N65928.AR.000890
NTC ORLANDO
5090.3a

FINAL DRAFT BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL SITE SCREENING FOR STUDY AREA 18 NTC ORLANDO FL

6/1/1999

HARDING LAWSON ASSOCIATES

FINAL DRAFT

BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL SITE SCREENING REPORT

STUDY AREA 18

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
Tallahassee, Florida 32301

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

June 1999

[redacted]

File

00620

Harding Lawson Associates

June 25, 1999
Commanding Officer
SOUTHNAVFACENGCOM
2155 Eagle Drive
North Charleston, SC 29419-9010

ATTN: Ms. Barbara Nwokike, Code 187300

Subject: **BRAC Environmental Site Screening Report**
Study Area 18
NTC, Orlando
Contract: N62467-89-D-0317

Dear Barbara:

Enclosed for your review is the BRAC Environmental Site Screening Report, Study Area 18. We have also sent copies of the report to all members of the Orlando Partnering Team, and hope to resolve any comments at the next meeting on July 21 and 22 in Orlando.

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

Very Truly Yours,

Harding Lawson Associates

Richard P. Allen
Project Technical Lead

Attachments

cc: Wayne Hansel, Southern Division
Nancy Rodriguez, USEPA Region IV
David Grabka, FDEP
LT Gary Whipple, NTC-Public Works Officer
Robin Manning, BEI
Steve McCoy, Tetra Tech/NUS
Al Aikens, CH2M Hill
John Kaiser

FINAL DRAFT

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: June 25, 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)

FINAL DRAFT

TABLE OF CONTENTS

Base Realignment and Closure
Environmental Site Screening Report
Study Area 18
Naval Training Center
Orlando, Florida

Chapter	Title	Page No.
1.0	STUDY AREA 18, HOUSING OFFICE (BUILDING 7182)	1-1
1.1	BACKGROUND AND CONDITIONS	1-1
1.2	FIELD INVESTIGATION	1-1
1.2.1	Initial Site Screening Field Investigation	1-1
1.2.1.1	SA 18, General Area	1-4
1.2.1.2	Building 7177	1-4
1.2.1.3	Building 7179	1-4
1.2.1.4	Building 7182	1-5
1.2.2	Supplemental Field Investigation, Surface Soil Sampling for PAHS	1-5
1.2.3	Removal of UST Near Building 7182 and Discovery of Chlorinated Hydrocarbons in Groundwater	1-6
1.3	SA 18 RESULTS	1-6
1.3.1	Initial Site Screening Investigations	1-6
1.3.1.1	Soil	1-6
1.3.1.2	Groundwater	1-8
1.3.2	Supplemental Site Screening Investigations	1-8
1.3.3	Removal of UST Near Building 7182 and Discovery of Chlorinated Hydrocarbons in Groundwater	1-9
1.4	SA 18, CONCLUSIONS AND RECOMMENDATIONS	1-9
1.4.1	Soil	1-9
1.4.2	Groundwater	1-9

REFERENCES

APPENDICES

Appendix A: Soil Boring Logs, Monitoring Well Construction Diagrams, Monitoring Well Development Forms, and Groundwater Sampling Field Data Sheets
Appendix B: Summary of Detections Tables
Appendix C: Summary of Analytical Results Tables
Appendix D: Report of Interim Remedial Action, Environmental Detachment Charleston, Study Area 18

LIST OF FIGURES

Base Realignment and Closure
Environmental Site Screening Report
Study Area 18
Naval Training Center
Orlando, Florida

Figures	Title	Page No.
1	Location of Study Area 18	1-2
2	Surface and Subsurface Soil, Soil Boring, and Monitoring Well Locations, Study Area 18	1-3
3	Exceedances of Screening Criteria in Soil and Groundwater, Study Area 18	1-7

GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
bls	below land surface
CLP	Contract Laboratory Program
DQO	data quality objective
FID	flame ionization detector
GCTL	Groundwater Cleanup Target Level
HLA	Harding Lawson Associates
MCL	maximum contaminant level
μg/kg	micrograms per kilogram
mg/kg	milligrams per kilogram
μg/ℓ	micrograms per liter
NTC	Naval Training Center
NTU	nephelometric turbidity unit
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
RBC	risk-based concentration
SA	Study Area
SCTL	soil cleanup target level
TAL	target analyte list
TCL	target compound list
TCE	trichloroethene
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound

1.0 STUDY AREA 18, HOUSING OFFICE (BUILDING 7182)

This report contains information gathered during site screening activities conducted at Study Area (SA) 18. Harding Lawson Associates (HLA) (then ABB Environmental Services, Inc. [ABB-ES]) submitted the results of initial site screening activities in the (Draft) Site Screening Report, Group III (ABB-ES, 1995a). Supplemental site screening activities, which included the collection of additional surface soil samples because of concentrations of polynuclear aromatic hydrocarbons (PAHs) above Florida soil cleanup target levels (SCTLs), took place in November 1997. The removal of a 1,000 gallon underground storage tank near Building 7182 and the subsequent installation of compliance wells resulted in the discovery of chlorinated hydrocarbons in groundwater at concentrations slightly higher than Florida groundwater cleanup target levels (GCTLs). Groundwater investigations to determine the nature and extent of these chemicals are currently in the planning stage and are beyond the scope of the site screening investigations conducted by HLA.

All activities performed during the investigation were conducted in a manner consistent with HLA's Project Operations Plan (ABB-ES, 1997a) developed specifically for work at the Naval Training Center (NTC), Orlando.

1.1 BACKGROUND AND CONDITIONS. This section includes a brief background summary for SA 18. Further details can be found in the Site Screening Plan (ABB-ES, 1995b).

SA 18 is located in the central portion of the McCoy Annex, NTC, Orlando (Figure 1). The SA includes Buildings 7177, 7179, and 7182, and the paved storage areas in their vicinity (Figure 2). Building 7182, built in 1952, is a 14,450-square-foot, one-story cinderblock structure which contains the administrative area for the Annex housing office. Paints, solvents, and lawn supplies are stored in the building. A paved lot surrounding the building includes a large fenced enclosure for trailer and RV storage, a gas cylinder storage area, a paint storage building (Building 7179) previously used for battery maintenance, and a hazardous material storage area containing several unmarked rusted drums, oils, and paints. Numerous appliances and equipment such as refrigerators, hot water heaters, and transformers were also present. A 1,000-gallon steel underground storage tank installed in 1952 provides heating oil for the boiler.

1.2 FIELD INVESTIGATION. The site screening field investigation was conducted in two phases. Initial site screening activities took place in April and May, 1995, and consisted of surface and subsurface soil sampling, and monitoring well installation and sampling. Because of concentrations of PAHs in surface soil, supplemental sampling was completed in November 1997. And finally, chlorinated hydrocarbons were detected in groundwater during an August 1998 sampling event following the removal of a 1,000 gallon UST. Groundwater studies are currently being planned to evaluate these contaminants.

1.2.1 Initial Site Screening Field Investigation Initial site screening activities at SA 18 included the collection of 7 surface soil samples, 5

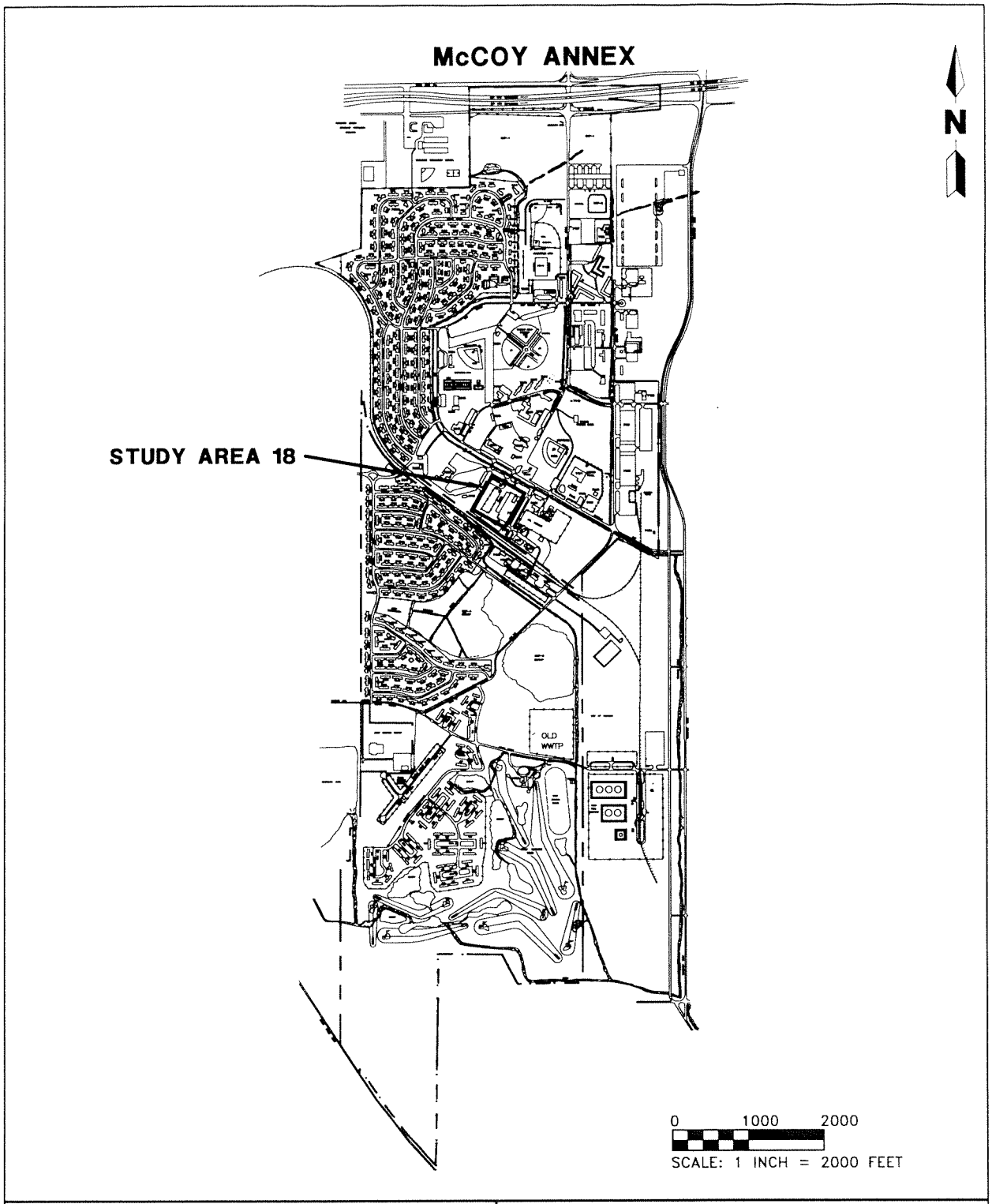


FIGURE 1
LOCATION OF STUDY AREA 18

K:\02530\02530-09\SSR\02530866.DWG, VC-VC 06/02/99 10:53:22, AutoCAD R14

BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL SITE SCREENING REPORT, STUDY AREA 18

NAVAL TRAINING CENTER ORLANDO, FLORIDA

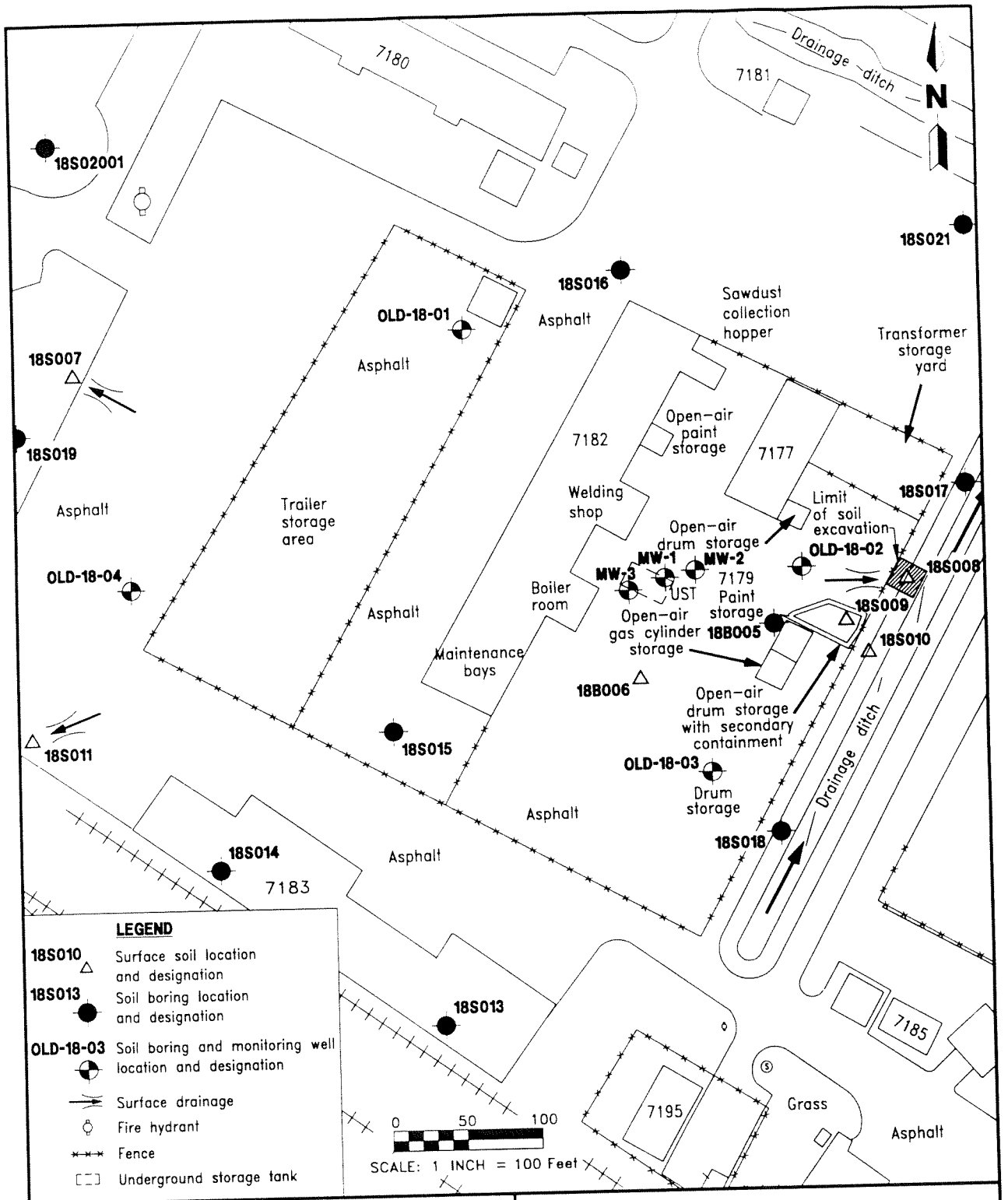


FIGURE 2
SURFACE AND SUBSURFACE SOIL, SOIL BORING AND MONITORING WELL LOCATIONS STUDY AREA 18

K:\02530\02530-09\SSR\02530867.DWG, BB-VC 06/02/99 11:28:02, AutoCAD R14

BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL SITE SCREENING REPORT, STUDY AREA 18

NAVAL TRAINING CENTER ORLANDO, FLORIDA

subsurface soil samples and 4 groundwater samples to evaluate whether or not site activities have affected soil or groundwater. Several sample locations were selected to evaluate potential impacts from general site activities. Additional sample locations were selected to evaluate potential impacts from specific areas of environmental concern. Except where noted in the text, all samples collected at SA 18 were submitted for full suite Contract Laboratory Program (CLP) Target Compound List (TCL) and Target Analyte List (TAL) analyses in accordance with United States Environmental Protection Agency (USEPA) Level IV data quality objectives (DQOs). In addition, all groundwater samples were analyzed for herbicides and TSS, and soil samples near the bermed hazardous materials storage area near Building 7179 were submitted for herbicides analysis.

All of the field data sheets associated with monitoring well installation and sampling during the investigation, including the soil boring logs, well construction diagrams, the development and sampling data sheets, are provided in Appendix A.

1.2.1.1 **SA 18, General Area** Three surface soil samples (18S00700, 18S00800, and 18S01100) were collected at locations selected to evaluate the general effects of stormwater runoff. No flame ionization detector (FID) deflections were noted during sample collection.

Two soil borings (18B001 and 18B004) in the western part of the SA were completed as monitoring wells to address concerns associated with storage activity that may have occurred in this part of the site. One subsurface soil sample and one groundwater sample were collected at each of these locations. Subsurface sample 18B00101 was collected at a depth of five to seven feet below land surface (bls) and subsurface sample 18B00401 was collected at a depth of six to eight feet bls. Groundwater samples 18G00101 and 18G00401 were collected at each of these locations, respectively. Sample locations associated with specific numbered facilities or areas of environmental concern within SA 18 are discussed below. FID deflections of 20 to 900 parts per million were noted in soil boring 18B001 in the depth range of 4 to 14 feet bls, while FID deflections of 30 to 250 were noted in soil boring 18B004 in the depth range of 4 to 14 feet bls.

1.2.1.2 **Building 7177** One groundwater monitoring well (OLD-18-02) was installed in the area south of the drum storage area associated with Building 7177 (Figure 2). One subsurface soil sample (18B00201) was collected in the interval from 6 to 8 feet bls during the soil boring operations and a groundwater sample (18G00201) was collected following completion and development of the well. Both samples were submitted for full suite analyses to evaluate whether potential releases from materials stored in this area have affected the soil or groundwater. No FID deflections were noted during sample collection.

1.2.1.3 **Building 7179** One surface soil sample (18S00900, 0 to 1 foot bls) was collected within the secondary containment area of the open-air drum storage area at Building 7179. A second surface soil sample (18S01000, 0 to 1 foot bls) was collected adjacent to a breach in the containment structure. Two soil samples were collected from a hand-augered soil boring (18B005) adjacent to an open drain pipe protruding from the wall near the north side of Building 7179. The shallow soil sample (18B00501, 0 to 1 foot bls) at this location was collected directly below the base of the pavement. The deeper sample (18B00502) was collected at the water table at a depth of 3 to 4 feet bls. Soil samples were submitted for full suite analyses including pH to evaluate whether potential releases of

hazardous materials within Building 7179 or the open-air drum storage area have affected the soil. No FID deflections were noted during sample collection.

