
2034	2034	MWR ADMINISTRATION	61	98	98	500	AST	BLDG CLOSED 9/30/97, AST REMOVED BY DET, FDEP APPROVED CLEAN CLOSURE ON 7/6/98.
2035	2035	NWR MEDIA & MARKETING	61	97	97	265	AST	REMOVED BY PWC, FDEP APPROVED CLEAN CLOSURE 7/13/98.
2039	2039	NTC PHOTO LAB	43	98	98	265	AST	BLDG CLOSED 9/30/97, REMOVED BY DET, FDEP APPROVED CLEAN CLOSURE ON 7/6/98.
2049	2049	PUBLISHING & PRINTING	43	96	97	265	AST	REMOVED BY PWC, CLEAN CLOSURE 4/11/97
2051	2051	NTSC DEMOLISHED	43	REM	95	265	AST	BLDG DEMOLISHED, NFA REQUESTED 9/23/97, FDEP APPROVED NFA 10/2297
2053	2053	NEX VENDING	43	95	95	500	UST	CLEAN CLOSURE 5/7/96
2053	2053A	NEX VENDING	61	98	98	275	AST	BLDG CLOSED 9/30/97, AST REMOVED BY DET, FDEP APPROVED CLEAN CLOSURE ON 7/6/98.
2058	2058		?	REM	95	500	AST	TANK REMOVED, BLDG DEMOLISHED (SEE NOTE 1)
206	206	RTC GYM FIELDHOUSE	69	95	95	5000	UST	TCAR COMPLETED 1/24/96. CLEAN CLOSURE 2/8/96
2070	2070	NTSC	?	REM	95	500	UST	TANK REMOVED, BLDG DEMOLISHED, NO ASSESSMENT REQUIREC
2071	2071	NTSC	?	REM	95	500	UST	TANK REMOVED, BLDG DEMOLISHED, NO ASSESSMENT REQUIREC
2074	2074	NTSC	?	REM	95	500	UST	TANK REMOVED, BLDG DEMOLISHED (SEE NOTE 1)
2075	2075	NTSC	?	REM	95	500	UST	TANK REMOVED, BLDG DEMOLISHED (SEE NOTE 1)
2076	2076	CHILD CARE CENTER	57	99	99	265	AST	TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/24/99. TCAR submitted to FDEP 6/15/99. FDEP requested additional information 7/8/99. Additional information submitted. TCAR and clean closure approved by FDEP on 9/9/99.
2080	2080	NTC SUPPLY GAS STATION	?	98	98	25	AST	1998 REMOVAL, PROPANE
2089	2089	SYNTHETIC OPERATION BLDG	43	REM	95	5000	UST	BLDG DEMOLISHED, CLEAN CLOSURE 1/2/96
2090	2090	AIR SERVICE MG	?	REM	95	1000	UST	TANK REMOVED, BLDG DEMOLISHED (SEE NOTE 1)
2092	2092	SELF - HELP/PEB	63	95	95	600	UST	CLEAN CLOSURE 6/10/96
2097	2097	ADMINISTRATION HDQ	?	REM	95	550	AST	BLDG DEMOLISHED, CLEAN CLOSURE 10/23/95
210	210	RTC BARRACKS	69	95	95	10000	UST	TCAR COMPLETED 1/24/96, CLEAN CLOSURE 2/8/96
2101	2101	ADMINISTRATION HDQ	43	REM	95	300	AST	BLDG DEMOLISHED, CLEAN CLOSURE 3/12/96
2102	2102	NA	43	REM	95	265	AST	BLDG DEMOLISHED, CLEAN CLOSURE 10/23/95
2103	2103	NA	43	REM	95	265	AST	BLDG DEMOLISHED, CLEAN CLOSURE 10/23/95
2104	2104	AUDITORIUM	43	REM	95	500	AST	BLDG DEMOLISHED, CLEAN CLOSURE 10/23/95
2105	2105	LIBRARY	43	REM	95	500	AST	CLEAN CLOSURE 10/23/95
2109	2109	ORD DISPLAY BLDG	43	REM	98	265	AST	TANK REMOVED, BLDG DEMOLISHED (SEE NOTE 1)
2111	2111	SYNTHETIC DIV BLDG	43	REM	98	500	AST	TANK REMOVED, BLDG DEMOLISHED (SEE NOTE 1)
2113	2113	NEX/MWR VISUAL WORKS SHOP	43	98	98	500	UST	UST REMOVED BY DET ON 4/13/98, FDEP APPROVED CLEAN CLOSURE 7/6/98.
