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FINAL DRAFT BASE REALIGNMENT AND CLOSURE WORK PLAN FOR INTERIM
REMEDIAL ACTION STUDY AREA 17 NTC ORLANDO FL
1/20/1999
HARDING LAWSON ASSOCIATES

Harding Lawson Associates

January 20, 1999



Commanding Officer
SOUTHNAVFACENGCOM
2155 Eagle Drive
North Charleston, SC 29419-9010

ATTN: Ms. Barbara Nwokike, Code 187300

Subject: **Work Plan for Interim Remedial Action
Study Areas 17, Study Area 35, and Study Areas 39/40**

Dear Barbara:

HLA has revised three IRA work plans for Study Areas 17, 35, and 39/40. The work plan for SA 17 was revised to reflect the results of 12 additional surface soil samples collected in the vicinity of three "hot spots" to further characterize the surface soils and permit the Detachment to better plan their soil excavation activities. The work plan for SA 35 was revised to reflect FDEP concerns regarding arsenic in surface soils. And the work plan for SA 39/40 (the "Southwest Corner") was revised to reflect the results of 3 additional surface soil samples taken in an area with widely-spaced samples, again to permit the Detachment to better plan their soil excavation activities.

If you have any questions or need additional information, please call me at 904 -772-7688.

Very Truly Yours,

Harding Lawson Associates

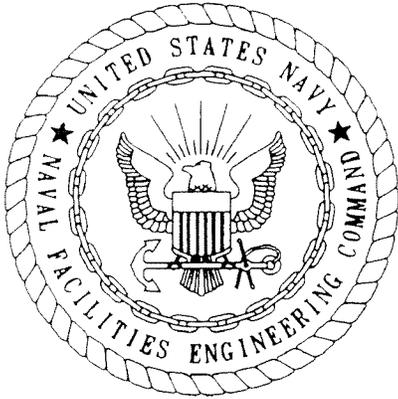
A handwritten signature in cursive script that reads "Rick Allen".

Richard P. Allen
Project Technical Lead

Attachments (3)

cc: Wayne Hansel, Southern Division
Nancy Rodriguez, USEPA Region IV
David Grabka, FDEP
Lt. G. Whipple, NTC-Public Works Officer
Bob Cohose, BEI
Steve McCoy, Tetra Tech/NUS
Al Aikens, CH2M Hill
file





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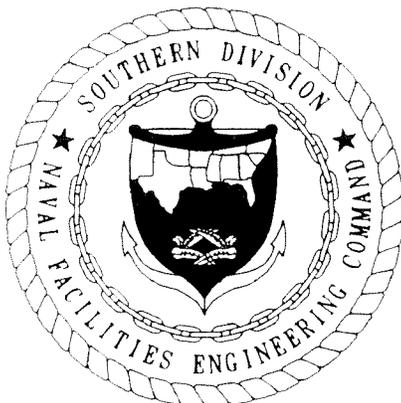
**BASE REALIGNMENT AND CLOSURE
WORK PLAN FOR INTERIM REMEDIAL ACTION**

STUDY AREA 17

**NAVAL TRAINING CENTER
ORLANDO, FLORIDA**

**UNIT IDENTIFICATION CODE: N65928
CONTRACT NO.: N62467-89-D-0317/107**

JANUARY 1999



**SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORTH CHARLESTON, SOUTH CAROLINA
29418**

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**BASE REALIGNMENT AND CLOSURE
WORK PLAN FOR INTERIM REMEDIAL ACTION**

**STUDY AREA 17
MAIN BASE**

**NAVAL TRAINING CENTER
ORLANDO, FLORIDA**

Unit Identification Code: N65928

Contract No.: N62467-89-D-0317/107

Prepared by:

**Harding Lawson Associates
2590 Executive Center Circle, East
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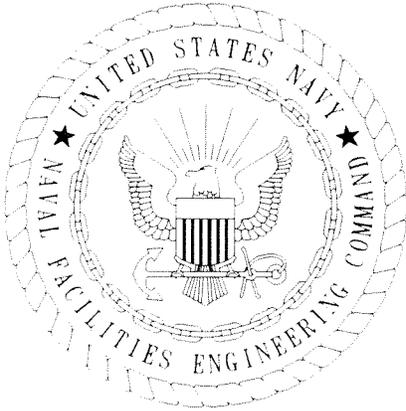
Prepared for:

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

Barbara Nwokike, Code 1873, Engineer-in-Charge

January 1999

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CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, Harding Lawson Associates, hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/107 are complete and accurate and comply with all requirements of this contract.