A groundwater monitoring well (OLD-18-03) was installed near drum ring impressions in the asphalt pavement southwest of Building 7179. One subsurface soil sample (18B00301) was collected at a depth of 6 to 8 feet bls during the soil boring operations and a groundwater sample (18G00301) was collected following completion and development of the well. Both samples were submitted for full suite analyses, to evaluate whether potential releases from materials stored in this area have affected the soil or groundwater. No FID deflections were noted during sample collection.

1.2.1.4 **Building 7182** One surface soil sample (18B00601) was collected directly below the base of the pavement in the area east of the boiler room and maintenance bays. The sample was submitted for full suite CLP TCL and TAL analyses in accordance with USEPA Level IV DQOs to evaluate whether potential releases of hazardous materials occurred during various storage activities at the site. No FID deflections were noted during sample collection.

The UST located on the east side of Building 7182 was addressed by the Tank Management Plan and is discussed below in Subsection 1.2.3.

1.2.2 Supplemental Field Investigation, Surface Soil Sampling for PAHS Based on the initial site screening results, samples were collected from nine additional locations (designated 18S013/18B013 through 18S021/18B021). The additional sampling was intended to provide additional information concerning the maximum concentration of PAHs present in soils at SA 18, as well as to provide a statistically representative characterization of the distribution of PAH compounds.

Since the initial screening investigation involved the collection of soil samples at locations where contaminants were considered most likely, the sampling data sets are considered "biased" and do not represent "average" site conditions. The additional sampling was intended to augment the existing database to include approximately five well-distributed samples per acre, including previous sample locations.

The supplemental field investigation included the following steps:

- Establish a preliminary sampling grid of appropriate size and node spacing at each area, taking into consideration existing sample locations.

- Collect a surface soil (0 to 1 foot bls), and a subsurface soil (either 1 to 2 or 2 to 3 feet bls) sample from each grid node; if a subsurface sample has PAH concentrations exceeding guidance concentrations, deeper samples would be considered.

- Submit samples for laboratory analysis via USEPA Method Modified 8270-gas chromatograph mass spectrometer/selective ion monitoring (GCMS/SIM) (PAHs only); this method yields detection limits for most PAHs in the low parts per billion or tens of parts per billion.

Details describing the sampling plan for the supplemental sampling were documented in a letter to the Navy (ABB-ES, 1997b), and were also presented to the Orlando Partnering Team. The sample locations for the additional samples are shown on Figure 2.

1.2.3 **Removal of UST Near Building 7182 and Discovery of Chlorinated Hydrocarbons in Groundwater** A 1,000-gallon UST that stored heating fuel at Building 7182 was removed by the Navy Public Works Center, Pensacola. Following removal of the UST and excavation of approximately three cubic yards of petroleum-impacted soil from the excavation, a temporary well was installed and sampled. Laboratory analytical results indicated the presence of trichloroethene (TCE) at a concentration of 5 micrograms per liter ($\mu g/\ell$), compared with the Florida maximum contaminant level (MCL) of 3 $\mu g/\ell$. No petroleum hydrocarbon contaminants that exceeded Florida cleanup targets levels as defined in Chapter 62-770, Florida Administrative Code were detected. The TCE detection resulted in the recommendation in the tank contamination assessment report for additional delineation via preparation of a site assessment report (SAR).

During the SAR preparation, three shallow monitoring wells (MW-1, MW-2 and MW-3, Figure 2) were installed in July 1998 to assess the lateral extent of contaminants in groundwater. The wells were sampled in August 1998. Methylene chloride was detected in two of the wells (MW-2 and MW-3) at concentrations of 24 and 28 $\mu g/\ell$, respectively, versus the Florida MCL of 5 $\mu g/\ell$. In addition, tetrachloroethene was detected at a concentration of 4.9 $\mu g/\ell$ in MW-3, versus the State and Federal MCL of 3 $\mu g/\ell$ (HLA, 1998a).

1.3 **SA 18 RESULTS**. The results of site screening investigations at SA 18 are discussed below. Subsection 1.3.1 will contain a discussion of the initial site screening results. Subsection 1.3.2 presents the results of the supplemental soil sampling. Subsection 1.3.3 discusses the ongoing groundwater evaluation for chlorinated hydrocarbons.

1.3.1 **Initial Site Screening Investigations** Analytical results from the surface soil, subsurface soil, and groundwater collected from SA 18 are presented as Summary of Positive Detections Tables in Appendix B, Tables B-1 to B-3. A complete set of analytical results for these media is presented in Appendix C. Exceedances of background or regulatory guidance concentrations (shaded on the Summary of Positive Detections tables) are displayed in chem-boxes near their respective explorations (Figure 3).

Compounds detected in the surface soils sampled at SA 18 consisted of volatile organic compounds (VOCs), semivolatile organics, pesticides and polychlorinated biphenyls (PCB), and inorganics.

1.3.1.1 **Soil** PAHs were detected in surface soil sample locations 18S007 (including the field duplicate), 18S008, 18S010 (field duplicate only), and 18S011. PAH concentrations in surface soil location 18S008 exceeded both the residential SCTLs and risk based concentrations (RBCs) for benzo(a)anthracene (2,300 micrograms per kilogram [$\mu g/kg$]), benzo(a)pyrene (1,900 $\mu g/kg$), benzo(b)-fluoranthene (2,100 $\mu g/kg$), dibenz(a,h)anthracene (320 J [estimated] $\mu g/kg$), and indeno(1,2,3-cd)pyrene (1,200 $\mu g/kg$). Residential SCTLs and RBCs for benzo(a)pyrene were also exceeded at locations 18S007, 18S010, and 18S011; the 4,4-DDT concentration at location 18S010 exceeded its respective residential RBC.

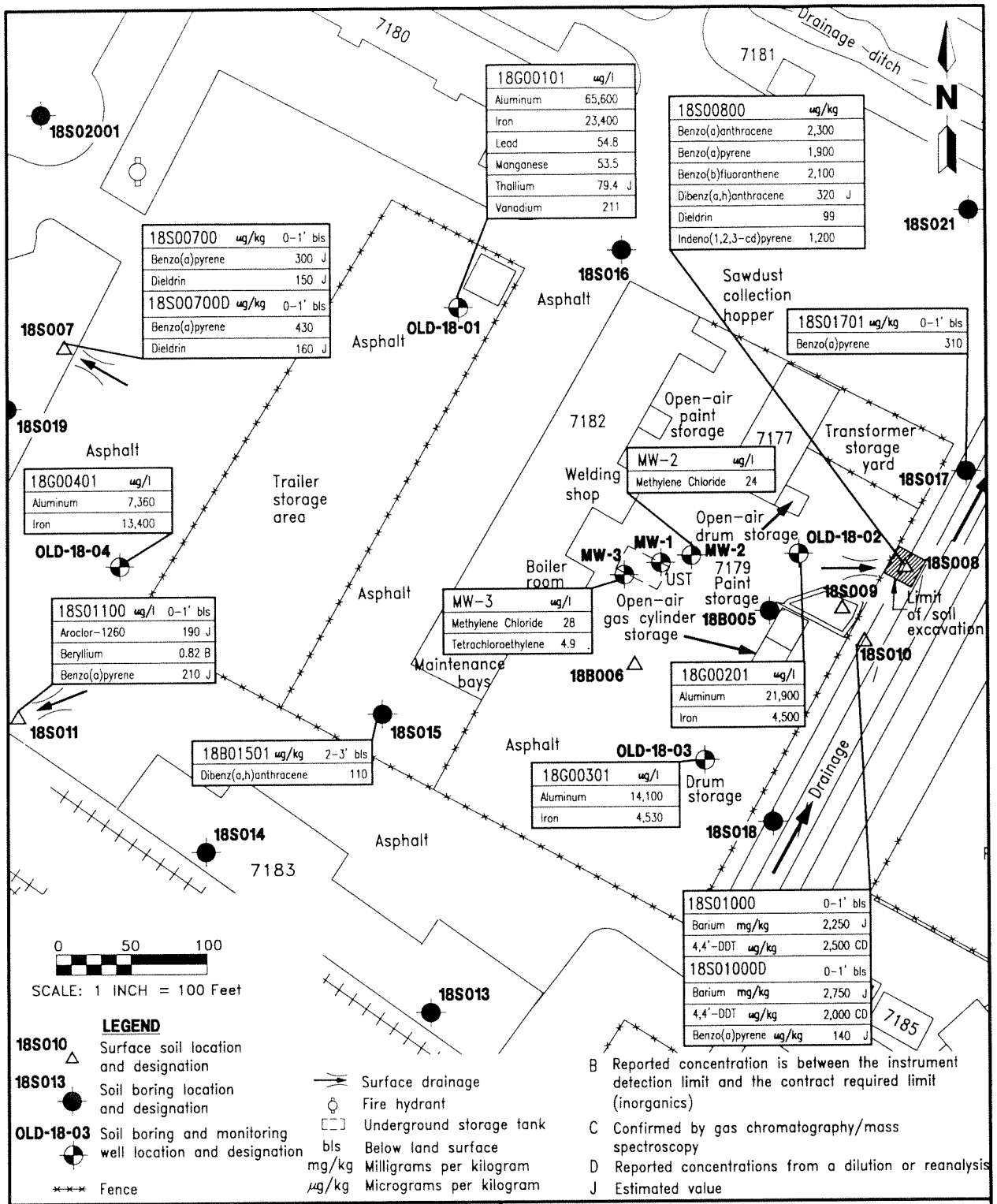


FIGURE 3
EXCEEDANCES OF SCREENING CRITERIA IN SOIL AND GROUNDWATER STUDY AREA 18

K:\02530\02530-09\SSR\0253086B.DWG, -VC 06/02/99 13:32:46, AutoCAD R14

BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL SITE SCREENING REPORT, STUDY AREA 18

NAVAL TRAINING CENTER ORLANDO, FLORIDA

Inorganics, including barium, beryllium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, sodium, vanadium and zinc were detected above background screening concentrations in surface soil. Only barium (2,250 J milligrams per kilogram [mg/kg]) at location 18S010 and beryllium (0.82B mg/kg) at location 18S011 exceeded either the corresponding residential SCTL or RBC.

Compounds detected in subsurface soil samples above background include VOCs and inorganics (Appendix B). The volatile organic detections of 2-butanone, acetone and methylene chloride are interpreted to be artifacts of the sampling and/or laboratory analytical process. Inorganic detections above background include barium, calcium, magnesium, manganese, vanadium, and zinc. All inorganic detections in subsurface soil were below their respective residential SCTLs and RBCs.

1.3.1.2 **Groundwater** Organic detections in groundwater include xylene, acenaphthene, bis(2-ethylhexyl)phthalate and naphthalene (Appendix B, Table B-3). The naphthalene detection at 12 $\mu g/\ell$ in well OLD-18-02 was less than both the GCTL (20 $\mu g/\ell$) and the tap water RBC (1,500 $\mu g/\ell$). All other organic constituents were below the corresponding Florida Department of Environmental Protection guidelines.

All groundwater samples had concentrations of aluminum and iron that exceeded the Florida secondary standards. In addition, the concentrations of lead, thallium and vanadium also exceeded the Florida primary standards in well OLD-18-01. However, these results appear to related to the relatively high suspended solids (106 mg/ℓ) present in the sample. Because of these exceedances, well OLD-18-01 was resampled in June 1996. The results indicate that the lead and thallium concentrations were below detection limits. The vanadium concentration decreased from 211 to 19.8 $\mu g/\ell$, versus the Florida GCTL of 49 $\mu g/\ell$ for vanadium. Aluminum and iron concentrations also decreased to less than 25 percent of their initial values, although they still exceeded their respective background screening concentrations.

1.3.2 **Supplemental Site Screening Investigations** As was stated in Subsection 1.2.2, above, samples were collected from nine additional locations (designated 18S013/18B013 through 18S021/18B021) to provide more information on the distribution of analytes detected in the initial screening samples. The additional samples were collected from locations intended to augment the existing database to include approximately five well-distributed samples per acre, including previous sample locations. Analytical results are presented as Summary of Positive Detections Tables in Appendix B, Table B-4. A complete set of analytical results is presented in Appendix C.

All but one of the nine supplemental locations detected PAHs (Figure 2), but only two locations detected compounds at concentrations exceeding Florida residential SCTLs. Benzo(a)pyrene was detected in sample 18S1501 at a concentration of 110 $\mu g/kg$, slightly exceeding the SCTL of 100 $\mu g/kg$. Benzo(a)pyrene was detected in sample 18S1701 at a concentration of 300 $\mu g/kg$, well below the industrial SCTL of 780 $\mu g/kg$. There were no detections of PAHs above industrial SCTLs, and no PAHs were detected in sample 18S02101.

Exceedances of background or regulatory guidance concentrations (shaded on the Summary of Positive Detections tables) are displayed in chem-boxes near their respective explorations (Figure 3).

1.3.3 Removal of UST Near Building 7182 and Discovery of Chlorinated Hydrocarbons in Groundwater As stated in Subsection 1.2.3, above, a 1,000-gallon UST was removed from the vicinity of Building 7182, and this was followed by the excavation of approximately three cubic yards of soil and installation of a temporary well. TCE was detected resulting in the recommendation in the tank contamination assessment report for additional delineation via preparation of a site assessment report (SAR). Three shallow monitoring wells were installed in July 1998 to assess the lateral extent of contaminants in groundwater. The wells were sampled in August 1998, and methylene chloride and tetrachloroethene were detected at concentrations exceeding Florida MCLs.

Because of the presence of these chlorinated solvents, further delineation and evaluation of contaminants in groundwater will be necessary. As of the writing of this report, the CLEAN III contractor is preparing a work plan to accomplish this investigation.

1.4 SA 18, CONCLUSIONS AND RECOMMENDATIONS.

1.4.1 Soil Based on the site screening data collected during the two phases of this investigation, it is concluded that except for benzo(a)pyrene in the surface soil at location 18S008, there are no other contaminants present at concentrations exceeding nonresidential screening criteria. Several surface soil sample locations have detections of PAHs, pesticides, PCBs, and inorganics at concentrations that exceed residential screening criteria, but if the site is restricted to nonresidential reuse, these occurrences will not expose future property owners to the risk of potential adverse health effects. There were no subsurface soil samples with detections that exceed residential screening criteria.

Because of the presence of benzo(a)pyrene in soil sample 18S00800 at concentrations more than three times the industrial SCTL, HLA recommended that an interim remedial action be implemented, consisting of the excavation of a 20-foot wide area centered on the sample location, and the collection of confirmation samples to verify that the contaminated soil had been remediated. The limits of the recommended soil excavation are shown on Figure 2. HLA submitted a work plan to the Navy to provide guidance to the selected contractor to complete the soil removal at location 18S008 (HLA, 1998b).

The Environmental Detachment Charleston has completed the soil removal and confirmation sampling, and their report is included as Appendix D. The Detachment has verified that no soil in the vicinity of sample 18S00800 has PAH concentrations that exceed nonresidential screening criteria. Therefore, the soil medium no longer poses risks that exceed State or Federal risk target levels.

1.4.2 Groundwater There were secondary standard exceedances in all wells for the metals aluminum and iron. Secondary standards have been established for Class G-I and G-II aquifers by the State of Florida, largely along Federal guidelines, to assure that groundwater meets at least minimum criteria for taste,

odor, and color. Secondary standards were not established for human health, cancer risk, or ecological risk considerations, but, nonetheless, they are enforceable in the State of Florida.

A description of past site activities was included in Section 1.1. Based on records reviews and interviews, there have been no known site activities that may have contributed to the observed exceedances of secondary standards for aluminum and iron. Surface soil concentrations of these analytes did not exceed background screening concentrations. The samples were all turbid to very turbid (from 100 nephelometric turbidity units [NTUs] to more than 200 NTUs) suggesting that suspended solids may have contributed to the observed secondary standard exceedances. There were no other TAL metals exceedances, and groundwater parameters measured during sampling (pH, temperature, conductivity, and turbidity) were within normal limits. ABB-ES concludes that the aluminum and iron exceeding secondary standards] are naturally-occurring, are not related to past site activities, and do not pose a risk to human health or the environment. HLA recommends that additional studies to determine the nature and extent of chlorinated solvents in the vicinity of Building 7182 be conducted.There are primary standard exceedances in well OLD-18-01 for the metals lead, thallium, and vanadium. These concentrations should be confirmed by resampling. In addition, methylene chloride and tetrachloroethylene were detected in two shallow monitoring wells installed to assess the lateral extent of contamination in groundwater following the removal of the UST near Building 7182. HLA recommends that additional studies to determine the nature and extent of chlorinated solvents in the vicinity of Building 7182 be conducted.

The undersigned members of the Orlando Partnering Team concur with the findings and recommendations of the SA 18 site screening investigation.

STUDY AREA 18

U.S. Environmental Protection Agency, Region IV	Date
Florida Department of Environmental Protection	Date
U.S. Department of the Navy	Date

REFERENCES

ABB Environmental Services, Inc. (ABB-ES). 1995a. *Site Screening Report, Group III, Naval Training Center, Orlando, Florida.* Prepared for SOUTHNAVFACENGC-OM, North Charleston, South Carolina (December).

ABB-ES. 1995b. *Site Screening Plan, Groups I through V Study Areas and Miscellaneous Additional Sites, Naval Training Center, Orlando, Florida.* Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina.

ABB-ES. 1997a. *Project Operations Plan for Site Investigations and Remedial Investigations, Volumes I and II, Naval Training Center, Orlando, Florida.* Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina.

ABB-ES. 1997b. Letter memorandum to SOUTHNAVFACENGCOM, North Charleston, South Carolina. Subject: "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."