2114	2114	ROICC, ADMINISTRATION	43	REM	95	500	AST	TANK REMOVED IN PAST, TCAR SUBMITTED TO FDEP 10/31/97, FDEP APPROVED CLEAN CLOSURE 11/13/97
2115	2115	NEW MEDICAL DENTAL CLI NIC	58	99	99	500	UST	TANK OUT OF COMPLIANCE IN 1998, SECONDARY HEAT SOURCE. TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/22/99. A TEMPORARY MW AS INSTALLED AND SAMPLED ON 4/14/99. TCAR submitted to FDEP 6/15/99. FDEP response issued 7/6/99. Draft-final Site Assessment Plan (SAP) was prepared and submitted to the Navy on 10/25/99. The Navy issued approval of the draft-final SAP on 11/19/99. The final SAP is in preparation. Site Assessment field activities are tentatively scheduled to begin on 1/3/00.
212	212	RTC BARRACKS	69	95	95	10000	UST	TCAR COMPLETED 1/24/96, CLEAN CLOSURE 2/8/96
2122	2122	PUBLIC WORKS ROADS & GROUNDS	52	97	97	265	AST	REMOVED BY PWC, FDEP APPROVED CLEAN CLOSURE ON 7/13/98.
214	214	RTC BARRACKS	68	95	95	10000	UST	TCAR COMPLETED 1/24/96, CLEAN CLOSURE 2/8/96
216	216	GALLEY #1	68	95	95	15000	UST	TCAR COMPLETED 12/15/95, CLEAN CLOSURE 2/1/96
218	218	GALLEY #2	72	95	95	15000	UST	CAR COMPLETED 7/16/96, MOP APPROVED BY FDEP 7/16/97. 3RD QTR MOP REPORT SUBMITTED 4/10/98. 4TH QUARTER MOP REPORT SUBMITTES 8/14/98. FDEP APPROVED AN NFA 8/26/98. TEN SHALLOW AND ONE DEEP MONITORING WELLS WERE ABANDON ON 2/11/99 TO COMPLETE SITE CLOS
218	218A	GALLEY #2	72	95	96	2000	UST	CAR COMPLETED 7/16/96, MOP APPROVED 5/16/97, 3RD QTR MOP REPORT SUBMITTED 4/10/98. 4 TH QUARTER MOP REPORT SUBMITTED 8/14/98. FCEP APPROVED AN NFA 8/26/98. TEN SHALLOW AND ONE DEEP MONITORING WELLS WERE ABANDON ON 2/11/99 TO COMPLETE SITE CLOSURE.
218	218B	GALLEY #2	81	96	97	560	AST	REMOVED BY PWC, TCAR 5/8/97.FDEP QUESTIONED SOIL. FDEP APPROVED A CLEAN CLOSURE 7/13/98.
220	220	RTC BARRACKS	70	95	95	10000	UST	CA COMPLETED 1/2/97, CAR COMPLETED 2/25/97, NFA APPROVED BY FDEP 4/11/97
222	222	RTC BARRACKS	71	95	95	10000	UST	CA COMPLETED 1/10/97, CAR COMPLETED 2/25/97,NFA APPROVED BY FDEP 4/11/97
224	224	RTC BARRACKS	72	95	95	10000	UST	CA COMPLETED 5/8/96, CAR COMPLETED 6/28/96, NFA APPROVED BY FDEP 7/5/96
226	226	RTC BARRACKS	71	95	95	10000	UST	CLEAN CLOSURE 5/7/96
2262	2262	CUSTODIAL CONTRACTOR	43	REM	95	265	AST	CLEAN CLOSURE 4/8/96
2266	2266	VET CLI NIC	59	99	99	300	AST	TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/24/99. TCAR submitted to FDEP 6/15/99. FDEP requested additional information 7/8/99. Additional information submitted. TCAR and clean closure approved by FDEP on 9/9/99.
228	228	RTC BARRACKS	72	95	95	10000	UST	CLEAN CLOSURE 2/8/96
230	230	RTCPSD (PERSONNEL SUPPORT DEPT.)	68	95	95	3000	UST	CLEAN CLOSURE 4/6/96
230	230A	RTCPSD (PERSONNEL SUPPORT DEPT.)	68	95	95	3000	UST	CA COMPLETED 5/28/96, CAR COMPLETED 9/10/96, NFA APPROVED BY FDEP 11/25/96