DATE: January 19, 1999

NAME AND TITLE OF CERTIFYING OFFICIAL: John Kaiser
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Richard Allen
Project Technical Lead

(DFAR 252.227-7036)

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Study Area 17, Main Base
Naval Training Center
Orlando, Florida

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Aromatic Hydrocarbons Only

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BRAC Work Plan for Interim Remedial Action
Study Area 17, Main Base
Naval Training Center
Orlando, Florida

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
HLA	Harding Lawson Associates
IA	immunoassay analysis
IRA	interim remedial action
NTC	Naval Training Center
PAH	polynuclear aromatic hydrocarbon
RGO	remedial goal option
SA	study area

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1.0 INTRODUCTION

This work plan incorporates information gathered as a result of site screening activities conducted at Naval Training Center (NTC) in Orlando, Study Area (SA) 17. Initial site screening investigations took place in April 1995, with additional surface soil assessment completed in November 1997. Several additional surface soil samples were taken in November 1998 to further characterize soil contamination. This work plan is intended to provide guidance for a potential soil removal to be conducted by the Environmental Detachment Charleston. Harding Lawson Associates (HLA) wishes to emphasize that the data collected at SA 17 were conducted under the Navy's Base Realignment and Closure Program and were intended only to characterize the environmental media and roughly delineate areas where environmental media had contaminant concentrations that exceed State and Federal screening criteria. The soil site screening data were not intended to accurately delineate soil contamination for a soil removal and, as such, any future soil removal should be accompanied by the collection of an adequate number of confirmation samples to verify that any contaminated media have been remediated to the selected remedial goal option (RGO).

1.1 SA 17, BACKGROUND AND CONDITIONS. SA 17 is located in the east-central portion of the McCoy Annex, one of four separate parcels comprising the NTC, Orlando (Figure 1). The SA includes Buildings 7178, 7191, and 7193, which were part of the Defense Property Disposal Office for McCoy Annex, and Building 7190, the administration and warehouse building (Figure 2). Included with Building 7190 is the motor pool area, located to the southwest. This fenced, unpaved area was used for vehicle and materials storage in the past. During the environmental baseline survey (ABB Environmental Services, Inc. [ABB-ES], 1994), several 55-gallon drums of waste fuel, oil, and ethylene glycol were observed on wooden pallets along the northern fence of the motor pool area. Hazardous materials (paints, oils, anti-freeze) were observed in this fenced area during an October 1994 site visit.

1.2 SA 17, INVESTIGATION SUMMARY. The initial site screening activities at SA 17 were intended to evaluate whether past site practices or current site conditions had affected soil or groundwater at the site. The sampling rationale was presented in the Site Screening Plan (ABB-ES, 1995a), and the results of the initial screening activities are presented in the Draft Group III Site Screening Report (ABB-ES, 1995b). Site screening activities included geophysical surveys, passive soil-gas surveys in selected areas, surface and subsurface soil sampling, sediment and surface water sampling, and monitoring well installation and groundwater sampling. A total of 6 surface soil, 18 subsurface soil, 5 groundwater, and 4 surface water and sediment samples were collected as part of the initial screening investigation. These results are presented in Appendix A. Based on the initial site screening results, surface soil screening with immunoassay analysis (IA) was conducted to provide more information on the distribution of polynuclear aromatic hydrocarbons (PAHs) around a surface soil "hot spot." Eleven surface soil samples were collected at 25- and 50-foot spacings from the vicinity of surface soil sample 17B03501. Surface and subsurface soil samples also were collected from seven additional locations across the motor pool area for confirmatory analysis. The rationale for the additional sample collection