Harding Lawson Associates (HLA). 1998a. *Site Assessment Report, Building 7182, McCoy Annex, Naval Training Center, Orlando, Florida.* Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina, October.

HLA. 1998b. *Base Realignment and Closure Work Plan for Interim Remedial Action, Study Area 18, Naval Training Center, Orlando, Florida.* Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina, September.

APPENDIX A

SOIL BORING LOGS, MONITORING WELL CONSTRUCTION DIAGRAMS, MONITORING WELL DEVELOPMENT FORMS, AND GROUNDWATER SAMPLING FIELD DATA SHEETS

Project: BRAC NTC, Group III Site Screening	**Well ID:** S.A. 18		**Boring ID:** OLD-18-01
Client: SOUTHDIVNAVFACENGCOM	**Contractor:** GEOTEK		**Job No.:** CTO-107
Northing:	**Easting:**	**Date started:** 05/12/95	**Compltd:** 05/12/95
Method: Hollow stem auger	**Casing dia.:** 6.25"	**Screened int.:** 10 ft.	**Protection level:** D
TOC elev.: Ft.	**Type of OVM.:** Porta FID	**Total dpth:** 14Ft.	**Dpth to** ∇ 7 Ft.
ABB Rep.: M. Hawes	**Well development date:** PVC		**Site:**

Depth Ft.	Laboratory Sample ID.	Sample	Recovery	Headspace (ppm)	Soil/Rock Description and comments	Lithologic symbol	Soil class.	Blows/6-in.	Well diag.
					Asphalt				
					QUARTZ SAND: Dark brown, silty, fine, trace organics		SM		
								5,5	
5	18B00101 (5-7')		90%	900	QUARTZ SAND: Light brown, silty, fine, good sorting			9,20	
								18,25	
			75%	20				30,30	∇
								7,9	
			80%	30				10,11	
10								5,12	
			80%	50				15,14	
								10,8	
			90%	140				6,5	
15									

 ABB ENVIRONMENTAL SERVICES, INC.

PJL EOJ NAME = "MSJOB 1"

OLD-18-01

GROUNDWATER SAMPLE FIELD DATA

Project: SITE SCREENING
Point of Interest: S.A. 18
Project Number: CTO 107
Date: 5/30/95
Sample Location ID: 18G0010I
Time: Start: 13:05 End: 15:19
Signature of Sampler: HAWKS

Water Level/Well Data

Well Depth 12.90 Ft. ✓ Measured ___ Historical
✓ Top of Well ___ Top of Protective Casing
Well Riser Stick-up (from ground) 0. Ft.
Protective Casing/Well Difference 0. Ft.
Protective Casing 0 Ft.

Depth to Water 6.01 Ft.
Well Material: ✓ PVC ___ SS
Well Locked?: ✓ Yes ___ No
Well Dia. ✓ 2 inch ___ 4 inch ___ 6 inch
Water Level Equip. Used: ✓ Elect. Cond. Probe ___ Float Activated ___ Press. Transducer

Height of Water Column 6.89 Ft. X ___ .16 Gal/Ft. (2 in) ___ .65 Gal/Ft. (4 in) ___ 1.5 Gal/Ft. (6 in) .65 Gal/Ft. (___ in) = 3.5 Gal/Vol; 5.0 Total Gal Purged

Well Integrity: Prot. Casing Secure ✓ Yes ___ No; Concrete Collar Intact ✓; Other ___

FLOW RATE - .33 L/MIN

Equipment Documentation

Purging/Sampling Equipment Used:

(✓ If Used For) Purging	Sampling		Equipment ID
	✓	Peristaltic Pump	889639
		Submersible Pump	
		Bailer	
✓	✓	PVC/Silicon Tubing	
		Teflon/Silicon Tubing	
		Airlift	
		Hand Pump	
		In-line Filter	
		Press/Vac Filter	

Decontamination Fluids Used: (✓ All That Apply at Location)
___ Methanol (100%)
___ 25% Methanol/75% ASTM Type II water
✓ Deionized Water
___ Liquinox Solution
___ Hexane
___ HNO_3/D.I. Water Solution
___ Potable Water
___ None
✓ ALCONOX
✓ ISOPROPYL

Field Analysis Data

Ambient Air VOC 0. ppm Well Mouth > 5000 ppm Field Data Collected ___ In-line ✓ In Container
Sample Observations: ___ Turbid ___ Clear ___ Cloudy ___ Colored ___ Odor

Purge Data	@ 1 Gal.	@ 2 Gal.	@ 3 Gal.	@ 4 Gal.	@ 5 Gal.
Temperature, Deg. C	34	34	33	33	33
pH, units	4.89	4.53	4.89	4.92	4.90
Specific Conductivity (umhos/cm. @ 25 Deg. C)	465.	468.	468.	465.	465
Oxidation - Reduction, +/- mv					
Dissolved Oxygen, ppm					
TURBIDITY	177.2	178.5	179.5	176.9	175.8
TIME	1326	1336	1353	1405	1422

Sample Collection Requirements (✓ If Required at this Location)

Analytical Parameter	✓ If Field Filtered	Preservation Method	Volume Required	✓ If Sample Collected	Sample Bottle IDs
VOA		HCL			/ / /
SVOA		4°C			/ / /
Pest/PCB		4°C			/ / /
Inorganics		HNO_3			/ / /
Explosives		4°C			/ / /
TPH		H_2SO_4			/ / /
TOC		H_2SO_4			/ / /
Nitrate		H_2SO_4			/ / /

Notes:
LOW-FLOW PURGE @ .3L/MIN.
FINAL HTU = 175.8

GROUNDWATER SAMPLE FIELD DATA

Project: NTC ORLANDO
Project Number:
Sample Location ID: OLD-18-01
Time: Start: 1400 End: 1522

Point of Interest: SA18
Date: 6-17/96
Signature of Sampler: William D. Olsen

Water Level/Well Data

Well Depth 13.0 ft. — X Measured / X Historical

X Top of Well / ___ Top of Protective Casing

Well Riser Stick-up (from ground) FM ft.

Protective Casing/Well Difference NA ft.

Protective Casing NA ft.

Depth to Water 4.64 ft.

Well Material: X PVC / ___ SS

Well Locked?: X Yes / ___ No

Well Dia. X 2 inch / ___ 4 inch / ___ 6 inch

Water Level Equip. Used: X Elect. Cond. Probe / ___ Float Activated / ___ Press. Transducer

Height of Water Column 8.36 ft. X X 16 Gal/ft. (2 in.) / ___ 65 Gal/ft. (4 in.) / ___ 1.5 Gal/ft. (6 in.) / ___ Gal/ft. (__ in.) = 1.341 Gal/Vol; 3.5 Total Gal Purged

Well Integrity: Yes / No
Prot. Casing Secure
Concrete Collar Intact
Other

Equipment Documentation

Purging/Sampling Equipment Used:

(✓ If Used For) Purging	Sampling		Equipment ID
X	X	Peristaltic Pump	
		Submersible Pump	
		Bailer	
		PVC/Silicon Tubing	
X	X	Teflon/Silicon Tubing	
		Airlift	
		Hand Pump	
		In-line Filter	
		Press/Vac Filter	

Decontamination Fluids Used:

(✓ All That Apply at Location)
- ___ Methanol (100%)
- ___ 25% Methanol/75% ASTM Type II water
- X Deionized Water
- ___ Liquinox Solution
- ___ Hexane
- ___ HNO_3/D.I. Water Solution
- ___ Potable Water
- ___ None

Field Analysis Data

Ambient Air VOC — ppm Well Mouth — ppm

Field Data Collected: ___ In-line / X In Container

Sample Observations: X Turbid / ___ Clear / ___ Cloudy / ___ Colored / ___ Odor

Purge Data	@ ___ Gal.	@ ___ Gal.	@ ___ Gal.	@ ___ Gal.	@ 3.5 Gal.
Temperature, Deg. C	30.5	30.5	30.5	31.0	31.5
pH, units		5.18	5.36	5.40	5.49
Specific Conductivity (umhos/cm. @ 25 Deg. C.)	425	420	420	418	420
~~Oxidation - Reduction, mv~~					
~~Dissolved Oxygen, ppm~~ NTU	64.8	56.9	53.0	51.7	52.6

Sample Collection Requirements (✓ If Required at this Location)

Analytical Parameter	✓ If Field Filtered	Preservation Method	Volume Required	✓ If Sample Collected	Sample Bottle IDs
VOA		HCL			/ / /
SVOA		4OC			/ / /
Pest/PCB		4OC			/ / /
Inorganics		HNO_3			/ / /
Explosives		4°C			/ / /
TPH		H_2SO_4			/ / /
TOC		H_2SO_4			/ / /
Nitrate		H_2SO_4			/ / /

Notes:

08G00102 1x 1l poly w/HNO_3 = TAL Met
1x 500ml poly = TSS

08H00102 1x 1l poly w/HNO_3 = TAL Meta

WELL DEVELOPMENT RECORD

Project: SITE SCREENING S.A. 18 NTC ORLANDO	Well Installation Date:		Project No. CTO107
Client: SOUTH DIVINAVFAC ENG COM	Well Development Date: 5/23/95	Logged by: CHRISTENS HAWES	Checked by: GJG
Well/Site I.D.: OLD-18-01	Weather: SCATTERED CLOUDS, LIGHT BREEZE, ≈ 50°	Start Date: 5/23/95	Finish Date: 5/23/95
Volume of Drilling Fluid Lost (gal.)	Volume of Water in Well and Filter Pack (gal.) 2.2	Start Time: 10:36	Finish Time: 12:10

Installed Depth From Top of Well Casing to Bottom of Well: 13.00

Initial Depth to Water (ft.) 8.94	Initial Depth to Well Bottom: NOT RECORDED
Water Level during Initial Pumping/Purging (ft): NOT RECORDED	
Water Level at Termination of Pumping/Purging (ft): 10.76	Depth to well Bottom at termination of Pumping/Purging (ft.) NOT RECORD

BEGINNING OF WELL DEVELOPMENT

Time	Temp.	pH	Conductivity	Turbidity	Other	Approximate Pumping Rate (gal/min)
11:48	26.5	5.58	440.	>200.		.3
11:52	26.5	5.46	440.	>200.		.3
11:56	26.5	5.40	440.	>200.		.3
12:00	26.5	5.46	440.	>200.		.3
12:04	26.5	5.36	440.	>200.		.3
12:08	26.6	5.32	440.	>200.		.3

END OF WELL DEVELOPMENT

NOTES: (Include physical character of removed water, type and size of pump, volume of water removed.)

USED PERISTALTIC PUMP, PUMPED ≈ 20 gal.

Well Developer's Signature Gregory L. Gaines

9312005S L 6

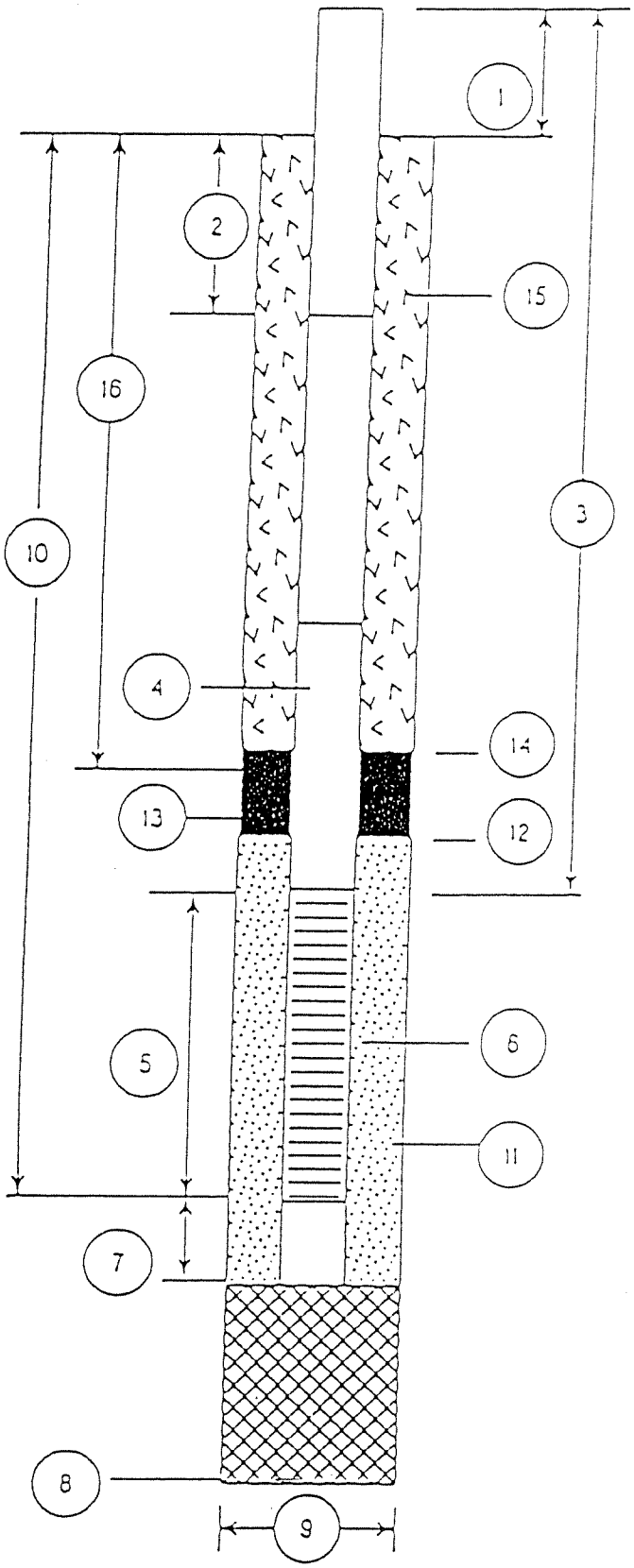
DEPARTMENT OF THE NAVY

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON, SC.

WELL CONSTRUCTION DETAIL

WELL NUMBER: OLD-18-01

DATE OF INSTALLATION: 5/2/95



1. Height of Casing above ground: 0
2. Depth to first Coupling: 3'

   Coupling Interval Depths: 10'
3. Total Length of Riser Pipe: 3'
4. Type of Riser Pipe: 2" Φ Schedule 40 PVC
5. Length of Screen: 10'
6. Type of Screen: 2" Φ Schedule 40 PVC .010 in Slot Screen
7. Length of Sump: 6"
8. Total Depth of Boring: 14'
9. Diameter of Boring: 6.25"
10. Depth to Bottom of Screen: 12.5"
11. Type of Screen Filter: 20/30 Silica Sand

    Quantity Used: 575 lb Size: ____
12. Depth to Top of Filter: 2'
13. Type of Seal: 3/8" Φ Baroid Bentonite Pellets

    Quantity Used: 20 lb
14. Depth to Top of Seal: 1.5'
15. Type of Grout: Portland Cement

    Grout Mixture:

    Method of Placement: ____
16. Tot. Depth of 6 in. Steel Casing: N/A

Project: BRAC NTC, Group III Site Screening	**Well ID:** S.A. 18		**Boring ID:** OLD-18-02
Client: SOUTHDIVNAVFACENGCOM	**Contractor:** GEOTEK		**Job No.:** CTO-107
Northing:	**Easting:**	**Date started:** 05/12/95	**Compltd:** 05/12/95
Method: Hollow stem auger	**Casing dia.:** 6.25"	**Screened int.:** 10 ft.	**Protection level:** D
TOC elev.: Ft.	**Type of OVM.:** Porta FID	**Total dpth:** 14Ft.	**Dpth to** ∇ 7 Ft.
ABB Rep.: M. Hawes	**Well development date:** PVC		**Site:**

Depth Ft.	Laboratory Sample ID.	Sample	Recovery	Headspace (ppm)	Soil/Rock Description and comments	Lithologic symbol	Soil class.	Blows/6-in.	Well diag.
					Asphalt				
				0	QUARTZ SAND: Dark brown, silty, fine, trace organics		SM		
				0	QUARTZ SAND: White, fine		SP		
					QUARTZ SAND: Brown, silty, fine, good to moderate rounding, trace organics		SM	6,6	
5			90%	0	QUARTZ SAND: Light brown to tan, silty, fine, trace organics			6,7	
	18B00201 (6-8')							10,6	
			85%	0				8,11	
								5,7	
			90%	0				7,8	
10								8,9	
			90%	0				7,8	
					QUARTZ SAND: Dark brown, silty, fine			5,7	
			90%	0				7,9	
15									

 ABB ENVIRONMENTAL SERVICES, INC.

%-12345X@PJL EOJ NAME = "MSJOB 1"

OLD-18-02

GROUNDWATER SAMPLE FIELD DATA

Project: SITE SCREENING
Point of Interest: S.A. 18
Project Number: CTO 107
Date: 5/18/95
Sample Location ID: 18G00201
Time: Start: 07:00 End: _____
Signature of Sampler: GRIETZMS / NASH

Water Level/Well Data

Well Depth 12.5 Ft. ___ Measured ✓ Historical ✓ Top of Well ___ Top of Protective Casing ___ ___

Well Riser Stick-up (from ground) 0. Ft.

Protective Casing/Well Difference 0. Ft.

Protective Casing 0. Ft.

Depth to Water N.R. Ft.