COMPREHENSIVE LIST OF TANKS
MAIN BASE, NAVAL TRAINING CENTER, ORLANDO, FLORIDA

Bldg. No.	Tank No.	Building Name	Year Installed	Year Removed	Year to Access	Capacity	Tank Type	History
232	232	RTC BARRACKS	68	95	95	10000	UST	CLEAN CLOSURE 4/8/95
234	234	RTC BARRACKS	68	95	95	10000	UST	TCAR SUBMITTED TO FDEP. NFA APPROVED BY FDEP 5/9/9(
235	235	RIF (RECRUIT IN-PROCESSING FACILITY)	70	95	95	2000	UST	CLEAN CLOSURE 11/13/95
238	238	RECRUIT RECEIVING BARRACKS	70	95	95	2000	UST	CLEAN CLOSURE 10/27/95
240	240	RECRUIT COMMUNITY CENTER	69	95	95	3000	UST	CLEAN CLOSURE 10/27/95
2401	2401	BOQ (BACHELOR OFFICER QUARTERS)	43	98	98	300	AST	BLDG CLOSED 8/31/97, AST REMOVED BY DET, FDEP APPROVED CLEAN CLOSURE 7/6/98.
2402	2402	BOQ (BACHELOR OFFICER QUARTERS)	56	96	97	300	AST	TCAR SUBMITTED TO FDEP 10/31/97, FDEP APPROVED CLEAN CLOSURE 11/13/97
2403	2403	BOQ (BACHELOR OFFICER QUARTERS)	43	98	98	300	AST	AST REMOVED BY DET, FDEP APPROVED CLEAN CLOSURE ON 7/6/98.
2404	2404	BOQ (BACHELOR OFFICER QUARTERS)	43	98	98	300	AST	BLDG CLOSED 1/31/98, AST REMOVED BY DET, FDEP APPROVED CLEAN CLOSURE 7/6/98.
2405	2405	BOQ (BACHELOR OFFICER QUARTERS)	43	99	99	300	AST	BLDG CLOSES 7/31/98. TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/24/99. TCAR submitted to FDEP 6/15/99. FDEP requested additional information 7/8/99. Additional information submitted. TCAR and clean closure approved by FDEP on 9/9/99.
2406	2406	BOQ (BACHELOR OFFICER QUARTERS)	43	REM	95	300	AST	TANK REMOVED. TCAR SUBMITTED TO FDEP 11/19/97
2409	2409	BOQ (BACHELOR OFFICER QUARTERS)	56	96	97	300	AST	REMOVED BY PWC. CLEAN CLOSURE 4/11/97
2410	2410	BOQ (BACHELOR OFFICER QUARTERS)	43	98	98	300	AST	BLDG CLOSES 1/31/98, AST REMOVED BY DET, FDEP APPROVED CLEAN CLOSURE ON 7/6/98.
2411	2411	BOQ (BACHELOR OFFICER QUARTERS)	56	96	97	300	AST	REMOVED BY PWC, CLEAN CLOSURE 4/11/97
2412	2412	BOQ (BACHELOR OFFICER QUARTERS)	43	98	98	300	AST	BLDG CLOSES 1/31/98, AST REMOVED BY DET, FDEP APPROVED CLEAN CLOSURE 7/6/98.
2415	2415	BOQ (BACHELOR OFFICER QUARTERS)	43	98	98	300	AST	BLDG CLOSES 1/31/98, AST REMOVED BY DET, FREP APPROVED CLEAN CLOSURE ON 7/6/98.
2417	2417	BOQ (BACHELOR OFFICER QUARTERS)	43	98	98	300	AST	BLDG CLOSES 1/31/98, AST REMOVED BY DET, FDEP APPROVED CLEAN CLOSURE 7/6/98.
2419	2419	BOQ (BACHELOR OFFICER QUARTERS)	43	REM	97	300	AST	TANK REMOVED, TCAR SUBMITTED TO FDEP 10/15/97, FDEP APPROVED CLEAN CLOSURE 11/13/97
2420	2420	BOQ (BACHELOR OFFICER QUARTERS)	43	99	99	265	AST	BLDG CLOSES 7/31/98, TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/24/99. TCAR submitted to FDEP 6/15/99. FDEP requested additional information 7/8/99. Additional information submitted. TCAR and clean closure approved by FDEP on 9/9/99.
2421	2421	BOQ (BACHELOR OFFICER QUARTERS)	56	96	97	265	AST	REMOVED BY PWC. CLEAN CLOSURE 4/11/97
2423	2423	BOQ (BACHELOR OFFICER QUARTERS)	43	REM	98	265	AST	TANK REMOVED, FDEP APPROVED CLEAN CLOSURE 3/9/98
2424	2424	BOQ (BACHELOR OFFICER QUARTERS)	43	REM	98	265	AST	TANK REMOVED. FDEP APPROVED CLEAN CLOSURE 3/9/98