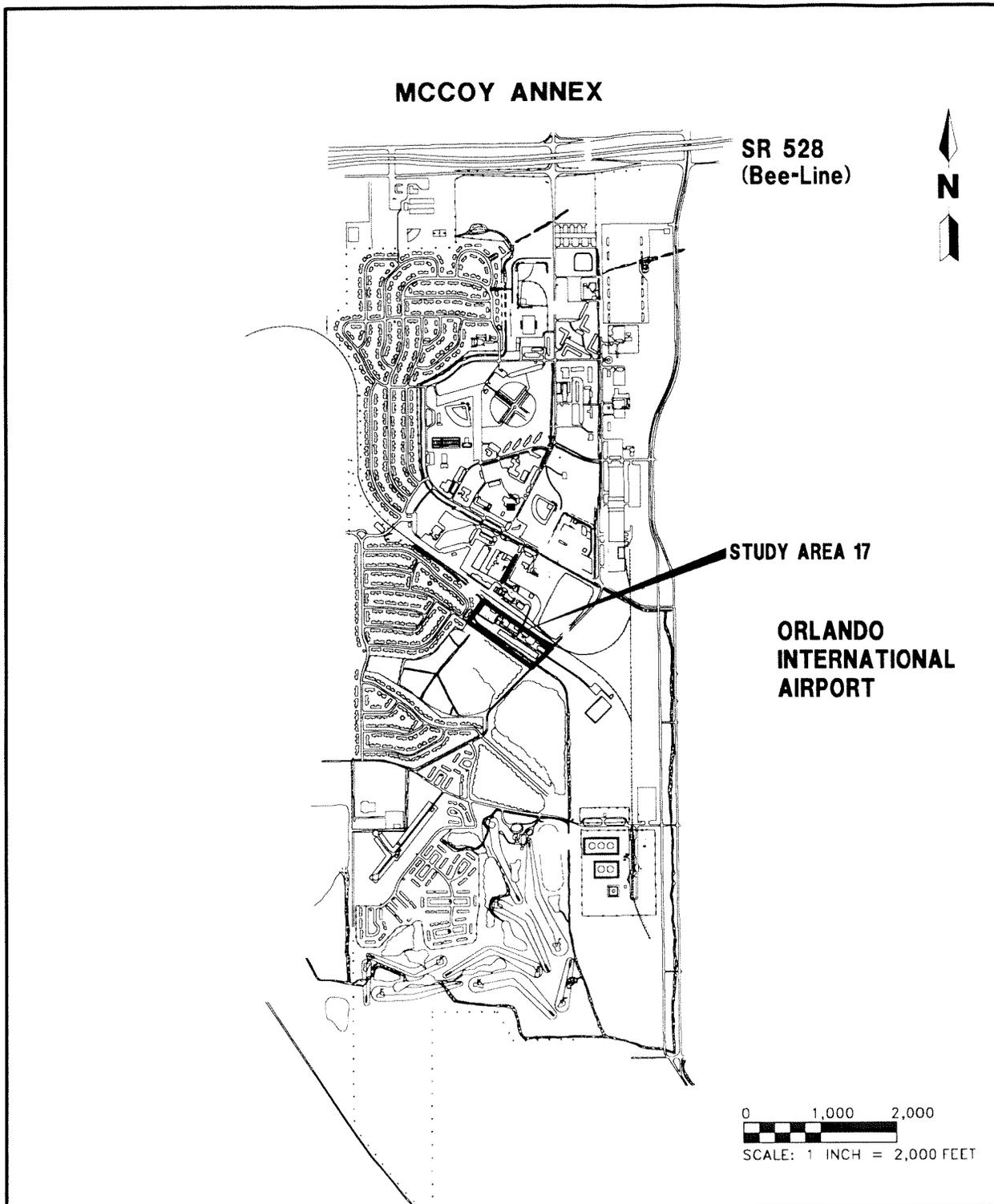


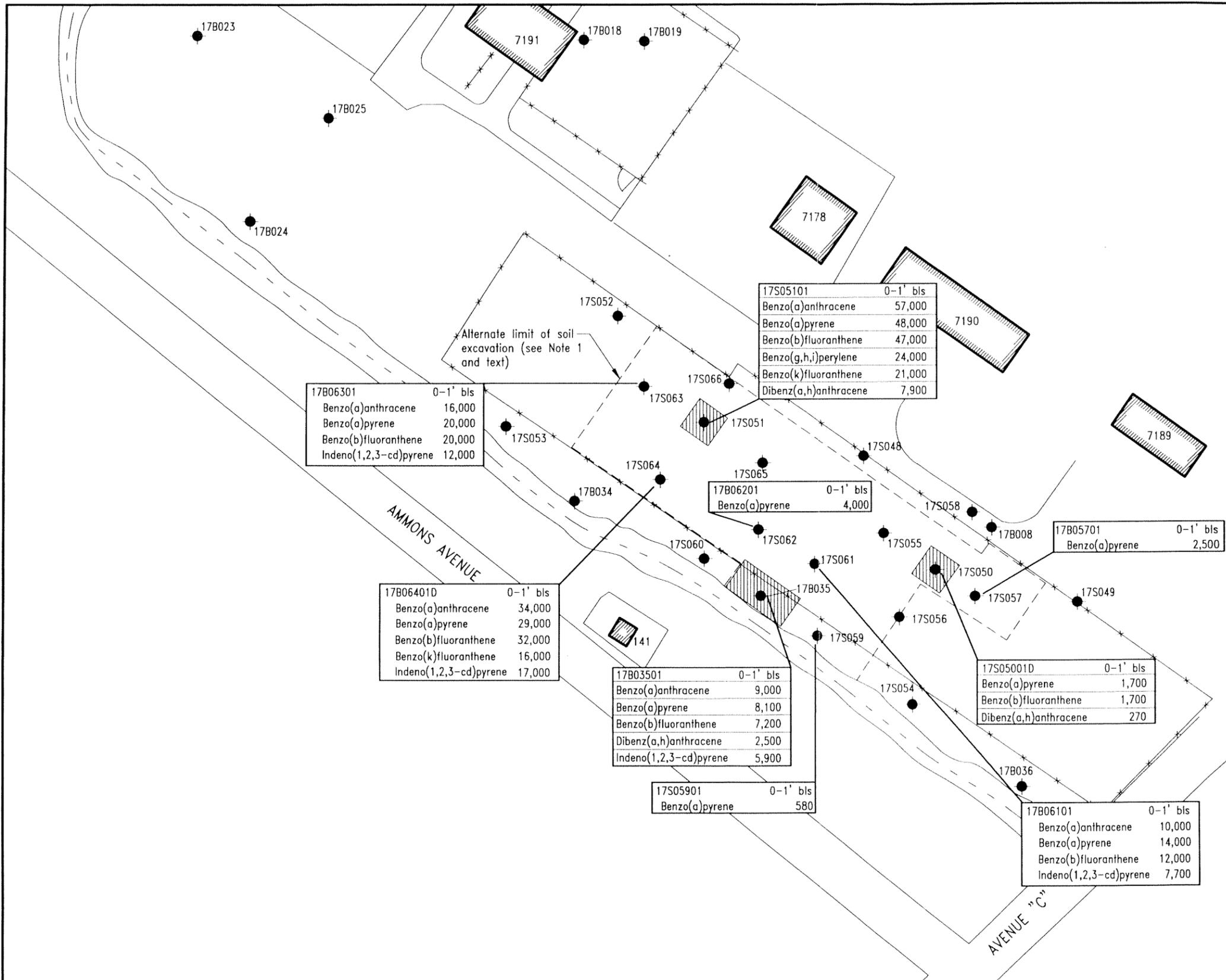
FIGURE 1
LOCATION OF STUDY AREA 17



**BASE REALIGNMENT AND CLOSURE
WORK PLAN FOR INTERIM REMEDIAL
ACTION, STUDY AREA 17**

**NAVAL TRAINING CENTER
ORLANDO, FLORIDA**

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LEGEND

17B017 ● Surface soil sample location and designation

▨ Limit of soil excavation (see Note 1)

PAH Polynuclear aromatic hydrocarbons

bls Below land surface

- NOTE:**
1. Take additional samples at locations indicated. Submit for PAH analysis only. If below industrial screening criteria, excavate two 25 X 25-foot areas and one 25 X 50-foot area to 2 feet bls. If above industrial criteria, delineate and redefine excavation limits.
 2. Concentrations in chem-boxes are in micrograms per kilogram.

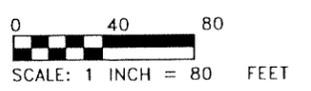


FIGURE 2
EXCEEDANCES OF INDUSTRIAL
SCREENING CRITERIA
IN SURFACE SOIL



BASE REALIGNMENT AND CLOSURE
WORK PLAN FOR INTERIM REMEDIAL
ACTION, STUDY AREA 17

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

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was presented in a letter to the Navy (ABB-ES, 1997) and presented to the Orlando Partnering Team.

Three surface soil sample locations have PAH concentrations greater than industrial screening values (Appendix A). Surface soil sample 17B03501 was collected from a grassy area approximately 20 feet wide between the fence and drainage ditch on the southwest side of SA 17 (Figure 2). This location was selected for sampling because it was in the surface water runoff path from the motor pool area inside the fence. PAH detections at 17B03501 that exceeded both residential and industrial risk-based concentrations included benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, carbazole, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, and phenanthrene. Semiquantitative IA of surface soil samples collected around this location indicate that PAH exceedances may extend as far as 50 feet from the original "hot spot." Surface soil samples collected from the grassy area both northwest and southeast of this sample location had PAH concentrations below industrial screening values. Two other surface soil samples, 17S05001 and 17S05101, also had PAH concentrations exceeding industrial values. These samples are located approximately 120 feet east and north of 17B03501 respectively, and approximately 200 feet from each other.

In the draft submittal of this document, HLA recommended the collection of four additional samples around each of the three PAH "hot spots" (sample locations 17S035, 17S050, and 17S051) to further delineate the soil contamination. These samples were collected in November 1998, and analytical results indicate that half of these samples had one or more PAHs that exceeded industrial screening values (Figure 2 and Appendix A).