Well Material: ✓ PVC ___ SS ___

Well Locked?: ✓ Yes ___ No

Well Dia. ✓ 2 inch ___ 4 inch ___ 6 inch ___ ___

Water Level Equip. Used: ✓ Elect. Cond. Probe ___ Float Activated ___ Press. Transducer ___ ___

Height of Water Column N.R. Ft. X ___ 16 Gal/Ft (2 in) ___ 65 Gal/Ft (4 in) ___ 1.5 Gal/Ft (6 in) ___ ___ Gal/Ft (___ in) = [___ Gal/Vol; 48. Total Gal Purged]

Well Integrity: Yes / No
Prot. Casing Secure: ✓ ___
Concrete Collar Intact: ✓ ___
Other ___ ___ ___

FLOW RATE: 1 LIT/MIN

Equipment Documentation

Purging/Sampling Equipment Used:

(✓ If Used For) Purging	Sampling		Equipment ID
✓		Peristaltic Pump	
		Submersible Pump	
		Bailer	
		PVC/Silicon Tubing	
✓	✓	Teflon/Silicon Tubing	
		Airlift	
		Hand Pump	
		In-line Filter	
		Press/Vac Filter	

Decontamination Fluids Used: (✓ All That Apply at Location)

___ Methanol (100%)
___ 25% Methanol/75% ASTM Type II water
✓ Deionized Water
___ Liquinox Solution
___ Hexane
___ HNO_3/D.I. Water Solution
___ Potable Water
___ None
✓ ALCONOX
✓ ISOPROPYL

Field Analysis Data

Ambient Air VOC 0. ppm Well Mouth 0. ppm

Field Data Collected ___ In-line ✓ In Container

Sample Observations: ___ Turbid ___ Clear ___ Cloudy ___ Colored ___ Odor

Purge Data	@ 41.75 Gal.	@ 43.0 Gal.	@ 44.25 Gal.	@ 45.5 Gal.	@ 46 3/4 Gal.	
Temperature, Deg. C	89.2	89.1	89.8	89.6	89.8	89.7
pH, units	4.47	4.36	4.31	4.85	4.42	4.90
Specific Conductivity (umhos/cm. @ 25 Deg. C)	120.	120.	120.	120.	120.	120.
Oxidation - Reduction, +/- mv						
Dissolved Oxygen, ppm						
TURBIDITY	>200	>200	>200	>200	>200	
TIME	1045	1050	1055	1100	1105	1110

Sample Collection Requirements (✓ If Required at this Location)

Analytical Parameter	✓ If Field Filtered	Preservation Method	Volume Required	✓ If Sample Collected	Sample Bottle IDs
VOA		HCL			/ / /
SVOA		4OC			/ / /
Pest/PCB		4OC			/ / /
Inorganics		HNO_3			/ / /
Explosives		4°C			/ / /
TPH		H_2SO_4			/ / /
TOC		H_2SO_4			/ / /
Nitrate		H_2SO_4			/ / /

Notes:
LOW-FLOW PURGE
FINAL NTU = > 200.

WELL DEVELOPMENT RECORD

Project: SITE SCREENING S.A. 18 NTC ORLANDO	Well Installation Date:		Project No. CTO107
Client: SOUTHDIVNAVFACENG.COM	Well Development Date:	Logged by: GIRARDOT NASH	Checked by: GBG
Well/Site I.D.: OLD-18-02	Weather: NOT RECORDED	Start Date: 5/17/95	Finish Date: 5/17/95
Volume of Drilling Fluid Lost (gal.)	Volume of Water in Well and Filter Pack (gal.) 4.5	Start Time: 13:50	Finish Time: 15:00

Installed Depth From Top of Well Casing to Bottom of Well: 13.00

Initial Depth to Water (ft.) 4.86	Initial Depth to Well Bottom: NOT RECORDED

Water Level during Initial Pumping/Purging (ft): NOT RECORDED

Water Level at Termination of Pumping/Purging (ft): NOT RECORDED	Depth to well Bottom at termination of Pumping/Purging (ft.) NOT RECORDED

BEGINNING OF WELL DEVELOPMENT

Time	Temp.	pH	Conductivity	Turbidity	Other	Approximate Pumping Rate (gal/min)
14:15	86.6	5.30	130.	>200.		.25
14:23	86.2	5.20	130.	>200.		.25
14:30	86.3	5.28	130.	>200.		.25
14:38	84.2	4.82	120.	183.3		.25
14:47	84.0	4.83	120.	>200.		.5
15:00	84.8	4.96	115.	>200.		.5

END OF WELL DEVELOPMENT

NOTES: (Include physical character of removed water, type and size of pump, volume of water removed.)

PUMPED TOTAL OF 110 gallons.

Well Developer's Signature _____

9312005S L6

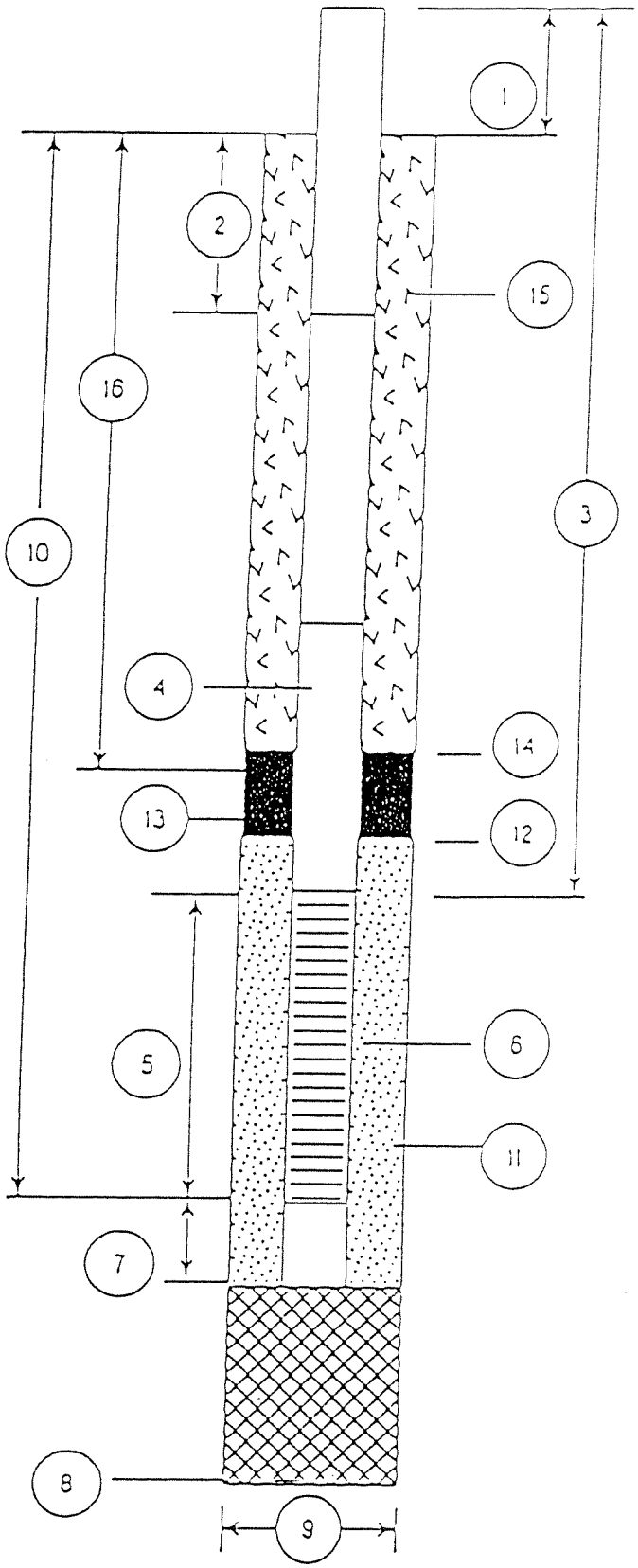
DEPARTMENT OF THE NAVY

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON, SC.

WELL CONSTRUCTION DETAIL

WELL NUMBER: OLD-12-02

DATE OF INSTALLATION: 5/12/95



1. Height of Casing above ground: 0
2. Depth to first Coupling: 3'

   Coupling Interval Depths: 10'
3. Total Length of Riser Pipe: 3'
4. Type of Riser Pipe: 2" Φ Schedule 40 PVC
5. Length of Screen: 10'
6. Type of Screen: 2" Φ Schedule 40 PVC, .010 in. Slot
7. Length of Sump: 6"
8. Total Depth of Boring: 14'
9. Diameter of Boring: 6.25"
10. Depth to Bottom of Screen: 12.5'
11. Type of Screen Filter: 20/30 Silica Sand

    Quantity Used: 600 lb Size: ____
12. Depth to Top of Filter: 2'
13. Type of Seal: 3/8" Φ Baroid Bentonite Pellets

    Quantity Used: 20 lb
14. Depth to Top of Seal: 1.5'
15. Type of Grout: Portland Cement

    Grout Mixture:

    Method of Placement: ____
16. Tot. Depth of 6 in. Steel Casing: N/A

Project: BRAC NTC, Group III Site Screening	**Well ID:** S.A. 18		**Boring ID:** OLD-18-03
Client: SOUTHDIVNAVFACENGCOM	**Contractor:** GEOTEK		**Job No.:** CTO-107
Northing:	**Easting:**	**Date started:** 05/12/95	**Compltd:** 05/13/95
Method: Hollow stem auger	**Casing dia.:** 6.25"	**Screened int.:** 10 ft.	**Protection level:** D
TOC elev.: Ft.	**Type of OVM.:** Porta FID	**Total dpth:** 14Ft.	**Dpth to** ∇ 7.5 Ft.
ABB Rep.: M. Hawes	**Well development date:** PVC		**Site:**

Depth Ft.	Laboratory Sample ID.	Sample	Recovery	Headspace (ppm)	Soil/Rock Description and comments	Lithologic symbol	Soil class.	Blows/6-in.	Well diag.
					Asphalt				
					QUARTZ SAND: Dark brown, silty, fine		SM		
					QUARTZ SAND: White, fine		SP		
					QUARTZ SAND: Brown, silty, fine, good to moderate rounding, trace organics		SM		
								4,4	
5			90%	0				5,5	
	18B00301 (6-8')							5,5	
			95%	0				7,14	∇
								4,5	
			90%	0				8,8	
10								5,5	
			90%	0				7,7	
								2,3	
			80%	0				6,6	
15									

 ABB ENVIRONMENTAL SERVICES, INC.

%-12345X@PJL EOJ NAME = "MSJOB 3"

OLD-18-03

GROUNDWATER SAMPLE FIELD DATA

Project: SITE SCREENING
Point of Interest: S.A. 18
Project Number: CTO 107
Date: 5/18/95
Sample Location ID: 18G00301
Time: Start: 07:00 End: 10:30
Signature of Sampler: GRIFFITHS/NASH

Water Level/Well Data

Well Depth 12.5 Ft. — ✓ Measured / ✓ Historical — ✓ Top of Well / Top of Protective Casing

Well Riser Stick-up (from ground) 0. Ft. — Protective Casing/Well Difference 0 Ft. — Protective Casing 0 Ft.

Depth to Water N.R. Ft. — Well Material: ✓ PVC / SS — Well Locked?: ✓ Yes / No — Well Dia. ✓ 2 inch / 4 inch / 6 inch — Water Level Equip. Used: ✓ Elect. Cond. Probe / Float Activated / Press. Transducer

Height of Water Column N.R. Ft. X (16 Gal/Ft (2 in) / 65 Gal/Ft (4 in) / 1.5 Gal/Ft (6 in) / Gal/Ft (in)) = [Low Flow Gal/Vol / 12 Total Gal Purged]

Well Integrity: Prot. Casing Secure — Yes ✓ / No; Concrete Collar Intact — Yes ✓ / No; Other — Yes / No

FLOW RATE .67 LIT/MIN

Equipment Documentation

Purging/Sampling Equipment Used:

(✓ If Used For) Purging	Sampling		Equipment ID
✓	✓	Peristaltic Pump	
		Submersible Pump	
		Bailer	
		PVC/Silicon Tubing	
✓	✓	Teflon/Silicon Tubing	
		Airlift	
		Hand Pump	
		In-line Filter	
		Press/Vac Filter	

Decontamination Fluids Used: (✓ All That Apply at Location)

- Methanol (100%)
- 25% Methanol/75% ASTM Type II water
- ✓ Deionized Water
- Liquinox Solution
- Hexane
- HNO_3/D.I. Water Solution
- Potable Water
- None
- ✓ ALCOHOL
- ✓ ISOPROPYL

Field Analysis Data

Ambient Air VOC 0 ppm Well Mouth 0 ppm Field Data Collected: In-line / ✓ In Container

Sample Observations: Turbid / Colored / Clear / Odor / Cloudy

Purge Data	@ 8 Gal.	@ 9 Gal.	@ 10 Gal.	@ 11 Gal.	@ 12 Gal.
Temperature, Deg. C	82.6	82.6	85.0	87.4	87.4
pH, units	4.61	4.67	4.64	4.63	4.65
Specific Conductivity (umhos/cm. @ 25 Deg. C)	100.	100.	100.	100.	100.
Oxidation - Reduction, +/- mv					
Dissolved Oxygen, ppm					
TURBIDITY	>200	>200	>200	>200	>200
TIME	0945	0951	0956	1001	1006

Sample Collection Requirements (✓ If Required at this Location)

Analytical Parameter	✓ If Field Filtered	Preservation Method	Volume Required	✓ If Sample Collected	Sample Bottle IDs
VOA		HCL			/ / /
SVOA		4°C			/ / /
Pest/PCB		4°C			/ / /
Inorganics		HNO_3			/ / /
Explosives		4°C			/ / /
TPH		H_2SO_4			/ / /
TOC		H_2SO_4			/ / /
Nitrate		H_2SO_4			/ / /

Notes:
LOW-FLOW METHOD
2/3 L./MIN
FINAL NTU >200

WELL DEVELOPMENT RECORD

Project: SITE SCREENING S.A. 18 HTC ORLANDO	Well Installation Date:		Project No. CTO 107
Client: SOUTHDIVNAVFACENGCOM	Well Development Date: 5/17/95	Logged by: GIRARDOT NACH	Checked by: GBG
Well/Site I.D.: OD-18-03	Weather: NOT RECORDED	Start Date: 5/17/95	Finish Date: 5/17/95
Volume of Drilling Fluid Lost (gal.) N/A	Volume of Water in Well and Filter Pack (gal.) 3.9	Start Time: 13:15	Finish Time: 14:00

Installed Depth From Top of Well Casing to Bottom of Well:

Initial Depth to Water (ft.) 5.88	Initial Depth to Well Bottom: 12.91
Water Level during Initial Pumping/Purging (ft): 8.16	
Water Level at Termination of Pumping/Purging (ft): 6.55	Depth to well Bottom at termination of Pumping/Purging (ft.) 12.92

BEGINNING OF WELL DEVELOPMENT

Time	Temp.	pH	Conductivity	Turbidity	Other	Approximate Pumping Rate (gal/min)
13:25	83.8	4.81	105.	176.5		1.
13:30	84.0	4.71	105.	190.5		1.
13:40	84.5	4.70	100.	175.6		1.
13:47	84.3	4.70	100.	>200		1.
13:55	84.3	4.70	100.	>200		1.
14:00	84.2	4.65	105.	180.9		1.

END OF WELL DEVELOPMENT

NOTES: (Include physical character of removed water, type and size of pump, volume of water removed.)

PUMPED TOTAL (PRE-DEV. 75 + DEV. 35) ≈ 110 gal.

Well Developer's Signature _____

9312005S L6

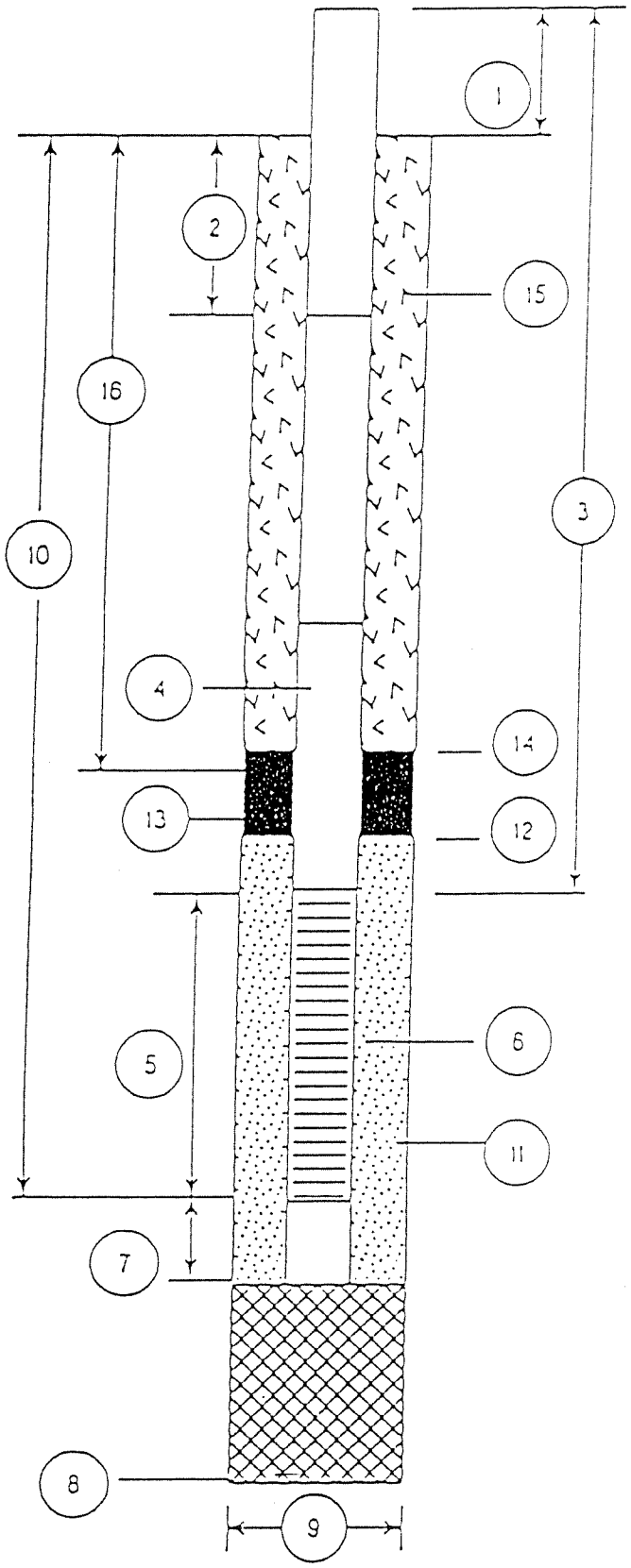
DEPARTMENT OF THE NAVY

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON, SC.