2426	2426	BOQ (BACHELOR OFFICER QUARTERS)	56	96	97	265	AST	FDEP requested additional assessment in a letter dated 7/19/99, although the source had been removed and lab results from the groundwater sample from the former source area wer clean. HLA will conduct further soil assessment using HLA's Geoprobe to complete assessment at the edges of the excavated area. If organic vapor readings are within acceptable limits, a letter report will be submitted to the FDEP documenting the findings. If organic vapor readings are above 50 parts per million (ppm), samples will be submitted to an approved laboratory for analysis using USEPA Methods for the Kerosene Analytical Group described in Chapter 62-770 FAC. A source removal report addendum will be submitted to tl FDEP by 11/26/99 with recommendations for the site
2450	2450	CPO BARRACKS (B. D.)	58	95	95	3000	UST	BLDG DEMOLISHED, CLEAN CLOSURE 5/7/95
2451	2451	PUBLIC WORKS CARPENTER SHOP	43	98	98	265	AST	BLDG CLOSED 6/1/97, AST REMOVED BY DET, FDEP APPROVED CLEAN CLOSURE ON 7/6/98.
2452	2452	MOSP ADMIN.	?	REM	98	500	UST	TANK REMOVED. BLDG DESTROYED (SEE NOTE 1)
245	245	MEDICAL DENTAL CLINIC	71	95	95	2500	UST	CLEAN CLOSURE 6/10/96
246	246A	MEDICAL DENTAL CLINIC	79	REM	95	500	AST	TANK NOT LOCATED
246	246B	MEDICAL DENTAL CLINIC	79	95	95	520	UST	CLEAN CLOSURE 3/12/96
250	250	RTC CHAPEL	59	95	95	2500	UST	CLEAN CLOSURE 12/21/95
2510	2510	SWIMMING POOL HEAT PLANT	59	99	99	4000	UST	ONLY HEAT SOURCE. TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/21/99. TCAR submitted to FDEP 6/15/99. The FDEP issued a response on 7/8/99 indicating that additional assessment was required. A draft-final Site Assessment Plan (SAP) was prepared and submitted to the Navy on 10/25/99. The Navy issued approval of the draft-final SAP on 11/19/99. The final SAP is in preparation. Site Assessment field activities are tentatively scheduled to begin on 1/3/0(
252	252	RTC HEADQUARTERS	69	95	95	2500	UST	CLEAN CLOSURE 4/8/96
2525	2525	OLD BARRACKS	?	REM	95	265	AST	BLDG DEMOLISHED, CLEAN CLOSURE 10/23/95
2526	2526	OLD BARRACKS	?	REM	95	265	AST	BLDG DEMOLISHED, CLEAN CLOSURE 10/23/95
2527	2527	OLD BARRACKS	?	REM	95	300	AST	BLDG DEMOLISHED, CLEAN CLOSURE 10/23/95
2529	2529	SPECIAL SERVICES	?	REM	95	265	AST	TANK REMOVED. BLDG DEMOLISHED (SEE NOTE 1)
2535	2535	ACAD. INST.	60	REM	98	300	AST	TANK REMOVED. BLDG DEMOLISHED (SEE NOTE 1)
2537	2537	BARRACKS	60	REM	98	300	AST	TANK REMOVED. BLDG DEMOLISHED (SEE NOTE 1)
2538	2538	BARRACKS	60	REM	95	265	AST	CLEAN CLOSURE 1/2/96
2541	2541	ROPE YARN CLUB	60	REM	97	265	AST	TANK NOT FOUND, NFA FROM FDEP 6/11/97
2542	2542	GUEST HOUSE	61	REM	95	300	AST	BLDG DEMOLISHED, CLEAN CLOSURE 10/23/95
2543	2543	GUEST HOUSE	61	REM	95	265	AST	BLDG DEMOLISHED, CLEAN CLOSURE 10/23/95
2555	2555	GUEST HOUSE	?	REM	95	265	AST	BLDG DEMOLISHED, CLEAN CLOSURE 10/23/95
2557	2557	GUEST HOUSE	?	REM	95	265	AST	BLDG DEMOLISHED, CLEAN CLOSURE 10/23/95
2651	2651	BASE RECYCLING CENTER	?	REM	97	300	UST	TANK REMOVED. CLEAN CLOSURE BY FDEP 6/17/97
2701	2701	OLD BARRACKS	?	REM	98	?	?	BUILDING DEMOLISHED (SEE NOTE 1)