In addition to the surface soil detections in the motor pool area, a chlorinated solvent plume has been detected in the shallow aquifer at SA 17. The release area for the groundwater contaminants was probably in the motor pool area as well.

1.3 RECOMMENDATIONS FOR INTERIM REMEDIAL ACTION, SA 17. Site screening investigations at SA 17 detected several PAHs in surface soil at concentrations exceeding industrial screening criteria. Because the intended re-use of the site is an industrial scenario, the locations where analytes were detected at concentrations greater than residential screening values but lower than industrial criteria are not included in the Interim Remedial Action (IRA). The intent of the IRA is to excavate and properly dispose of soil contaminated with PAHs at concentrations above the industrial screening values, which are recommended as the RGO. A different RGO could also be established.

1.3.1 Delineation of Surface Soil Contamination Nine surface soil sample locations were determined to have exceedances of the selected RGO (Figure 2). An excavation boundary encompassing the industrial exceedances is shown on Figure 2. Although somewhat irregular, the boundary is nominally 300 feet long by 120 feet wide. Because the IRA is intended to remedy surface soil exceedances of the RGO, the area to be excavated should extend to a depth of 24 inches below grade.

After excavation has been completed, confirmation samples should be collected and submitted to an approved off-site analytical laboratory for PAH analysis to verify that the RGOs have been achieved. HLA recommends as a minimum that a sample be

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collected from each wall of the excavation. If the concentration of any PAHs are still above RGOs, then additional soil should be excavated and tested.

Adequate controls should be in place during excavation activities to ensure that sediment-laden runoff or excavated surface soil does not enter the adjacent drainage ditch. Soil from the excavation should be disposed of in an approved manner. The excavation should be backfilled with Florida-certified clean fill and reseeded to control sediment runoff.

The soil removal contractor should coordinate with Public Works to assure worker safety and to prevent potential damage to existing buried utilities in the area of all excavation activities. Since releases of chlorinated solvents are known to have occurred at SA 17, the soil removal contractor should perform adequate monitoring to assure worker safety in the event that soils contaminated with chlorinated solvent are encountered during excavation activities.

1.3.2 SA 17, Volume Estimates and Assumptions For this IRA, HLA has assumed that the industrial Florida Soil Cleanup Goals are the RGO, since the reuse plan for this parcel has been designated industrial. HLA has also assumed that the site screening sample locations and analytical results adequately represent site conditions. The excavation would include the uppermost 2 feet of soil from within the boundary defined by surface soil samples with PAH concentrations exceeding the RGO, an area of 300 feet by 120 feet. This would require the removal of approximately 2,700 cubic yards of soil. If the RGO is changed or the confirmation samples have PAH concentrations exceeding the chosen RGO, excavation of a greater soil volume may be required.

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REFERENCES

- ABB Environmental Services, Inc. (ABB-ES). 1994. *Base Realignment and Closure Environmental Baseline Survey Report, NTC, Orlando, Florida*. Prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOC), North Charleston, South Carolina.
- ABB-ES. 1995a. *Site Screening Plan, Groups I through IV Study Areas and Miscellaneous Additional Sites, Naval Training Center (NTC), Orlando, Florida*. Prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOC), North Charleston, South Carolina.
- ABB-ES, 1995b. *Draft Group III Site Screening Report, Naval Training Center (NTC), Orlando, Florida*. Prepared for Southern Division, Naval Facilities Engineering Command, North Charleston, South Carolina.
- ABB-ES. 1997. *Approach for Evaluation of Study Areas with PAH Contamination Greater than Screening Criteria, Study Areas 16, 17, 18, 21, 23, 26 (Background Surface Soil Samples), 39 and 40 (letter to Wayne Hansel dated 2/27/97)*. Prepared for SOUTHNAVFACENGCOC, North Charleston, South Carolina.

APPENDIX A

**SUMMARY OF POSITIVE DETECTIONS IN SURFACE SOIL,
POLYNUCLEAR AROMATIC HYDROCARBONS ONLY**

Appendix A
 Summary of Positive Detections in Surface Soil Analytical Results
 PAHs only, Study Area 17