WELL CONSTRUCTION DETAIL

WELL NUMBER: OLD-18-03

DATE OF INSTALLATION: 5/13/95



1. Height of Casing above ground: 0
2. Depth to first Coupling: 3'
   Coupling Interval Depths: 10'
3. Total Length of Riser Pipe: 3'
4. Type of Riser Pipe: 2"ϕ Schedule 40 PVC
5. Length of Screen: 10'
6. Type of Screen: 2"ϕ schedule 40 PVC .010 in. Slot S.
7. Length of Sump: 6"
8. Total Depth of Boring: 14'
9. Diameter of Boring: 6.25"
10. Depth to Bottom of Screen: 12.5"
11. Type of Screen Filter: 20/30 Silica Sand
    Quantity Used: 500lb Size: ____
12. Depth to Top of Filter: 2'
13. Type of Seal: Bentonite
    Quantity Used: 20lb
14. Depth to Top of Seal: 1.5'
15. Type of Grout: Portland Cement
    Grout Mixture:
    Method of Placement: ____
16. Tot. Depth of 6 in. Steel Casing: N/A

Project: BRAC NTC, Group III Site Screening	**Well ID:** S.A. 18		**Boring ID:** OLD-18-04
Client: SOUTHDIVNAVFACENGCOM	**Contractor:** GEOTEK		**Job No.:** CTO-107
Northing:	**Easting:**	**Date started:** 05/11/95	**Compltd:** 05/11/95
Method: Hollow stem auger	**Casing dia.:** 6.25"	**Screened int.:** 10 ft.	**Protection level:** D
TOC elev.: Ft.	**Type of OVM.:** Porta FID	**Total dpth:** 14Ft.	**Dpth to** ∇ 8 Ft.
ABB Rep.: M. Hawes	**Well development date:** PVC		**Site:**

Depth Ft.	Laboratory Sample ID.	Sample	Recovery	Headspace (ppm)	Soil/Rock Description and comments	Lithologic symbol	Soil class.	Blows/6-in.	Well diag.
					Asphalt				
					QUARTZ SAND: Dark brown, silty, fine, trace organics		SM		
				100				4,5	
5			80%		QUARTZ SAND: Light brown, silty, fine, good sorting			13,16	
	18B00401 18B00401D (6-8')			250				13,17	
			90%					21,14	
				40				12,10	∇
			90%					8,6	
10				50	QUARTZ SAND: Dark brown, silty, fine, good sorting, trace organics			6,6	
			90%					7,6	
				30				4,5	
			90%					6,7	
15									

 ABB ENVIRONMENTAL SERVICES, INC.

%-12345X@PJL EOJ NAME = "MSJOB 5"

OLD-18-04

GROUNDWATER SAMPLE FIELD DATA

Project: SITE SCREENING
Project Number: CTO 107
Sample Location ID: 18400401
Time: Start: 11:15 End: 13:22

Point of Interest: S.A. 18
Date: 5/18/95
Signature of Sampler: GBG/JDN

Water Level/Well Data

Well Depth 13.00 Ft. — ___ Measured ✓ Historical — ✓ Top of Well ___ Top of Protective Casing

Well Riser Stick-up (from ground) 0. Ft. — Protective Casing/Well Difference 0. Ft. — Protective Casing 0. Ft.

Depth to Water 9.11 Ft. — Well Material: ✓ PVC ___ SS — Well Locked?: ✓ Yes ___ No — Well Dia. ✓ 2 inch ___ 4 inch ___ 6 inch — Water Level Equip. Used: ✓ Elect. Cond. Probe ___ Float Activated ___ Press. Transducer

Height of Water Column 8.89 Ft. X ___ 16 Gal/Ft. (2 in.) ___ 65 Gal/Ft. (4 in.) ___ 1.5 Gal/Ft. (6 in.) .55 Gal/Ft. (___ in.) = 4.9 Gal/Vol; 26.0 Total Gal Purged

Well Integrity: Prot. Casing Secure ✓ Yes ___ No; Concrete Collar Intact ✓ Yes ___ No; Other ___

FLOW RATE 1 LPM

Equipment Documentation

Purging/Sampling Equipment Used:

Purging (✓ If Used For)	Sampling (✓ If Used For)		Equipment ID
✓	✓	Peristaltic Pump	
		Submersible Pump	
		Bailer	
		PVC/Silicon Tubing	
✓	✓	Teflon/Silicon Tubing	
		Airlift	
		Hand Pump	
		In-line Filter	
		Press/Vac Filter	

Decontamination Fluids Used: (✓ All That Apply at Location)
___ Methanol (100%)
___ 25% Methanol/75% ASTM Type II water
✓ Deionized Water
___ Liquinox Solution
___ Hexane
___ HNO_3/D.I. Water Solution
___ Potable Water
___ None
✓ ALCONOX
✓ ISOPROPYL

Field Analysis Data

Ambient Air VOC 0 ppm Well Mouth 0 ppm Field Data Collected ___ In-line ✓ In Container

Sample Observations: ___ Turbid ✓ Colored ___ Clear ___ Odor ___ Cloudy

Purge Data	@ 7/8 Gal.	@ 2.25 Gal.	@ 3.5 Gal.	@ 4.75 Gal.	@ 6.0 Gal.
Temperature, Deg. C	86.9	86.9	88.0	88.7	88.0
pH, units	4.43	4.54	4.85	4.56	4.86
Specific Conductivity (umhos/cm. @ 25 Deg. C)	338.	315.	320.	325.	325.
Oxidation - Reduction, +/- mv					
Dissolved Oxygen, ppm					
TURBIDITY	138.3	125.1	110.5	104.2	97.6
TDS	1541	1556	1611	1626	1641

Sample Collection Requirements (✓ If Required at this Location)

Analytical Parameter	✓ If Field Filtered	Preservation Method	Volume Required	✓ If Sample Collected	Sample Bottle IDs
VOA		HCL			/ / /
SVOA		4°C			/ / /
Pest/PCB		4°C			/ / /
Inorganics		HNO_3			/ / /
Explosives		4°C			/ / /
TPH		H_2SO_4			/ / /
TOC		H_2SO_4			/ / /
Nitrate		H_2SO_4			/ / /

Notes:
FINAL TURBIDITY = 97.6 NTU
YELLOW COLOR TO WATER.

LOW FLOW - .2L - .5L/MIN.

WELL DEVELOPMENT RECORD

Project: SITE SCREENING S.A. 18 NTC ORLANDO	Well Installation Date:		Project No. CTO 107
Client: SOUTHDIVNAVFAC.ENG.COM	Well Development Date: 5/17/95	Logged by: GIRARDOT NASH	Checked by: GBG
Well/Site I.D.: OLD-18-04	Weather: NOT RECORDED	Start Date: 5/17/95	Finish Date: 5/17/95
Volume of Drilling Fluid Lost (gal.)	Volume of Water in Well and Filter Pack (gal.) 5.0	Start Time: 15:30	Finish Time: 17:05

Installed Depth From Top of Well Casing to Bottom of Well: 13.00

Initial Depth to Water (ft.) 3.91

Initial Depth to Well Bottom: NOT RECORDED

Water Level during Initial Pumping/Purging (ft): NOT RECORDED

Water Level at Termination of Pumping/Purging (ft): NOT RECORDED

Depth to well Bottom at termination of Pumping/Purging (ft.) NOT RECORDED

BEGINNING OF WELL DEVELOPMENT

Time	Temp.	pH	Conductivity	Turbidity	Other	Approximate Pumping Rate ~~(gal/min)~~
16:10	88.2	4.80	350.	90.0		1/4 LITER/min
16:17	87.1	4.80	275.	120.0		1/4 L/min
16:27	87.1	4.81	340.	97.1		"
16:35	87.2	4.93	340.	84.8		"
16:44	86.7	4.91	340.	73.0		"
16.55	86.6	4.83	330.	66.7		"
17.05	85.5	4.94	330.	70.3		

END OF WELL DEVELOPMENT

NOTES: (Include physical character of removed water, type and size of pump, volume of water removed.)

TOTAL PUMPED, 70 gallons.

Well Developer's Signature _____

9312005S L 6

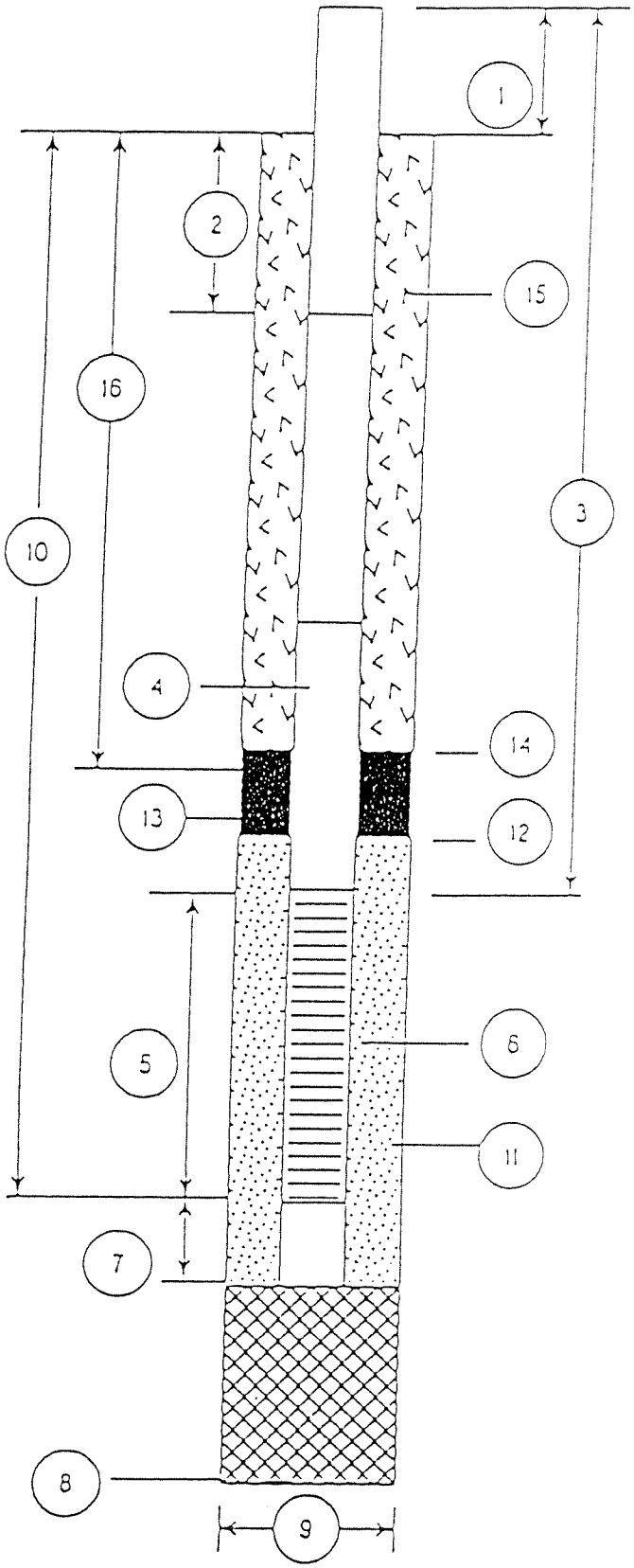
DEPARTMENT OF THE NAVY

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON, SC.

WELL CONSTRUCTION DETAIL

WELL NUMBER: OLD-18-04

DATE OF INSTALLATION: 5/11/95



1. Height of Casing above ground: 0
2. Depth to first Coupling: 3'

   Coupling Interval Depths: 10'
3. Total Length of Riser Pipe: 3'
4. Type of Riser Pipe: 2" Ø Schedule 40 PVC
5. Length of Screen: 10'
6. Type of Screen: 2" Ø Schedule 40 PVC .010 in. slot S
7. Length of Sump: 6"
8. Total Depth of Boring: 14'
9. Diameter of Boring: 6.25"
10. Depth to Bottom of Screen: 12.5'
11. Type of Screen Filter: 20/30 Silica Sand

    Quantity Used: 600 lb Size: ____
12. Depth to Top of Filter: 2'
13. Type of Seal: Bentonite

    Quantity Used: 20 lb
14. Depth to Top of Seal: 1.5'
15. Type of Grout: Portland Cement

    Grout Mixture:

    Method of Placement: ____
16. Tot. Depth of 6 in. Steel Casing: N/A

APPENDIX B

SUMMARY OF DETECTIONS TABLES

Table B-1 Summary of Detections in Surface Soil Analytical Results, Initial Site Screening
Table B-2 Summary of Detections in Subsurface Soil Analytical Results, Initial Site Screening
Table B-3 Summary of Detections in Groundwater Analytical Results, Initial Site Screening
Table B-4 Summary of Detections in Soil Analytical Results, Supplemental PAH Sampling

TABLE B-1

SUMMARY OF DETECTIONS IN SURFACE SOIL ANALYTICAL RESULTS
INITIAL SITE SCREENING

Appendix B

Table B-1. Summary of Detections in Surface Soil Analytical Results, Study Area 18

Initial Site Screening

Naval Training Center, Orlando

Orlando, FL

Identifier	Background [1]	SCTL for Residential Soil [2]	RBC [3] for Residential Soil	RBC [3] for Industrial Soil	18B00501	18B00601	18S00700	18S00700D	18S00800	18S00900	18S01000
Sampling Date					4/11/95	4/11/95	4/10/95	4/10/95	4/11/95	4/11/95	4/11/95
Feet bls					0-1	0-1	0-1	0-1	0-1	0-1	0-1
Volatile Organics, ug/kg											
Acetone	--	770,000	7,800,000 n	200,000,000 n	7 J	8 J					
Tetrachloroethene	--	10,000	12,000 c	110,000 c							2 J
Xylene (total)	--	290,000	1.60E+08	1.00E+09			1 J				
Semivolatile Organics, ug/kg											
Acenaphthene	--	2,300,000	4,700,000 n	120,000,000 n					350 J		
Anthracene	--	19,000,000	23,000,000 n	610,000,000 n				59 J	350 J		
Benzo(a)anthracene	--	1,400	880 c	7,800 c			300 J	410 J	**2300**		
Benzo(a)pyrene	--	100	88 c	780 c			**300** J	**430**	**1900**		
Benzo(b)fluoranthene	--	1,400	880 c	7,800 c			480	500	**2100**		
Benzo(g,h,i)perylene	--	2,300,000	2,300,000 n	61,000,000 n			100 J	94 J	1,200		
Benzo(k)fluoranthene	--	15,000	8,800 c	78,000 c			440	600	1,700		
bis(2-Ethylhexyl)phthalate	--	75,000	46,000 c	410,000 c			480				
Carbazole	--	53,000	32,000 c	290,000 c			45 J		260 J		
Chrysene	--	140,000	88,000 c	780,000 c			370 J	530	2,200		
Dibenz(a,h)anthracene		100	88 c	780 c			66 J	82 J	**320** J		
Fluoranthene	--	2,800,000	3,100,000 n	82,000,000 n			660	920	4,500 D		97 J
Fluorene	--	2,100,000	3,100,000 n	82,000,000 n					200 J		
Indeno(1,2,3-cd)pyrene	--	1,500	880 c	7,800 c			150 J	180 J	**1200**		
Phenanthrene	--	1,900,000	2,300,000 n	61000000 n			240 J	340 J	2,300		
Pyrene	--	2,200,000	2,300,000 n	61,000,000 n			620	720	2,600 D		
Pesticides/PCBs, ug/kg											
4,4'-DDD	--	4,500	2,700 c	76,000 n			8.6 N	7 N	160 J		
4,4'-DDE	--	3,200	1,900 c	17,000 c			17 N	23 J	320		1,300 CD
4,4'-DDT	--	3,100	1,900 c	17,000 c			7.6 J	11 J	250 J		**2500** CD
Aldrin	--	60	38 c	340 c			13 J	14 J			
alpha-Chlordane	--	3000	490 c	4,400 c			40 J	54 J	290		450 CD

Appendix B

Table B-1. Summary of Detections in Surface Soil Analytical Results, Study Area 18

Initial Site Screening

Naval Training Center, Orlando

Orlando, FL

Identifier	Background [1]	SCTL for Residential Soil [2]	RBC [3] for Residential Soil	RBC [3] for Industrial Soil	18B00501	18B00601	18S00700	18S00700D	18S00800	18S00900	18S01000
Sampling Date					4/11/95	4/11/95	4/10/95	4/10/95	4/11/95	4/11/95	4/11/95
Feet bls					0-1	0-1	0-1	0-1	0-1	0-1	0-1
Aroclor-1260	--	600	83 c	740 c							
Dieldrin	--	70	40 c	360 c			**150** J	**160** J	**99**		
gamma-Chlordane	--	3000	490 c	4,400 c			43 J	60 J	330		340 CD
Heptachlor epoxide	--	100	70 c	630 c							62 J
Inorganics, mg/kg											
Aluminum	4,870	72,000	78,000 n	1,000,000 n	5,740 J	6,870 J	1,800	1,640	2,860 J	1,550 J	3,110 J
Antimony	--	26	31 n	820 n			2.9 B				
Arsenic	1.9	0.8	0.43 c/23 n	3.8 c/610 n	0.66 B	0.58 BJ	0.8 B	0.77 B	0.55 B		1.1 B
Barium	21.6	105	5,500 n	140,000 n	12.1 B	18.2 J	22.7 B	31.4 B	70 J	3.4 J	**2250** J
Beryllium	0.46	120	0.15 c	1.3 c	0.06 B	0.06 B	0.12 B	0.09 B	0.29 B	0.02 B	0.31 B
Cadmium	--	75	39 n	1,000 n			2.1	1.2 B			
Calcium	33,568	ND	1,000,000	1,000,000	1,090 B	928 J	47,400	49,500	39,800 J	592 J	78,200 J
Chromium	7.7	290	390 n	10,000 n	6.8 J	9.4 J	28.9 J	13.6 J	32.1 J	2 J	46.4 J
Cobalt	--	4,700	4,700 n	120,000 n					0.79 B		3.9 B
Copper	2.6	105	3,100 n	82,000 n			13.9	14.9	7.5		12
Iron	843	23000	23,000 n	610,000 n	265 J	303 J	889	833	423 J	221 J	779 J
Lead	21.3	500	400	400	4.3	6.8	182	134	94.4	1.3	133
Magnesium	381	ND	460,468	460,468	78.2 J	114 J	389 B	436 B	1,420 J	56.6 J	2,230 J
Manganese	10.8	1600	1,800 n	47,000 n	0.8 J	0.74 J	13.5 J	13.2 J	99.7 J	0.26 J	111 J
Mercury	0.05	3.7	23 n	610 n	0.06	0.1	0.05 B	0.05 B	0.04 B		0.05
Nickel	--	105	1,600 n	41,000 n		3.5 B	4.5 B	3.4 B			3.1 B
Potassium	210	ND	1,000,000	1,000,000					165 B		197 B
Selenium	1.1	390	390 n	10,000 n			0.19 B				
Sodium	--	ND	1,000,000	1,000,000	5.3 B	5.4 B	172 B	178 B	45.9 B		105 B
Vanadium	4.9	15	550 n	14,000 n	2.1 B	3.5 B	12.3 B	11.6 B	4.6 B		8.6 B
Zinc	4.6	23,000	23,000 n	610,000 n	1.1 J	0.32 J	148 J	127 J	47.2 J	0.5 J	100 J
General chemistry											
pH, Solid (units)	ND	ND	ND	ND	7.1				8.05	7.05	8.00