COMPREHENSIVE LIST OF TANKS
MAIN BASE, NAVAL TRAINING CENTER, ORLANDO, FLORIDA

Bldg. No.	Tank No.	Building Name	Year Installed	Year Removed	Year to Assess	Capacity	Tank Type	History
2702	2702	OLD BARRACKS	?	REM	98	?	?	BUILDING DEMOLISHED (SEE NOTE 1)
2704	2704	OLD BARRACKS	?	REM	98	?	?	BUILDING DEMOLISHED (SEE NOTE 1)
2709	2709	VACANT (OLD NJROTC)	60	95	95	300	AST	TANK REMOVED, CLEAN CLOSURE 11/13/95
2712	2712	OLD SEA CADETS (VACANT)	60	95	95	265	AST	TANK REMOVED, CLEAN CLOSURE 1/2/96
2713	2713	ADMINISTRATION BUILDING	60	REM	97	265	AST	TANK REMOVED, CLEAN CLOSURE 6/17/97
2717	2717	BEQ	60	94	97	300	AST	TANK REMOVED, BLDG DEMOLISHED, CLEAN CLOSURE 6/17/97
2718	2718	BEQ	60	94	97	265	AST	TANK REMOVED, BLDG DEMOLISHED, CLEAN CLOSURE 6/17/97
2719	2719	BEQ	60	94	97	265	AST	TANK REMOVED, BLDG DEMOLISHED, CLEAN CLOSURE 6/17/97
2720	2720	CCPO TRAINING	60	REM	97	265	AST	TANK REMOVED, CLEAN CLOSURE 5/17/97
2723	2723	VACANT (OLD BARRACK)	61	95	95	300	AST	CLEAN CLOSURE 10/27/95
2724	2724	VACANT (OLD WIVES CLUB, FLEET RES.)	61	95	95	300	AST	CLEAN CLOSURE 3/12/96
2816	2816	HAZMAT	66	95	95	265	AST	CLEAN CLOSURE 3/12/96
2817	2817	RTC 1ST LT	66	95	95	1000	AST	CLEAN CLOSURE 1/2/96
3025	3025	OLD HOSPITAL HEATING PLANT	43	REM	96	20000	UST	BLDG DEMOLISHED, CLEAN CLOSURE 5/7/96
303	303	ADV. UNDERWATER WEAPONS TRAINING	89	95	95	500	UST	CLEAN CLOSURE 1/2/96
304	304	SERVICE SCHOOL HEADQUARTERS	68	96	97	1000	UST	REMOVED BY PWC, CLEAN CLOSURE 4/11/97
310	310	SCC BEQ	86	96	97	415	UST	REMOVED BY PWC, TCAR 3/13/97, CLEAN CLOSURE 4/11/97
311	311	SCC BEQ	87	96	97	550	UST	REMOVED BY PWC, CLEAN CLOSURE 4/11/97
3126	3126	CIVILIAN BEQ	43	REM	95	?	AST	CLEAN CLOSURE 1/2/96
3127	3127	BIO-WASTE CORRECTION FACILITY	43	REM	95	?	AST	CLEAN CLOSURE 10/18/95
3128	3128	CIVILIAN BEQ	43	REM	95	?	AST	CLEAN CLOSURE 10/18/95
3129	3129	CIVILIAN BEQ	43	REM	95	?	AST	CLEAN CLOSURE 10/18/95
313	313	SSC BARRACKS	88	96	97	550	UST	REMOVED BY PWC, CLEAN CLOSURE 4/11/97
3132	3132	ALCOHOL REHABILITATION DEPT. BLDG.	43	REM	95	?	AST	CLEAN CLOSURE 2/8/96
3133	3133	ALCOHOL REHABILITATION DEPT. BLDG.	43	REM	95	?	AST	CLEAN CLOSURE 3/12/96
3134	3134	ALCOHOL REHABILITATION DEPT. BLDG.	43	REM	95	?	AST	CLEAN CLOSURE 10/18/95
316	316	SSC BARRACKS	91	STAY	97	550	AST	TCAR SUBMITTED TO FDEP 10/15/97, FDEP APPROVED CLEAN CLOSURE 11/13/97