Naval Training Center, Orlando
 Orlando, FL

Identifier	Background	SCTL for Residential Soil	RBC for Residential Soil	RBC for Industrial Soil	17B00801	17B01801	17B01901	17B02301	17B03501	17B03601
Sampling Date					4/26/95	4/25/95	4/26/95	5/26/95	5/26/95	5/26/95
Feet bls					1	1	0.5-1.5	1	1	1
Semivolatile Organics, µg/kg										
1-Methylnaphthalene		290,000	ND	ND	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		1,500,000	3,100,000 n	82,000,000 n			110 J		140 J	
Acenaphthene		2,300,000	4,700,000 n	120,000,000 n			150 J	1,500		
Acenaphthylene		1,100,000	ND	ND	NA	NA	NA	NA	NA	NA
Anthracene		19,000,000	23,000,000 n	610,000,000 n					2,600	90 J
Benzo(a)anthracene		1,400	880 c	7,800 c				240 J	9,000 D	340 J
Benzo(a)pyrene		100	88 c	780 c					8,100 D	300 J
Benzo(b)fluoranthene		1,400	880 c	7,800 c				180 J	7,200 D	320 J
Benzo(g,h,i)perylene		2,300,000	2,300,000	61,000,000					6,400 D	220 J
Benzo(k)fluoranthene		15,000	8,800 c	78,000 c				140 J	2,400	250 J
Butylbenzylphthalate		15,000,000	16,000,000 n	410,000,000 n						460
Carbazole		53,000	32,000 c	290,000 c					1,700	
Chrysene		140,000	88,000 c	780,000 c				210 J	9,300 D	380
Dibenz(a,h)anthracene		100	88 c	780 c					2,500	98 J
Dibenzofuran		270,000	310,000 n	82,000,000 n					630	
Fluoranthene		2,800,000	3,100,000 n	82,000,000 n	130 J	170 J		580	13,000 D	710
Fluorene		2,100,000	3,100,000 n	82,000,000 n					1,400	
Indeno(1,2,3-cd)pyrene		1,500	880 c	7,800 c					5,900 D	170 J
Naphthalene		1,000,000	3,100,000 n	82,000,000 n				NA	210 J	
Phenanthrene		1,900,000	2,300,000 n	61,000,000 n		110 J		290 J	11,000 D	440
Pyrene		2,200,000	2,300,000 n	61,000,000 n	140 J	110 J		120 J	16,000 D	640

Appendix A
 Summary of Positive Detections in Surface Soil Analytical Results
 PAHs only, Study Area 17

Naval Training Center, Orlando
 Orlando, FL

Identifier	Background	SCTL for Residential Soil	RBC for Residential Soil	RBC for Industrial Soil	17B05001	17B05301	17B05401	17S04801	17S04901	17S05001
Sampling Date					11/21/97	11/24/97	11/24/97	11/21/97	11/21/97	11/21/97
Feet bls					1-2	1-2	1-2	0-1	0-1	0-1
Semivolatile Organics, µg/kg										
1-Methylnaphthalene		290,000	ND	ND	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene		1,500,000	3,100,000 n	82,000,000 n						
Acenaphthene		2,300,000	4,700,000 n	120,000,000 n	42				38	
Acenaphthylene		1,100,000	ND	ND	NA	NA	NA	NA	NA	NA
Anthracene		19,000,000	23,000,000 n	610,000,000 n						
Benzo(a)anthracene		1,400	880 c	7,800 c	27	12	32		4 PF	1,700
Benzo(a)pyrene		100	88 c	780 c	26	23	29		8	1,700
Benzo(b)fluoranthene		1,400	880 c	7,800 c	54	42	34		10	1,700
Benzo(g,h,i)perylene		2,300,000	2,300,000	61,000,000	56	44	43		11	1,000
Benzo(k)fluoranthene		15,000	8,800 c	78,000 c	13 PF	18	15		5	820
Butylbenzylphthalate		15,000,000	16,000,000 n	410,000,000 n	NA	NA	NA	NA	NA	NA
Carbazole		53,000	32,000 c	290,000 c						
Chrysene		140,000	88,000 c	780,000 c	42	22	29		12	1,600
Dibenz(a,h)anthracene		100	88 c	780 c		10 PF				270 PF
Dibenzofuran		270,000	310,000 n	82,000,000 n						
Fluoranthene		2,800,000	3,100,000 n	82,000,000 n	64	22	35		17	3,700
Fluorene		2,100,000	3,100,000 n	82,000,000 n						
Indeno(1,2,3-cd)pyrene		1,500	880 c	7,800 c		20 PF				280 PF
Naphthalene		1,000,000	3,100,000 n	82,000,000 n	39					
Phenanthrene		1,900,000	2,300,000 n	61,000,000 n						3,300 PF
Pyrene		2,200,000	2,300,000 n	61,000,000 n	74	24	52	56	23	3,900

Appendix A
 Summary of Positive Detections in Surface Soil Analytical Results
 PAHs only, Study Area 17