Appendix B

Table B-1. Summary of Detections in Surface Soil Analytical Results, Study Area 18

Initial Site Screening

Naval Training Center, Orlando

Orlando, FL

Identifier	Background [1]	SCTL for Residential Soil [2]	RBC [3] for Residential Soil	RBC [3] for Industrial Soil	18S01000D		18S01100	
Sampling Date					4/11/95		4/11/95	
Feet bls					0-1		0-1	
Volatile Organics, ug/kg								
Acetone	--	770,000	7,800,000 n	200,000,000 n				
Tetrachloroethene	--	10,000	12,000 c	110,000 c				
Xylene (total)	--	290,000	1.60E+08	1.00E+09				
Semivolatile Organics, ug/kg								
Acenaphthene	--	2,300,000	4,700,000 n	120,000,000 n				
Anthracene	--	19,000,000	23,000,000 n	610,000,000 n				
Benzo(a)anthracene	--	1,400	880 c	7,800 c	130	J	120	J
Benzo(a)pyrene	--	100	88 c	780 c	**140**	J	**210**	J
Benzo(b)fluoranthene	--	1,400	880 c	7,800 c	180	J	330	J
Benzo(g,h,i)perylene	--	2,300,000	2,300,000 n	61,000,000 n	140	J	200	J
Benzo(k)fluoranthene	--	15,000	8,800 c	78,000 c	170	J	280	J
bis(2-Ethylhexyl)phthalate	--	75,000	46,000 c	410,000 c			190	J
Carbazole	--	53,000	32,000 c	290,000 c				
Chrysene	--	140,000	88,000 c	780,000 c	180	J	310	J
Dibenz(a,h)anthracene		100	88 c	780 c				
Fluoranthene	--	2,800,000	3,100,000 n	82,000,000 n	250	J	360	J
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	120	J	200	J
Phenanthrene	--	1,900,000	2,300,000 n	61000000 n				
Pyrene	--	2,200,000	2,300,000 n	61,000,000 n	180	J	260	J
Pesticides/PCBs, ug/kg								
4,4'-DDD	--	4,500	2,700 c	76,000 n				
4,4'-DDE	--	3,200	1,900 c	17,000 c	1,300	C	13	J
4,4'-DDT	--	3,100	1,900 c	17,000 c	**2000**	CD		
Aldrin	--	60	38 c	340 c				
alpha-Chlordane	--	3000	490 c	4,400 c	380	C	5.6	J

Appendix B

Table B-1. Summary of Detections in Surface Soil Analytical Results, Study Area 18
Initial Site Screening

Naval Training Center, Orlando
Orlando, FL

Identifier	Background [1]	SCTL for Residential Soil [2]	RBC [3] for Residential Soil	RBC [3] for Industrial Soil	18S01000D		18S01100	
Sampling Date					4/11/95		4/11/95	
Feet bls					0-1		0-1	
Aroclor-1260	--	600	83 c	740 c			**190**	J
Dieldrin	--	70	40 c	360 c			26	
gamma-Chlordane	--	3000	490 c	4,400 c	260	C	7	J
Heptachlor epoxide	--	100	70 c	630 c	30	J		
Inorganics, mg/kg								
Aluminum	4,870	72,000	78,000 n	1,000,000 n	1,820	J	6,310	J
Antimony	--	26	31 n	820 n				
Arsenic	1.9	0.8	0.43 c/23 n	3.8 c/610 n	1.6	J	0.84	B
Barium	21.6	105	5,500 n	140,000 n	**2750**	J	48	B
Beryllium	0.46	120	0.15 c	1.3 c	0.18	B	**0.82**	B
Cadmium	--	75	39 n	1,000 n				
Calcium	33,568	ND	1,000,000	1,000,000	79,200	J	45,100	J
Chromium	7.7	290	390 n	10,000 n	24.5	J	9.2	J
Cobalt	--	4,700	4,700 n	120,000 n	4.4	B		
Copper	2.6	105	3,100 n	82,000 n	11.3		6.8	
Iron	843	23000	23,000 n	610,000 n	718	J	684	J
Lead	21.3	500	400	400	147		89.1	
Magnesium	381	ND	460,468	460,468	1,160	J	3,620	J
Manganese	10.8	1600	1,800 n	47,000 n	65.1	J	178	J
Mercury	0.05	3.7	23 n	610 n	0.03	B		
Nickel	--	105	1,600 n	41,000 n				
Potassium	210	ND	1,000,000	1,000,000			671	B
Selenium	1.1	390	390 n	10,000 n				
Sodium	--	ND	1,000,000	1,000,000	78.1	B	122	B
Vanadium	4.9	15	550 n	14,000 n	6	B	10.7	B
Zinc	4.6	23,000	23,000 n	610,000 n	57	J	80.8	J
General chemistry								
pH, Solid (units)	ND	ND	ND	ND	8.15			

Appendix B

Table B-1. Notes to Summary of Detections in Surface Soil Analytical Results, Study Area 18
Initial Site Screening

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 DDE = dichlorodiphenyldichloroethene.
mg/kg = milligrams per DDT = dichlorodiphenyltrichloroethane.
n = noncarcinogenic eff 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.

TABLE B-2

SUMMARY OF DETECTIONS IN SUBSURFACE SOIL ANALYTICAL RESULTS
INITIAL SITE SCREENING

Appendix B

Table B-2. Summary of Detections in Subsurface Soil Analytical Results, Study Area 18
Initial Site Screening

Naval Training Center, Orlando
Orlando, FL

Identifier	Background [1]	SCTL for Residential Soil [2]	RBC [3] for Residential Soil	RBC [3] for Industrial Soil	18B00101	18B00201	18B00301	18B00401	18B00401D	18B00502
Sampling Date					5/12/95	5/12/95	5/14/95	5/11/95	5/11/95	4/11/95
Feet bls					5-7	6-8	6-8	6-8	6-8	3-4
Volatile Organics, ug/kg										
2-Butanone	--	48,000,000	47,000,000 n	1,000,000,000 n	9 J					
Acetone	--	770,000	7,800,000 n	200,000,000 n	48	34	24	39	30	
Methylene chloride	--	16,000	85,000 c	760,000 c		8 J				
Inorganics, mg/kg										
Aluminum	11,130	72,000	78,000 n	1,000,000 n	1,610	1,930	7,490	1,450 J	1,650 J	1,020 J
Arsenic	2.0	0.8	0.43 c/23 n	3.8 c/610 n	0.77 B	0.48 J	0.76 B			
Barium	11.3	105	5,500 n	140,000 n	7.1 J	7.5 J	16 J	8.8 J	10.1 J	2.6 BJ
Beryllium	0.18	120	0.15 c	1.3 c	0.04 J		0.05 J	0.05 J	0.06 J	0.04 B
Calcium	321	ND	1,000,000	1,000,000	171 B	939 B	83.1 B	147 J	131 J	392 BJ
Chromium	11.3	290	390 n	10,000 n	3.2	2.6	6.9			1 BJ
Copper	2.8	105	3,100 n	82,000 n				0.9 B	0.81 B	
Iron	829	23,000	23,000 n	610,000 n	488	186	249	388 J	429 J	76.8 J
Lead	7.0	500	400	400	3.8 J	1.9 J	3.7 J	2.5 J	2.4 J	1
Magnesium	38.9	ND	460,468	460,468	85.7 B	41.6 B	51 B	94 B	106 B	19.4 BJ
Manganese	0.69	1,600	1,800 n	47,000 n	1.5 B	1 B	0.75 B	0.94 B	0.95 B	0.34 BJ
Mercury	0.12	4	23 n	610 n			0.04 B	0.03 B	0.04 B	
Nickel	11.3	105	1,600 n	41,000 n			3.5 B			
Sodium	--	ND	1,000,000	1,000,000	14.9 B	6.5 B	8.7 B	21.3 B		
Vanadium	5.9	15	550 n	14,000 n	1.5 B	1.6 B	7.7 B	2.6 B	3.7 B	
Zinc	0.66	23,000	23,000 n	610,000 n				0.66 B	0.41 B	0.53 BJ
General chemistry, mg/kg										
pH, Solid		NA								7.7

Appendix B

Table B-2. Notes to Summary of Detections in Subsurface Soil Analytical Results, Study Area 18
Initial Site Screening

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.
SCTL values are not applicable because there is no exceedance of groundwater cleanup target levels.

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.
mg/kg = milligrams per kilogram
n = noncarcinogenic effects
c = carcinogenic effects
ND = Not determined
NA = Not applicable
bls = below land surface

DDE = dichlorodiphenyldichloroethene.
DDT = dichlorodiphenyltrichloroethane.
DDD = dichlorodiphenyldichloroethane.

B = Reported concentration is between the instrument detection limit (IDL) and Contract Required Detection Limit (CRDL).
J = Reported concentration is an estimated quantity.
D = Reported concentrations if from a dilution/reanalysis.
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.
Bold/shaded values indicate exceedance of regulatory guidance and background.
Blank space indicates analyte/compound was not detected at the reporting limit.

TABLE B-3

SUMMARY OF DETECTIONS IN GROUNDWATER ANALYTICAL RESULTS
INITIAL SITE SCREENING

Appendix B

Table B-3. Summary of Detections in Groundwater Analytical Results, Study Area 18

Initial Site Screening

Naval Training Center, Orlando

Orlando, FL

Well ID						OLD-18-01		OLD-18-01		OLD-18-02		OLD-18-03		OLD-18-04	
Identifier	Background [1]	FDEPGCTL		FEDMCL	RBC [2] for Tap Water	18G00101		18G00102		18G00201		18G00301		18G00401	
Sampling Date						5/30/95		6/17/96		5/18/95		5/18/95		5/18/95	
Volatile Organics, ug/L															
Xylene (total)	--	20 [3] /10,000 [5]	s/p	10,000	12,000 n					0.3	J			1	
Semivolatile Organics, ug/L															
Acenaphthene	--	210	st	ND	2,200 n					2	J				
bis(2-Ethylhexyl)phthalate	1	6 [6]	p/c	6	4.8 c					1				2	
Naphthalene	--	20	o/st	ND	1,500 n					12					
Inorganics, ug/L															
Aluminum	4,067	200 [3]	s	ND	37,000 n	**65,600**		**5,620**		**21,900**		**14,100**		**7,360**	
Arsenic	5	50 [5]	p/c	50	0.045 c/11 n	14.6	J	3	BJ	33.4				6.2	J
Barium	31.4	2,000 [5]	p/st	2,000	2,600 n	590	J	71.1	B	159	B	74.4	B	208	
Beryllium	--	4 [5]		4	0.016 c	3.6	B	0.57	B	0.36	B	0.32	B	1.5	B
Cadmium								3.8	B						
Calcium	36,830	ND		ND	1,000,000	14,300		7,760		6,490		1,660	B	5,130	
Chromium	7.8	100 [5]	p	100	180 n	95.6		21.8		27.5				27.8	
Cobalt	--	420	st	ND	2,200 n	8.3	J	3	B	3.4	B	3.3	B	3.6	B
Copper	5.4	1,000 [3]	st	1300 [7]	1500 n	27.6		11.8	B	4.8	B				
Iron	1,227	300 [3]	s	ND	11,000 n	**23,400**		**5,410**		**4,500**		**4,530**		**13,400**	
Lead	4	15 [5]	p	15	15	**54.8**				12		3.9		5.1	
Magnesium	4,560	ND		ND	118,807	9,950		3,020	B	2,370	B	2,760	B	5,610	
Manganese	17	50 [5]	s/st	ND	840 n	**53.5**		27.6		20.3		14.8	B	19.6	
Mercury	0.12	2	p/st	2	11 n	0.68		0.12	B						
Nickel	--	100 [5]	p/st	100	730 n	76		13.8	B						
Potassium	5,400	ND		ND	297,016	7,190		9,470		1,200	B	1,060	B	3,040	B
Selenium	9.7	50 [5]	p/st	50	180 n	8.5									
Sodium	18,222	160,000 [5]	p	ND	396,022	30,000		31,700	J	10,000		9,620		28,900	
Thallium	3.8	2	st	2	2.9 n	**79.4**	J								
Vanadium	20.6	49 [4]	st	ND	260 n	**211**		19.8	B	22.4	B	18.1	B	38.4	B
Zinc	4	5,000 [3]	s/st	ND	11000 n	20.1									
General chemistry, mg/L															
Total Suspended Solids	ND	ND		ND	ND	106		8		8				37	

Appendix B

Table B-3. Notes to Summary of Detections in Groundwater Analytical Results, Study Area 18
Initial Site Screening

Naval Training Center, Orlando
Orlando, FL

NOTES:

Groundwater background screening value is twice the average of detected concentrations for inorganic analytes.
FDEPGCTL = Florida Department of Environmental Protection, Groundwater Cleanup Target Levels, Chapter 62-785 FAC, April 30, 1998.
FEDMCL= Federal Maximum Contaminant Levels, Primary Drinking Water Regulations and Health Advisories, February 1996.
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 treatment technology action limit for lead in drinking water distribution system identified in Drinking Water Standards and Health Advisories (USEPA, 1995).
For essential nutrients (calcium, magnesium, potassium, and sodium) screening values were derived based on recommended daily allowances.

OLD-17-T24 is a temporary well installed during initial site screening. Sample collected from this well on 6/2/95 renamed to 17G024T1 to resolve conflict with sample taken at OLD-17-24 on 6/18/98.

s = secondary groundwater standard.
st = systemic toxicant
mc = based on minimum criteria
p = primary standard.
o = organoleptic.
n = noncarcinogenic effects.
c = carcinogen (GCTLs) or carcinogenic effects (RBCs).
ND = Not determined.
NA = Not analyzed.
USEPA = U.S. Environmental Protection Agency.
B = Reported concentration is between the instrument detection limit and the contract required detection limit.
J = Reported concentration is an estimated quantity.
D = Reported concentrations if from a dilution/reanalysis.
µg/L = micrograms per liter.
mg/L = miligrams per liter.
Bold/shaded numbers indicate exceedance of groundwater guidance and background.
Blank space indicates analyte/compound was not detected at the reporting limit.