317	317	ARMY MILITARY INTELLIGENCE	91	STAY	97	550	AST	TCAR SUBMITTED TO FDEP 10/15/97, FDEP APPROVED CLEAN CLOSURE 11/13/97
325	325	CUSTOMS COMMUNICATION FACILITY	93	STAY	N/A	6000	UST	TANK IN FULL COMPLIANCE, TRANSFERRED TO U.S. CUSTOMS
351	351	HEATING PLANT FORBLDG 350	75	97	97	2000	UST	REMOVED BY PWC, FDEP APPROVED A CLEAN CLOSURE 7/13/98.
352	352	GALLEY #3	72	98	98	15000	UST	UST REMOVED BY DET ON 10/8/98, FDEP APPROVED A CLEAN CLOSURE 7/6/98
354	354	NUCLEAR FIELD "A" SCHOOL	81	97	97	2000	UST	REMOVED BY PWC. SA COMPLETED 3/19/98, SAR SUBMITTED TO FDEP ON 6/18/98, FDEP APPROVED NFA AS PER LETTER DATED 7/13/98
356	356	NUCLEAR POWER SCHOOL	76	97	97	3000	UST	REMOVED BY PWC, FDEP APPROVED CLEAN CLOSURE 3/12/98
358	358	NNPTC BARRACKS	74	97	97	3000	UST	REMOVED BY PWC, FDEP APPROVED CLEAN CLOSURE 3/12/98
361	361	NNPTC BARRACKS	74	97	97	3000	UST	REMOVED BY PWC, FDEP APPROVED CLEAN CLOSURE 3/12/98
363	363	NNPTC BARRACKS	74	97	97	3000	UST	REMOVED BY PWC, FDEP APPROVED CLEAN CLOSURE 3/12/98
364	364	NNPTC BARRACKS	74	97	97	3000	UST	REMOVED BY PWC, FDEP APPROVED CLEAN CLOSURE 3/12/98
366	366	NNPTC BARRACKS	74	97	97	3000	UST	REMOVED BY PWC, FDEP APPROVED CLEAN CLOSURE 3/12/98
369	369	NNPTC BARRACKS	75	97	97	3000	UST	REMOVED BY PWC, SA COMPLETED 1/23/98, , SAR SUBMITTED TO FDEP 4/27/98. FDEP REQUESTED ADDITIONAL SOIL SAMPLING FOR THE SITE. On 12/10/98, HLA COLLECTED 3 SOIL SAMPLES FOR LABORATORY ANALYSIS. A SAR ADDENDUM WAS SUBMITTED ON 2/17/99. FDEP responded that the site would need either (1) soil removal and backfill; (2) deed restrictions to prevent exposure of residents to subsurface soil (3) change property use to nonresidential; or (4) quantify TRPH as to equivalent carbon number in accordance with "Technical Basis for the TRPH SCTLs". Per discussions at the May OPT meeting, Southern Division has decided to remove the contaminated soil. Contaminated soil volume estimates were sent to the Navy on 7/20/99. An estimated 130 cu yds. (180 tons) of contaminated soil will need to be removed.
371	371	NNPTC BARRACKS	75	97	97	3000	UST	REMOVED BY PWC, FDEP APPROVED CLEAN CLOSURE 3/12/98
375	375	COMBINED BACHELORS QUARTERS DEPT.	76	97	97	3000	UST	REMOVED BY PWC, FDEP APPROVED CLEAN CLOSURE 3/12/98
384	384	BARRACKS	82	97	97	2000	UST	REMOVED BY PWC, FDEP APPROVED CLEAN CLOSURE 3/12/98