Naval Training Center, Orlando
 Orlando, FL

Identifier	Background	SCTL for Residential Soil	RBC for Residential Soil	RBC for Industrial Soil	17S05001D	17S05101	17S05201	17S05301	17S05401	17S05601
Sampling Date					11/21/97	11/21/97	11/21/97	11/24/97	11/24/97	11/17/98
Feet bls					0-1	0-1	0-1	0-1	0-1	0-1
Semivolatile Organics, µg/kg										
1-Methylnaphthalene		290,000	ND	ND	NA	NA	NA	NA	NA	
2-Methylnaphthalene		1,500,000	3,100,000 n	82,000,000 n						
Acenaphthene		2,300,000	4,700,000 n	120,000,000 n	3,000	190,000	1,200	260	770	
Acenaphthylene		1,100,000	ND	ND	NA	NA	NA	NA	NA	
Anthracene		19,000,000	23,000,000 n	610,000,000 n						
Benzo(a)anthracene		1,400	880 c	7,800 c	980	57,000	410	83	270	330
Benzo(a)pyrene		100	88 c	780 c	1,100	48,000	420	120	62 PF	430
Benzo(b)fluoranthene		1,400	880 c	7,800 c	1,200	47,000	500	140	270	430
Benzo(g,h,i)perylene		2,300,000	2,300,000	61,000,000	1,000	24,000	400	110		330
Benzo(k)fluoranthene		15,000	8,800 c	78,000 c	510	21,000	240	57	67 PF	220
Butylbenzylphthalate		15,000,000	16,000,000 n	410,000,000 n	NA	NA	NA	NA	NA	NA
Carbazole		53,000	32,000 c	290,000 c						NA
Chrysene		140,000	88,000 c	780,000 c	930	50,000	390	100	250	340
Dibenz(a,h)anthracene		100	88 c	780 c		7,900 PF	54 PF	26 PF	57 PF	
Dibenzofuran		270,000	310,000 n	82,000,000 n						NA
Fluoranthene		2,800,000	3,100,000 n	82,000,000 n	2,100	160,000	900	210	530	780
Fluorene		2,100,000	3,100,000 n	82,000,000 n						
Indeno(1,2,3-cd)pyrene		1,500	880 c	7,800 c			360	58	35 PF	290
Naphthalene		1,000,000	3,100,000 n	82,000,000 n				98		
Phenanthrene		1,900,000	2,300,000 n	61,000,000 n		120,000			390	
Pyrene		2,200,000	2,300,000 n	61,000,000 n	1,800	100,000	630	160	630	550

Appendix A
 Summary of Positive Detections in Surface Soil Analytical Results
 PAHs only, Study Area 17

Naval Training Center, Orlando
 Orlando, FL

Identifier	Background	SCTL for Residential Soil	RBC for Residential Soil	RBC for Industrial Soil	17S05701	17S05801	17S05901	17S06001	17S06101	17S06201
					11/17/98	11/17/98	11/17/98	11/17/98	11/17/98	11/17/98
Sampling Date					0-1	0-1	0-1	0-1	0-1	0-1
Feet bls										
Semivolatile Organics, µg/kg										
1-Methylnaphthalene		290,000	ND	ND						
2-Methylnaphthalene		1,500,000	3,100,000 n	82,000,000 n						
Acenaphthene		2,300,000	4,700,000 n	120,000,000 n						
Acenaphthylene		1,100,000	ND	ND						
Anthracene		19,000,000	23,000,000 n	610,000,000 n						
Benzo(a)anthracene		1,400	880 c	7,800 c	2,200	14	210		10,000	3,000
Benzo(a)pyrene		100	88 c	780 c	2,500	55	580	28	14,000	4,000
Benzo(b)fluoranthene		1,400	880 c	7,800 c	2,200	24	610	17	12,000	3,700
Benzo(g,h,i)perylene		2,300,000	2,300,000	61,000,000	1,600	36	610	15	8,700	2,700
Benzo(k)fluoranthene		15,000	8,800 c	78,000 c	1,200	17	300	7	6,100	1,900
Butylbenzylphthalate		15,000,000	16,000,000 n	410,000,000 n	NA	NA	NA	NA	NA	NA
Carbazole		53,000	32,000 c	290,000 c	NA	NA	NA	NA	NA	NA
Chrysene		140,000	88,000 c	780,000 c	2,100	16	240	8	11,000	3,100
Dibenz(a,h)anthracene		100	88 c	780 c						
Dibenzofuran		270,000	310,000 n	82,000,000 n	NA	NA	NA	NA	NA	NA
Fluoranthene		2,800,000	3,100,000 n	82,000,000 n	6,000	15	230		27,000	7,400
Fluorene		2,100,000	3,100,000 n	82,000,000 n						
Indeno(1,2,3-cd)pyrene		1,500	880 c	7,800 c			570		7,700	
Naphthalene		1,000,000	3,100,000 n	82,000,000 n						
Phenanthrene		1,900,000	2,300,000 n	61,000,000 n						
Pyrene		2,200,000	2,300,000 n	61,000,000 n	4,300	17	370	13	19,000	5,100