DRAFT

TABLE B-4

SUMMARY OF DETECTIONS IN SOIL ANALYTICAL RESULTS
SUPPLEMENTAL PAH SAMPLING

Appendix B
Table B-4. Summary of Detections in Soil Analytical Results
Supplemental PAH Sampling
Study Area 18

Naval Training Center, Orlando
Orlando, FL

Identifier	SCTL for Residential Soil[2]	RBC for Residential Soil		RBC for Industrial Soil		18S01301		18B01301		18S01401		18B01401		18B01501	
Sampling Date						11/21/97		11/21/97		11/21/97		11/21/97		11/25/97	
Sampling depth, ft bls						0-1		1-2		0-1		1-2		2-3	
Semivolatile organics, ug/kg															
1-Methylnaphthalene	930,000	ND		ND											
Acenaphthene	2,800,000	4,700,000	n	120,000,000	n									570	
Acenaphthylene	670,000	2,300,000	n	61,000,000	n									1000	
Anthracene	20,000,000	23,000,000	n	610,000,000	n									77	
Benzo(a)anthracene	1,400	880	c	7,800	c	15	PF							51	
Benzo(a)pyrene	100	88	c	780	c									49	
Benzo(b)fluoranthene	1,400	880	c	7,800	c									110	
Benzo(g,h,i)perylene	14,000	2,300,000	n	61,000,000	n									110	
Benzo(k)fluoranthene	14,000	8,800	c	78,000	c					4.3				52	
Chrysene	140,000	88,000	c	780,000	c	37				13		10		52	
Dibenz(a,h)anthracene	100	88	c	780	c									**110**	
Fluoranthene	2,900,000	3,100,000	n	82,000,000	n	6.7		6				4.5		97	
Fluorene	2,400,000	3,100,000	n	82,000,000	n									120	
Indeno(1,2,3-cd)pyrene	1,400	880	c	7,800	c									50	
Naphthalene	1,300,000	3,100,000	n	82,000,000	n									540	
Phenanthrene	1,700,000	2,300,000	n	61,000,000	n									68	
Pyrene	2,200,000	2,300,000	n	61,000,000	n			24				5.6		45	

Appendix B
Table B-4. Summary of Detections in Soil Analytical Results
Supplemental PAH Sampling
Study Area 18

Naval Training Center, Orlando
Orlando, FL

Identifier	SCTL for Residential Soil[2]	RBC for Residential Soil		RBC for Industrial Soil		18S01601	18B01601	18S01701		18S01701D	18B01701
Sampling Date						11/21/97	11/21/97	11/24/97		11/24/97	11/24/97
Sampling depth, ft bls						0-1	1-2	0-1		0-1	1-2
Semivolatile organics, ug/kg											
1-Methylnaphthalene	930,000	ND		ND							
Acenaphthene	2,800,000	4,700,000	n	120,000,000	n			290			
Acenaphthylene	670,000	2,300,000	n	61,000,000	n						
Anthracene	20,000,000	23,000,000	n	610,000,000	n						
Benzo(a)anthracene	1,400	880	c	7,800	c			140		26	24
Benzo(a)pyrene	100	88	c	780	c			**310**			20
Benzo(b)fluoranthene	1,400	880	c	7,800	c			320		51	54
Benzo(g,h,i)perylene	14,000	2,300,000	n	61,000,000	n			270		51	51
Benzo(k)fluoranthene	14,000	8,800	c	78,000	c	2.6		120		24	22
Chrysene	140,000	88,000	c	780,000	c		4.6	180		42	38
Dibenz(a,h)anthracene	100	88	c	780	c			67	PF	38	
Fluoranthene	2,900,000	3,100,000	n	82,000,000	n			180			63
Fluorene	2,400,000	3,100,000	n	82,000,000	n						
Indeno(1,2,3-cd)pyrene	1,400	880	c	7,800	c			43	PF		44
Naphthalene	1,300,000	3,100,000	n	82,000,000	n						
Phenanthrene	1,700,000	2,300,000	n	61,000,000	n						
Pyrene	2,200,000	2,300,000	n	61,000,000	n			57		65	57

Appendix B
Table B-4. Summary of Detections in Soil Analytical Results
Supplemental PAH Sampling
Study Area 18

Naval Training Center, Orlando
Orlando, FL

Identifier	SCTL for Residential Soil[2]	RBC for Residential Soil		RBC for Industrial Soil		18S01801		18B01801		18S01901		18B01901		18S02001	
Sampling Date						11/24/97		11/25/97		11/24/97		11/24/97		11/24/97	
Sampling depth, ft bls						0-1		1-2		0-1		1-2		0-1	
Semivolatile organics, ug/kg															
1-Methylnaphthalene	930,000	ND		ND								120			
Acenaphthene	2,800,000	4,700,000	n	120,000,000	n			39							
Acenaphthylene	670,000	2,300,000	n	61,000,000	n	38									
Anthracene	20,000,000	23,000,000	n	610,000,000	n										
Benzo(a)anthracene	1,400	880	c	7,800	c	31	PF	4.5		64	PF			8.6	PF
Benzo(a)pyrene	100	88	c	780	c	49		5		92		13		6.7	
Benzo(b)fluoranthene	1,400	880	c	7,800	c	56		10		100		7.3		12	
Benzo(g,h,i)perylene	14,000	2,300,000	n	61,000,000	n	43				82		18		11	
Benzo(k)fluoranthene	14,000	8,800	c	78,000	c	22		4.2		40		4.7	PF	6.4	
Chrysene	140,000	88,000	c	780,000	c	47		7.1		76		8.7		11	
Dibenz(a,h)anthracene	100	88	c	780	c	4.5	PF			15	PF	5.1	PF	6.7	PF
Fluoranthene	2,900,000	3,100,000	n	82,000,000	n	120		8.9		140		12		13	
Fluorene	2,400,000	3,100,000	n	82,000,000	n										
Indeno(1,2,3-cd)pyrene	1,400	880	c	7,800	c	16				15	PF			8.6	
Naphthalene	1,300,000	3,100,000	n	82,000,000	n	41				78					
Phenanthrene	1,700,000	2,300,000	n	61,000,000	n					64					
Pyrene	2,200,000	2,300,000	n	61,000,000	n	140				110		28		11	

Appendix B
Table B-4. Summary of Detections in Soil Analytical Results
Supplemental PAH Sampling
Study Area 18

Naval Training Center, Orlando
Orlando, FL

NOTES:

Analytical data not subjected to full independent data validation.

SCTL = Florida Department of Environmental Protection. Soil Cleanup Target Levels, Chapter 62-785 FAC, April 30, 1998.
SCTL values are not applicable because there is no exceedance of groundwater cleanup target levels.

RBC = Risk-Based Concentration Table. USEPA Region III, March 1997, R.L. Smith.
RBC for phenanthrene is not available, value is based on pyrene.

n = noncarcinogenic pathway
c = carcinogenic pathway
ug/kg = micrograms per kilogram.
USEPA = U.S. Environmental Protection Agency.
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%.

Bold/shaded values indicate exceedance of FDEP residential soil cleanup goals.
Blank space indicates analyte/compound was not detected at the reporting limit.

DRAFT

APPENDIX C

SUMMARY OF ANALYTICAL RESULTS TABLES

Table C-1 Summary of Soil Analytical Results, Initial Site Screening
Table C-2 Summary of Soil Analytical Results, Supplemental Sampling
Table C-3 Summary of Groundwater Analytical Results, Initial Site Screening

TABLE C-1

SUMMARY OF SOIL ANALYTICAL RESULTS
INITIAL SITE SCREENING

Appendix C
Table C-1. Summary of Soil Analytical Results
Study Area 18
Initial Site Screening

Naval Training Center, Orlando
Orlando, FL

Sample ID	18B00101		18B00201		18B00301		18B00401		18B00401D		18B00501			18B00502		18B00601	
Lab ID	G7556002		G7556003		G7562006		G7550003		G7550004		G7316001		G7316001RE	G7316002		G7316003	
Sampling Date	12-May-95		12-May-95		14-May-95		11-May-95		11-May-95		11-Apr-95		11-Apr-95	11-Apr-95		11-Apr-95	
Volatile Organics, ug/kg																	
1,1,1-Trichloroethane	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
1,1,2,2-Tetrachloroethane	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
1,1,2-Trichloroethane	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
1,1-Dichloroethane	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
1,1-Dichloroethene	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
1,2-Dichloroethane	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
1,2-Dichloroethene (total)	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
1,2-Dichloropropane	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
2-Butanone	9	J	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
2-Hexanone	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
4-Methyl-2-pentanone	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
Acetone	48		34		24		39		30		7	J	NA	11	U	8	J
Benzene	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
Bromodichloromethane	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
Bromoform	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
Bromomethane	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
Carbon disulfide	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
Carbon tetrachloride	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
Chlorobenzene	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
Chloroethane	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
Chloroform	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
Chloromethane	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
cis-1,3-Dichloropropene	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
Dibromochloromethane	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
Ethylbenzene	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
Methylene chloride	11	U	8	J	12	U	12	U	12	U	11	U	NA	11	U	11	U
Styrene	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
Tetrachloroethene	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
Toluene	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
trans-1,3-Dichloropropene	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
Trichloroethene	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U

Appendix C
Table C-1. Summary of Soil Analytical Results
Study Area 18
Initial Site Screening

Naval Training Center, Orlando
Orlando, FL

Sample ID	18B00101		18B00201		18B00301		18B00401		18B00401D		18B00501			18B00502		18B00601	
Lab ID	G7556002		G7556003		G7562006		G7550003		G7550004		G7316001		G7316001RE	G7316002		G7316003	
Sampling Date	12-May-95		12-May-95		14-May-95		11-May-95		11-May-95		11-Apr-95		11-Apr-95	11-Apr-95		11-Apr-95	
Vinyl chloride	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
Xylene (total)	11	U	12	U	12	U	12	U	11	U	11	U	NA	11	U	11	U
Semivolatile Organics, ug/kg																	
1,2,4-Trichlorobenzene	380	U	400	U	410	U	390	U	390	U	370	U	NA	370	U	360	U
1,2-Dichlorobenzene	380	U	400	U	410	U	390	U	390	U	370	U	NA	370	U	360	U
1,3-Dichlorobenzene	380	U	400	U	410	U	390	U	390	U	370	U	NA	370	U	360	U
1,4-Dichlorobenzene	380	U	400	U	410	U	390	U	390	U	370	U	NA	370	U	360	U
2,2'-oxybis(1-Chloropropane)	380	U	400	U	410	U	390	U	390	U	370	U	NA	370	U	360	U
2,4,5-Trichlorophenol	950	U	1000	U	1000	U	980	U	970	U	920	U	NA	920	U	900	U
2,4,6-Trichlorophenol	380	U	400	U	410	U	390	U	390	U	370	U	NA	370	U	360	U
2,4-Dichlorophenol	380	U	400	U	410	U	390	U	390	U	370	U	NA	370	U	360	U
2,4-Dimethylphenol	380	U	400	U	410	U	390	U	390	U	370	U	NA	370	U	360	U
2,4-Dinitrophenol	950	U	1000	U	1000	U	980	U	970	U	920	U	NA	920	U	900	U
2,4-Dinitrotoluene	380	U	400	U	410	U	390	U	390	U	370	U	NA	370	U	360	U
2,6-Dinitrotoluene	380	U	400	U	410	U	390	U	390	U	370	U	NA	370	U	360	U
2-Chloronaphthalene	380	U	400	U	410	U	390	U	390	U	370	U	NA	370	U	360	U
2-Chlorophenol	380	U	400	U	410	U	390	U	390	U	370	U	NA	370	U	360	U
2-Methylnaphthalene	380	U	400	U	410	U	390	U	390	U	370	U	NA	370	U	360	U
2-Methylphenol	380	U	400	U	410	U	390	U	390	U	370	U	NA	370	U	360	U
2-Nitroaniline	950	U	1000	U	1000	U	980	U	970	U	920	U	NA	920	U	900	U
2-Nitrophenol	380	U	400	U	410	U	390	U	390	U	370	U	NA	370	U	360	U
3,3'-Dichlorobenzidine	380	U	400	U	410	U	390	U	390	U	370	U	NA	370	U	360	U
3-Nitroaniline	950	U	1000	U	1000	U	980	U	970	U	920	U	NA	920	U	900	U
4,6-Dinitro-2-methylphenol	950	U	1000	U	1000	U	980	U	970	U	920	U	NA	920	U	900	U
4-Bromophenyl-phenylether	380	U	400	U	410	U	390	U	390	U	370	U	NA	370	U	360	U
4-Chloro-3-methylphenol	380	U	400	U	410	U	390	U	390	U	370	U	NA	370	U	360	U
4-Chloroaniline	380	U	400	U	410	U	390	U	390	U	370	U	NA	370	U	360	U
4-Chlorophenyl-phenylether	380	U	400	U	410	U	390	U	390	U	370	U	NA	370	U	360	U
4-Methylphenol	380	U	400	U	410	U	390	U	390	U	370	U	NA	370	U	360	U
4-Nitroaniline	950	U	1000	U	1000	U	980	U	970	U	920	U	NA	920	U	900	U
4-Nitrophenol	950	U	1000	U	1000	U	980	U	970	U	920	U	NA	920	U	900	U
Acenaphthene	380	U	400	U	410	U	390	U	390	U	370	U	NA	370	U	360	U

Appendix C
Table C-1. Summary of Soil Analytical Results
Study Area 18
Initial Site Screening

Naval Training Center, Orlando
Orlando, FL

Sample ID	18B00101	18B00201	18B00301	18B00401	18B00401D	18B00501		18B00502	18B00601
Lab ID	G7556002	G7556003	G7562006	G7550003	G7550004	G7316001	G7316001RE	G7316002	G7316003
Sampling Date	12-May-95	12-May-95	14-May-95	11-May-95	11-May-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95
Acenaphthylene	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Anthracene	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Benzo(a)anthracene	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Benzo(a)pyrene	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Benzo(b)fluoranthene	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Benzo(g,h,i)perylene	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Benzo(k)fluoranthene	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
bis(2-Chloroethoxy)methane	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
bis(2-Chloroethyl)ether	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
bis(2-Ethylhexyl)phthalate	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Butylbenzylphthalate	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Carbazole	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Chrysene	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Di-n-butylphthalate	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Di-n-octylphthalate	380 UJ	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Dibenz(a,h)anthracene	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Dibenzofuran	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Diethylphthalate	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Dimethylphthalate	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Fluoranthene	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Fluorene	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Hexachlorobenzene	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Hexachlorobutadiene	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Hexachlorocyclopentadiene	380 U	400 U	410 U	390 U	390 U	370 UJ	NA	370 UJ	360 UJ
Hexachloroethane	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Indeno(1,2,3-cd)pyrene	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Isophorone	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
N-Nitroso-di-n-propylamine	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
N-Nitrosodiphenylamine (1)	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Naphthalene	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Nitrobenzene	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Pentachlorophenol	950 U	1000 U	1000 U	980 U	970 U	920 U	NA	920 U	900 U

Appendix C
Table C-1. Summary of Soil Analytical Results
Study Area 18
Initial Site Screening

Naval Training Center, Orlando
Orlando, FL

Sample ID	18B00101	18B00201	18B00301	18B00401	18B00401D	18B00501		18B00502	18B00601
Lab ID	G7556002	G7556003	G7562006	G7550003	G7550004	G7316001	G7316001RE	G7316002	G7316003
Sampling Date	12-May-95	12-May-95	14-May-95	11-May-95	11-May-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95
Phenanthrene	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Phenol	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Pyrene	380 U	400 U	410 U	390 U	390 U	370 U	NA	370 U	360 U
Pesticides/PCBs, ug/kg									
4,4'-DDD	3.9 U	3.9 U	3.9 U	3.8 U	3.8 U	3.7 U	3.7 UR	3.7 U	3.7 U
4,4'-DDE	3.9 U	3.9 U	3.9 U	3.8 U	3.8 U	3.7 U	3.7 UR	3.7 U	3.7 U
4,4'-DDT	3.9 U	3.9 U	3.9 U	3.8 U	3.8 U	3.7 U	3.7 UR	3.7 U	3.7 U
Aldrin	2 U	2 U	2 U	2 U	2 U	1.9 U	1.9 UR	1.9 U	1.9 U
alpha-BHC	2 U	2 U	2 U	2 UJ	2 UJ	1.9 U	1.9 UR	1.9 U	1.9 U
alpha-Chlordane	2 U	2 U	2 U	2 U	2 U	1.9 U	1.9 UR	1.9 U	1.9 U
Aroclor-1016	39 U	39 U	39 U	38 U	38 U	37 U	37 UR	37 U	37 U
Aroclor-1221	79 U	80 U	79 U	77 U	78 U	74 U	74 UR	74 U	75 U
Aroclor-1232	39 U	39 U	39 U	38 U	38 U	37 U	37 UR	37 U	37 U
Aroclor-1242	39 U	39 U	39 U	38 U	38 U	37 U	37 UR	37 U	37 U
Aroclor-1248	39 U	39 U	39 U	38 U	38 U	37 U	37 UR	37 U	37 U
Aroclor-1254	39 U	39 U	39 U	38 U	38 U	37 U	37 UR	37 U	37 U
Aroclor-1260	39 U	39 U	39 U	38 U	38 U	37 U	37 UR	37 U	37 U
beta-BHC	2 U	2 U	2 U	2 U	2 U	1.9 U	1.9 UR	1.9 U	1.9 U
delta-BHC	2 U	2 U	2 U	2 U	2 U	1.9 U	1.9 UR	1.9 U	1.9 U
Dieldrin	3.9 U	3.9 U	3.9 U	3.8 UJ	3.8 UJ	3.7 U	3.7 UR	3.7 U	3.7 U
Endosulfan I	2 U	2 U	2 U	2 U	2 U	1.9 U	1.9 UR	1.9 U	1.9 U
Endosulfan II	3.9 U	3.9 U	3.9 U	3.8 U	3.8 U	3.7 U	3.7 UR	3.7 U	3.7 U
Endosulfan sulfate	3.9 U	3.9 U	3.9 U	3.8 U	3.8 U	3.7 U	3.7 UR	3.7 U	3.7 U
Endrin	3.9 U	3.9 U	3.9 U	3.8 U	3.8 U	3.7 U	3.7 UR	3.7 U	3.7 U
Endrin aldehyde	3.9 U	3.9 U	3.9 U	3.8 U	3.8 U	3.7 U	3.7 UR	3.7 U	3.7 U
Endrin ketone	3.9 U	3.9 U	3.9 U	3.8 U	3.8 U	3.7 U	3.7 UR	3.7 U	3.7 U
gamma-BHC (Lindane)	2 U	2 U	2 U	2 U	2 U	1.9 U	1.9 UR	1.9 U	1.9 U
gamma-Chlordane	2 U	2 U	2 U	2 U	2 U	1.9 U	1.9 UR	1.9 U	1.9 U
Heptachlor	2 U	2 U	2 U	2 U	2 U	1.9 U	1.9 UR	1.9 U	1.9 U
Heptachlor epoxide	2 U	2 U	2 U	2 U	2 U	1.9 U	1.9 UR	1.9 U	1.9 U
Methoxychlor	20 U	20 U	20 U	20 U	20 U	19 U	19 UR	19 U	19 U
Toxaphene	200 U	200 U	200 U	200 U	200 U	190 U	190 UR	190 U	190 U

Appendix C
Table C-1. Summary of Soil Analytical Results
Study Area 18
Initial Site Screening