COMPREHENSIVE LIST OF TANKS
MAIN BASE, NAVAL TRAINING CENTER, ORLANDO, FLORIDA

Bldg. No.	Tank No.	Building Name	Year Installed	Year Removed	Years in Absentia	Capacity	Tank Type	History
386	386	NTC PSDN/NPTC BEQ	94	99	99	550	AST	BLDG CLOSING 4/99. TANK REMOVED BY THE ENVIRONMENTAL DETACHMENT CHARLESTON ON 2/24/99. TCAR submitted to FDEP 6/15/99. FDEP requested additional information 7/8/99. Additional information submitted. TCAR and clean closure approved by FDEP on 9/9/99.
	80001	SPRINT TELEPHONE SWITCH BLDG.	68	STAY	97	75	AST	EMERGENCY GEN., BUILT IN TANK AKA BLDG 140, CLEAN CLOSURE 6/17/97

GLOSSARY

AST = *Aboveground storage tank*
CA = *Contamination Assessment*
CAR = *Contamination Assessment Report*
MOP = *Monitoring Only Plan*
REM = *Removed (date unknown)*
STAY = *Tank to be transferred with building*
SAR = *Site Assessment Report*
SARA = *Site Assessment Report Addendum*
TCAR = *Tank Closure Assessment Report*
UST = *Underground storage tank*

n22x34dh.dgn

OPERABLE UNIT 1

SOIL (NON-RESIDENTIAL)	
ARSENIC	L3 TO 2.9
BENZO(A)PYRENE	0.2-J TO 1.2
DIBENZ(A,H)ANTHRACENE	0.12-J TO 0.76
DIELDRIN	0.089 TO 0.190-D
IDENO(1,2,3-CD)PYRENE	2.3
GROUNDWATER	
ALUMINUM	4410 TO 101000
BERYLLIUM	5-B TO 7.1
BIS(2-ETHYLHEXYL)PHTHALATE	30
CHLOROMETHANE	8-J
CHROMIUM	121
GROSS ALPHA	21.3 TO 257-J
GROSS BETA	57 TO 248-J
IRON	1290 TO 8030
MANGANESE	82 TO 116
LEAD	91.8-D
THALLIUM	2.1-J TO 4.6-B
VANADIUM	50.2 TO 104

STUDY AREA 1

GROUNDWATER	
LEAD	17.1

STUDY AREA 43

SOIL	
LEAD	432 TO 618-J

STUDY AREA 44

GROUNDWATER	
BROMODICHLOROMETHANE	0.7-J
PENTACHLOROPHENOL	1

STUDY AREA 3

GROUNDWATER	
TETRACHLOROETHENE	5.3 TO 12

STUDY AREA 8

GROUNDWATER	
GROSS ALPHA	0.38 TO 18.1
MANGANESE	89.9 TO 97.4
SODIUM	59800 TO 248000

OPERABLE UNIT 3 / STUDY AREA 8

SOIL (NON-RESIDENTIAL)	
ARSENIC	4 TO 90
BENZO(A)PYRENE	1.1
GROUNDWATER	
ALUMINUM	4300-J TO 4310-J
ANTIMONY	12.2
ARSENIC	6.1 TO 609
DIELDRIN	0.019-J
IRON	1260 TO 33300
LEAD	21.1 TO 34.8
MANGANESE	51 TO 338
MCPA	640-J TO 1200-DJ
MCPP	99-J TO 900-J
NAPTHALENE	25

OPERABLE UNIT 3 / STUDY AREA 9

SOIL (NON-RESIDENTIAL)	
ARSENIC	4.4 TO 20.2
BENZO(A)PYRENE	0.78 TO 0.94
4,4'-DDD	20-D
GROUNDWATER	
2,4-D	110-J
2,4-DICHLOROPHENOL	2-J TO 200
4,4-DDE	0.1-J
ALDRIN	0.051-J
ALPHA-BHC	1-J TO 2.5-J
ALUMINUM	7740-J
ANTIMONY	17.7
ARSENIC	31.5 TO 1370
DIELDRIN	0.012-J
GAMMA-BHC(LINDANE)	0.04 TO 3.2
IRON	1290 TO 6350
MANGANESE	53.6 TO 159
MCPA	460-J TO 3100-J
MCPP	170-J TO 1900-J
NAPTHALENE	67.5 TO 160-D

STUDY AREA 37

SOIL	
ALDRIN	1.3
ALPHA-CHLORDANE	40
ARSENIC	3.0
BENZO(A)PYRENE	0.11
GAMMA-CHLORDANE	52
HEPTACHLOR	4.4
HEPTACHLOR EPOXIDE	2.9

STUDY AREA 27

SOIL	
ARSENIC	1.2-J
BENZO(A)ANTHRACENE	1.6 TO 2.6
BENZO(A)PYRENE	0.11 TO 7.8
BENZO(B)FLOURANTHENE	1.5 TO 7.5
BIS(2-ETHYLHEXYL)PHTHALATE	87
DIBENZ(A,H)ANTHRACENE	0.22 TO 1.7
IDENO(1,2,3-CD)PYRENE	3.4 TO 3.9