Appendix A
 Summary of Positive Detections in Surface Soil Analytical Results
 PAHs only, Study Area 17

Naval Training Center, Orlando
 Orlando, FL

Identifier	Background	SCTL for	RBC for	RBC for Industrial	17S06301	17S06401	17S06401D	17S06501	17S06601
		Residential Soil	Residential Soil	Soil	11/17/98	11/17/98	11/17/98	11/17/98	11/17/98
Sampling Date									
Feet bls					0-1	0-1	0-1	0-1	0-1
Semivolatile Organics, µg/kg									
1-Methylnaphthalene		290,000	ND	ND					
2-Methylnaphthalene		1,500,000	3,100,000 n	82,000,000 n					
Acenaphthene		2,300,000	4,700,000 n	120,000,000 n					
Acenaphthylene		1,100,000	ND	ND					
Anthracene		19,000,000	23,000,000 n	610,000,000 n					
Benzo(a)anthracene		1,400	880 c	7,800 c	16,000	6,200	34,000		
Benzo(a)pyrene		100	88 c	780 c	20,000	6,600	29,000		13
Benzo(b)fluoranthene		1,400	880 c	7,800 c	20,000	7,400	32,000		8
Benzo(g,h,i)perylene		2,300,000	2,300,000	61,000,000	13,000	4,100	18,000		
Benzo(k)fluoranthene		15,000	8,800 c	78,000 c	9,500	3,400	16,000		5
Butylbenzylphthalate		15,000,000	16,000,000 n	410,000,000 n	NA	NA	NA	NA	NA
Carbazole		53,000	32,000 c	290,000 c	NA	NA	NA	NA	NA
Chrysene		140,000	88,000 c	780,000 c	17,000	6,700	33,000		
Dibenz(a,h)anthracene		100	88 c	780 c					
Dibenzofuran		270,000	310,000 n	82,000,000 n	NA	NA	NA	NA	NA
Fluoranthene		2,800,000	3,100,000 n	82,000,000 n	46,000	19,000	100,000		
Fluorene		2,100,000	3,100,000 n	82,000,000 n					
Indeno(1,2,3-cd)pyrene		1,500	880 c	7,800 c	12,000	4,100	17,000		7
Naphthalene		1,000,000	3,100,000 n	82,000,000 n					
Phenanthrene		1,900,000	2,300,000 n	61,000,000 n					
Pyrene		2,200,000	2,300,000 n	61,000,000 n	29,000	12,000	68,000		7

Appendix B
Table B-1. Notes to Summary of Positive Detections in Surface Soil Analytical Results
Study Area 17

Naval Training Center, Orlando
Orlando, FL

NOTES:

The background screening value is twice the average of detected concentrations for inorganic analytes.

SCTL = Florida Department of Environmental Protection, Soil Cleanup Target Levels, Chapter 62-785 FAC, April 30, 1998.

Values indicated are for direct exposure scenario. Value for chromium is for chromium (IV).

Value for mercury is for inorganic mercury.

RBC = Risk-Based Concentration Table, USEPA Region III, May 1996, R. L. Smith. RBC for chromium is based on chromium VI. RBC for lead is not available, value is Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites (OSWER directive 9355-4-12). For essential nutrients (calcium, magnesium, sodium) screening values were derived based on recommended daily allowances.

RBC for benzo(g,h,i)perylene and phenanthrene are not available, value is based on pyrene.

µg/kg = micrograms per kilogram

DDE = dichlorodiphenyldichloroethene.

mg/kg = milligrams per kilogram

DDT = dichlorodiphenyltrichloroethane.

n = noncarcinogenic effects

DDD = dichlorodiphenyldichloroethane.

c = carcinogenic effects

ND = Not determined

bls = below land surface

B = Reported concentration is between the instrument detection limit and Contract Required Detection Limit.

J = Reported concentration is an estimated quantity.

D = Reported concentrations if from a dilution/reanalysis.

C = Confirmed by gas chromatography/mass spectroscopy.

PF = This laboratory qualifier indicates that the reported result is uncertain since the percent difference between the original and confirmation analysis is greater than 50%.

FDEP = Florida Department of Environmental Protection

OSWER = Office of Solid Waste and Emergency Response

USEPA = U.S. Environmental Protection Agency

All inorganics results expressed in milligrams per kilogram (mg/kg) soil dry weight; organics in micrograms per kilogram (µg/kg) soil dry weight.