STUDY AREA 36

SOIL	
ARSENIC	1.2-J TO 2.2-J
BARIUM	410 TO 499
BENZO(A)PYRENE	0.14-J TO 0.17-J
MERCURY	25.8
TRPH	430 TO 770
GROUNDWATER	
ALUMINUM	6020 TO 6660
ANTIMONY	6.0-J TO 8.9-J
METHYLENE CHLORIDE	5.2
NAPTHALENE	32-B
TETRACHLOROETHENE	5.4
TRICHLOROETHENE	3.8 TO 640

STUDY AREA 40

SOIL	
ARSENIC	1.1 TO 3.4
BENZO(A)PYRENE	0.12 TO 2.3
BENZO(B)FLOURANTHENE	1.5
GROUNDWATER	
ANTIMONY	13.9

STUDY AREA 39

SOIL (NON-RESIDENTIAL)	
ARSENIC	4.7 TO 6.7
BENZO(A)PYRENE	0.52 TO 1.44
GROUNDWATER	
BENZENE	1.6-J TO 2.5-J
BROMODICHLOROMETHANE	0.71-J TO 1.7-J
CARBON TETRACHLORIDE	4.7-J
CHLOROFORM	9.6-J
IRON	1320-J
TETRACHLOROETHENE	3 TO 280
TRICHLOROETHENE	4.4-J

STUDY AREA 30

SOIL	
ARSENIC	1.5-J TO 2.3-J
BENZO(A)PYRENE	0.14-J
GROUNDWATER	
ALUMINUM	4130
CHROMIUM	113-J TO 392-J
IRON	1740-J
MANGANESE	88.8-J
MERCURY	0.15-J
METHYLENE CHLORIDE	8-J TO 20
NICKEL	151-J TO 435-J

STUDY AREA 33

SOIL	
BENZO(A)PYRENE	0.12-J TO 0.32-J

STUDY AREA 42

SOIL	
ARSENIC	1.2 TO 1.5
BENZO(A)PYRENE	0.1 TO 0.3

STUDY AREA 35

SOIL	
ARSENIC	1.2-J TO 6
BARIUM	163
LEAD	1240
TRPH	1500 TO 85000
GROUNDWATER	
METHYLENE CHLORIDE	12
PHENOL	11
THALLIUM	7.2-J

STUDY AREA 29

SOIL	
ARSENIC	1.1-J TO 2.2-J
BENZO(A)PYRENE	0.43
GROUNDWATER	
BIS(2-ETHYLHEXYL)PHTHALATE	48
MANGANESE	50.6

STUDY AREA 28

STUDY AREA 34

STUDY AREA 38

STUDY AREA 31

STUDY AREA 41

STUDY AREA 32

STUDY AREA 5

STUDY AREA 6

STUDY AREA 7

STUDY AREA 45

STUDY AREA 10

INSTALLATION BOUNDARY

LAKE SPIER

LAKE BALDWIN

LAKE SUSANNAH

LAKE BALDWIN BICENTENNIAL PARK CITY OF WINTER PARK

LEGEND

LOCATION OF SAMPLES

STUDY AREA 30

SOIL	
ARSENIC	1.5-J TO 2.3-J
BENZO(A)PYRENE	0.14-J
GROUNDWATER	
CHROMIUM	113-J TO 392-J
METHYLENE CHLORIDE	8-J TO 20
NICKEL	151-J TO 435-J

ANALYTE

CONCENTRATION IN SOIL IN MILLIGRAMS PER KILOGRAM (mg/Kg)

CONCENTRATION IN GROUNDWATER IN MICROGRAMS PER LITER (ug/L)

INDICATES CONCENTRATION IS BETWEEN INSTRUMENT DETECTION LIMIT AND THE CONTRACT- REQUIRED DETECTION LIMIT — B

VALUE FROM DILUTION — D

ESTIMATED VALUE — J

TRPH - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS
MCPA AND MCPP ARE HERBICIDES
GROSS ALPHA & BETA IN PICOCURIES PER LITER (pCi/L)

SCREENING CRITERIA

EXCEEDANCES ARE IN REFERENCE TO APPLICABLE REGULATORY LIMITS AT THE TIME OF INVESTIGATION.

N

400 0 400 800 1200

SCALE IN FEET

MAIN BASE

GROUNDWATER AND SOIL EXCEEDANCES MAIN BASE

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

CAD FILE NO./DATE: 7457P003.dgn/5-31-00