Naval Training Center, Orlando
Orlando, FL

Sample ID	18B00101		18B00201		18B00301		18B00401		18B00401D		18B00501		18B00501		18B00502		18B00601	
Lab ID	G7556002		G7556003		G7562006		G7550003		G7550004		G7316001		G7316001RE		G7316002		G7316003	
Sampling Date	12-May-95		12-May-95		14-May-95		11-May-95		11-May-95		11-Apr-95		11-Apr-95		11-Apr-95		11-Apr-95	
Herbicides, ug/kg	NA		NA		NA		NA		NA		NA		NA		NA		NA	
2,4,5-T	NA		NA		NA		NA		NA		NA		NA		NA		NA	
2,4,5-TP (Silvex)	NA		NA		NA		NA		NA		NA		NA		NA		NA	
2,4-D	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Inorganics, mg/kg																		
Aluminum	1610		1930		7490		1450	J	1650	J	5740	J	NA		1020	J	6870	J
Antimony	6.7	UJ	7.2	UJ	7.1	UJ	6.9	U	6.8	U	6.5	U	NA		6.6	U	6.4	U
Arsenic	0.77	B	0.48	J	0.76	B	0.44	U	0.44	U	0.66	BJ	NA		0.42	U	0.58	BJ
Barium	7.1	J	7.5	J	16	J	8.8	J	10.1	J	12.1	BJ	NA		2.6	BJ	18.2	J
Beryllium	0.04	J	0.02	UJ	0.05	J	0.05	J	0.06	J	0.06	B	NA		0.04	B	0.06	B
Cadmium	0.7	U	0.75	U	0.74	U	0.72	U	0.72	U	0.69	U	NA		0.69	U	0.67	U
Calcium	171	B	939	B	83.1	B	147	J	131	J	1090	BJ	NA		392	BJ	928	J
Chromium	3.2		2.6		6.9		3.1	U	2.8	U	6.8	J	NA		1	BJ	9.4	J
Cobalt	0.66	U	0.7	U	0.69	U	0.67	U	0.67	U	0.64	U	NA		0.64	U	0.62	U
Copper	0.78	U	0.79	U	0.83	U	0.9	B	0.81	B	0.87	U	NA		0.48	U	0.74	U
Iron	488		186		249		388	J	429	J	265	J	NA		76.8	J	303	J
Lead	3.8	J	1.9	J	3.7	J	2.5	J	2.4	J	4.3		NA		1		6.8	
Magnesium	85.7	B	41.6	B	51	B	94	B	106	B	78.2	J	NA		19.4	BJ	114	J
Manganese	1.5	B	1	B	0.75	B	0.94	B	0.95	B	0.8	J	NA		0.34	BJ	0.74	J
Mercury	0.03	U	0.03	U	0.04	B	0.03	B	0.04	B	0.06		NA		0.03	U	0.1	
Nickel	3.2	U	3.5	U	3.5	B	3.3	U	3.3	U	3.1	U	NA		3.2	U	3.5	B
Potassium	100	U	108	U	106	U	103	U	102	U	98	U	NA		98.6	U	95.2	U
Selenium	0.52	U	0.56	U	0.55	U	0.53	U	0.53	U	0.51	UJ	NA		0.51	UJ	0.49	U
Silver	0.59	U	0.63	U	0.62	U	0.6	U	0.6	U	0.57	U	NA		0.58	U	0.56	U
Sodium	14.9	B	6.5	B	8.7	B	21.3	B	20	U	5.3	B	NA		3.8	U	5.4	B
Thallium	0.41	U	0.44	U	0.43	U	0.42	U	0.42	U	0.4	U	NA		0.4	U	0.39	U
Vanadium	1.5	B	1.6	B	7.7	B	2.6	B	3.7	B	2.1	B	NA		0.56	U	3.5	B
Zinc	0.6	U	0.8	U	0.53	U	0.66	B	0.41	B	1.1	J	NA		0.53	BJ	0.32	J
General chemistry, mg/kg																		
pH, Solid	NA		NA		NA		NA		NA		7.1		NA		7.7		NA	

Appendix C
Table C-1. Summary of Soil Analytical Results
Study Area 18
Initial Site Screening

Naval Training Center, Orlando
Orlando, FL

Sample ID	18S00700	18S00700D	18S00800		18S00900	18S01000		18S01000D		18S01100
Lab ID	G7315001	G7315002	G7316004	G7316004DL	G7316005	G7316006	G7316006DL	G7316007	G7316007DL	G7316008
Sampling Date	10-Apr-95	10-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95
Volatile Organics, ug/kg										
1,1,1-Trichloroethane	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
1,1,2,2-Tetrachloroethane	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
1,1,2-Trichloroethane	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
1,1-Dichloroethane	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
1,1-Dichloroethene	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
1,2-Dichloroethane	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
1,2-Dichloroethene (total)	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
1,2-Dichloropropane	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
2-Butanone	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
2-Hexanone	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
4-Methyl-2-pentanone	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
Acetone	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
Benzene	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
Bromodichloromethane	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
Bromoform	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
Bromomethane	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
Carbon disulfide	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
Carbon tetrachloride	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
Chlorobenzene	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
Chloroethane	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
Chloroform	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
Chloromethane	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
cis-1,3-Dichloropropene	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
Dibromochloromethane	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
Ethylbenzene	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
Methylene chloride	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
Styrene	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
Tetrachloroethene	13 U	13 U	11 U	NA	11 U	2 J	NA	11 U	NA	13 U
Toluene	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
trans-1,3-Dichloropropene	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
Trichloroethene	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U

Appendix C
Table C-1. Summary of Soil Analytical Results
Study Area 18
Initial Site Screening

Naval Training Center, Orlando
Orlando, FL

Sample ID	18S00700	18S00700D	18S00800		18S00900	18S01000		18S01000D		18S01100
Lab ID	G7315001	G7315002	G7316004	G7316004DL	G7316005	G7316006	G7316006DL	G7316007	G7316007DL	G7316008
Sampling Date	10-Apr-95	10-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95
Vinyl chloride	13 U	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
Xylene (total)	1 J	13 U	11 U	NA	11 U	11 U	NA	11 U	NA	13 U
Semivolatile Organics, ug/kg										
1,2,4-Trichlorobenzene	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
1,2-Dichlorobenzene	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
1,3-Dichlorobenzene	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
1,4-Dichlorobenzene	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
2,2'-oxybis(1-Chloropropane)	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
2,4,5-Trichlorophenol	1100 U	1000 U	900 U	1800 UR	890 U	900 U	NA	900 U	NA	1100 U
2,4,6-Trichlorophenol	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
2,4-Dichlorophenol	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
2,4-Dimethylphenol	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
2,4-Dinitrophenol	1100 U	1000 U	900 U	1800 UR	890 U	900 U	NA	900 U	NA	1100 U
2,4-Dinitrotoluene	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
2,6-Dinitrotoluene	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
2-Chloronaphthalene	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
2-Chlorophenol	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
2-Methylnaphthalene	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
2-Methylphenol	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
2-Nitroaniline	1100 U	1000 U	900 U	1800 UR	890 U	900 U	NA	900 U	NA	1100 U
2-Nitrophenol	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
3,3'-Dichlorobenzidine	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
3-Nitroaniline	1100 U	1000 U	900 U	1800 UR	890 U	900 U	NA	900 U	NA	1100 U
4,6-Dinitro-2-methylphenol	1100 U	1000 U	900 U	1800 UR	890 U	900 U	NA	900 U	NA	1100 U
4-Bromophenyl-phenylether	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
4-Chloro-3-methylphenol	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
4-Chloroaniline	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
4-Chlorophenyl-phenylether	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
4-Methylphenol	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
4-Nitroaniline	1100 U	1000 U	900 U	1800 UR	890 U	900 U	NA	900 U	NA	1100 U
4-Nitrophenol	1100 U	1000 U	900 U	1800 UR	890 U	900 U	NA	900 U	NA	1100 U
Acenaphthene	440 U	420 U	350 J	320 DR	350 U	360 U	NA	360 U	NA	430 U

Appendix C
Table C-1. Summary of Soil Analytical Results
Study Area 18
Initial Site Screening

Naval Training Center, Orlando
Orlando, FL

Sample ID	18S00700	18S00700D	18S00800		18S00900	18S01000		18S01000D		18S01100
Lab ID	G7315001	G7315002	G7316004	G7316004DL	G7316005	G7316006	G7316006DL	G7316007	G7316007DL	G7316008
Sampling Date	10-Apr-95	10-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95
Acenaphthylene	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
Anthracene	440 U	59 J	350 J	340 DR	350 U	360 U	NA	360 U	NA	430 U
Benzo(a)anthracene	300 J	410 J	2300	1900 DR	350 U	360 U	NA	130 J	NA	120 J
Benzo(a)pyrene	300 J	430	1900	1800 DR	350 U	360 U	NA	140 J	NA	210 J
Benzo(b)fluoranthene	480	500	2100	2000 DR	350 U	360 U	NA	180 J	NA	330 J
Benzo(g,h,i)perylene	100 J	94 J	1200	1000 DR	350 U	360 U	NA	140 J	NA	200 J
Benzo(k)fluoranthene	440	600	1700	1800 DR	350 U	360 U	NA	170 J	NA	280 J
bis(2-Chloroethoxy)methane	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
bis(2-Chloroethyl)ether	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
bis(2-Ethylhexyl)phthalate	480	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	190 J
Butylbenzylphthalate	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
Carbazole	45 J	420 U	260 J	270 DR	350 U	360 U	NA	360 U	NA	430 U
Chrysene	370 J	530	2200	2000 DR	350 U	360 U	NA	180 J	NA	310 J
Di-n-butylphthalate	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
Di-n-octylphthalate	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
Dibenz(a,h)anthracene	66 J	82 J	320 J	240 DR	350 U	360 U	NA	360 U	NA	430 U
Dibenzofuran	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
Diethylphthalate	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
Dimethylphthalate	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
Fluoranthene	660	920	3300 ER	4500 D	350 U	97 J	NA	250 J	NA	360 J
Fluorene	440 U	420 U	200 J	720 UR	350 U	360 U	NA	360 U	NA	430 U
Hexachlorobenzene	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
Hexachlorobutadiene	440 U	420 U	360 UJ	720 UR	350 U	360 U	NA	360 U	NA	430 U
Hexachlorocyclopentadiene	440 U	420 U	360 U	720 UR	350 UJ	360 UJ	NA	360 UJ	NA	430 UJ
Hexachloroethane	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
Indeno(1,2,3-cd)pyrene	150 J	180 J	1200	960 DR	350 U	360 U	NA	120 J	NA	200 J
Isophorone	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
N-Nitroso-di-n-propylamine	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
N-Nitrosodiphenylamine (1)	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
Naphthalene	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
Nitrobenzene	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
Pentachlorophenol	1100 U	1000 U	900 U	1800 UR	890 U	900 U	NA	900 U	NA	1100 U

Appendix C
Table C-1. Summary of Soil Analytical Results
Study Area 18
Initial Site Screening

Naval Training Center, Orlando
Orlando, FL

Sample ID	18S00700	18S00700D	18S00800		18S00900	18S01000		18S01000D		18S01100
Lab ID	G7315001	G7315002	G7316004	G7316004DL	G7316005	G7316006	G7316006DL	G7316007	G7316007DL	G7316008
Sampling Date	10-Apr-95	10-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95
Phenanthrene	240 J	340 J	2300	2000 DR	350 U	360 U	NA	360 U	NA	430 U
Phenol	440 U	420 U	360 U	720 UR	350 U	360 U	NA	360 U	NA	430 U
Pyrene	620	720	3100 ER	2600 D	350 U	360 U	NA	180 J	NA	260 J
Pesticides/PCBs, ug/kg										
4,4'-DDD	8.6 NJ	7 NJ	160 J	NA	3.7 U	18 U	180 UR	18 U	180 UR	8.4 U
4,4'-DDE	17 NJ	23 J	320	NA	3.7 U	1200 R	1300 CD	1200 R	1300 CD	13 J
4,4'-DDT	7.6 J	11 J	250 J	NA	3.7 U	1700 R	2500 CD	1600 R	2000 CD	8.4 U
Aldrin	13 J	14 J	37 U	NA	1.9 U	9.1 U	91 UR	9.1 U	91 UR	4.3 U
alpha-BHC	11 UJ	11 UJ	37 U	NA	1.9 U	9.1 U	91 UR	9.1 U	91 UR	4.3 U
alpha-Chlordane	40 J	54 J	290	NA	1.9 U	420 R	450 CD	340 R	380 CD	5.6 J
Aroclor-1016	220 UJ	210 UJ	710 U	NA	37 U	180 U	1800 UR	180 U	1800 UR	84 U
Aroclor-1221	450 UJ	440 UJ	1400 U	NA	74 U	360 U	3600 UR	360 U	3600 UR	170 U
Aroclor-1232	220 UJ	210 UJ	710 U	NA	37 U	180 U	1800 UR	180 U	1800 UR	84 U
Aroclor-1242	220 UJ	210 UJ	710 U	NA	37 U	180 U	1800 UR	180 U	1800 UR	84 U
Aroclor-1248	220 UJ	210 UJ	710 U	NA	37 U	180 U	1800 UR	180 U	1800 UR	84 U
Aroclor-1254	220 UJ	210 UJ	710 U	NA	37 U	180 U	1800 UR	180 U	1800 UR	84 U
Aroclor-1260	220 UJ	210 UJ	710 U	NA	37 U	180 U	1800 UR	180 U	1800 UR	190 J
beta-BHC	11 UJ	11 UJ	37 U	NA	1.9 U	9.1 U	91 UR	9.1 U	91 UR	4.3 U
delta-BHC	11 UJ	11 UJ	37 U	NA	1.9 U	9.1 U	91 UR	9.1 U	91 UR	4.3 U
Dieldrin	150 J	160 J	99	NA	3.7 U	18 U	180 UR	18 U	180 UR	26
Endosulfan I	11 UJ	11 UJ	37 U	NA	1.9 U	9.1 U	91 UR	9.1 U	91 UR	4.3 U
Endosulfan II	22 UJ	21 UJ	71 U	NA	3.7 U	18 U	180 UR	18 U	180 UR	8.4 U
Endosulfan sulfate	22 UJ	21 UJ	71 U	NA	3.7 U	18 U	180 UR	18 U	180 UR	8.4 U
Endrin	22 UJ	21 UJ	71 U	NA	3.7 U	18 U	180 UR	18 U	180 UR	8.4 U
Endrin aldehyde	22 UJ	21 UJ	71 U	NA	3.7 U	18 U	180 UR	18 U	180 UR	8.4 U
Endrin ketone	22 UJ	21 UJ	71 U	NA	3.7 U	18 U	180 UR	18 U	180 UR	8.4 U
gamma-BHC (Lindane)	11 UJ	11 UJ	37 U	NA	1.9 U	9.1 U	91 UR	9.1 U	91 UR	4.3 U
gamma-Chlordane	43 J	60 J	330	NA	1.9 U	320 R	340 CD	240 R	260 CD	7 J
Heptachlor	11 UJ	11 UJ	37 U	NA	1.9 U	9.1 U	91 UR	9.1 U	91 UR	4.3 U
Heptachlor epoxide	11 UJ	11 UJ	37 U	NA	1.9 U	62 J	91 UR	30 J	91 UR	4.3 U
Methoxychlor	110 UJ	110 UJ	370 U	NA	19 U	91 U	910 UR	91 U	910 UR	43 U
Toxaphene	1100 UJ	1100 UJ	3700 U	NA	190 U	910 U	9100 UR	910 U	9100 UR	430 U

Appendix C
Table C-1. Summary of Soil Analytical Results
Study Area 18
Initial Site Screening

Naval Training Center, Orlando
Orlando, FL

Sample ID	18S00700	18S00700D	18S00800		18S00900	18S01000		18S01000D		18S01100
Lab ID	G7315001	G7315002	G7316004	G7316004DL	G7316005	G7316006	G7316006DL	G7316007	G7316007DL	G7316008
Sampling Date	10-Apr-95	10-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95	11-Apr-95
Herbicides, ug/kg										
2,4,5-T	NA	NA	0.2 U	NA	0.2 U	0.2 U	NA	0.2 U	NA	NA
2,4,5-TP (Silvex)	NA	NA	0.1 U	NA	0.1 U	0.1 U	NA	0.1 U	NA	NA
2,4-D	NA	NA	0.5 U	NA	0.5 U	0.5 U	NA	0.5 U	NA	NA
Inorganics, mg/kg										
Aluminum	1800	1640	2860 J	NA	1550 J	3110 J	NA	1820 J	NA	6310 J
Antimony	2.9 B	2.3 U	6.4 U	NA	6.3 U	6.4 U	NA	6.5 U	NA	7.7 U
Arsenic	0.8 B	0.77 B	0.55 B	NA	0.4 U	1.1 B	NA	1.6 J	NA	0.84 B
Barium	22.7 B	31.4 B	70 J	NA	3.4 J	2250 J	NA	2750 J	NA	48 BJ
Beryllium	0.12 B	0.09 B	0.29 B	NA	0.02 B	0.31 B	NA	0.18 B	NA	0.82 B
Cadmium	2.1	1.2 B	0.67 U	NA	0.66 U	0.67 U	NA	0.68 U	NA	0.81 U
Calcium	47400	49500	39800 J	NA	592 J	78200 J	NA	79200 J	NA	45100 J
Chromium	28.9 J	13.6 J	32.1 J	NA	2 J	46.4 J	NA	24.5 J	NA	9.2 J
Cobalt	0.72 U	0.7 U	0.79 B	NA	0.62 U	3.9 B	NA	4.4 B	NA	0.76 U
Copper	13.9	14.9	7.5	NA	1.4 U	12	NA	11.3	NA	6.8
Iron	889	833	423 J	NA	221 J	779 J	NA	718 J	NA	684 J
Lead	182	134	94.4	NA	1.3	133	NA	147	NA	89.1
Magnesium	389 B	436 B	1420 J	NA	56.6 J	2230 J	NA	1160 J	NA	3620 J
Manganese	13.5 J	13.2 J	99.7 J	NA	0.26 J	111 J	NA	65.1 J	NA	178 J
Mercury	0.05 B	0.05 B	0.04 B	NA	0.02 U	0.05	NA	0.03 B	NA	0.03 U
Nickel	4.5 B	3.4 B	3.1 U	NA	3 U	3.1 B	NA	3.1 U	NA	3.7 U
Potassium	122 U	118 U	165 B	NA	94.5 U	197 B	NA	96.9 U	NA	671 B
Selenium	0.19 B	0.15 U	0.49 UJ	NA	0.49 U	0.49 UJ	NA	0.5 U	NA	0.6 U
Silver	0.61 U	0.59 U	0.56 U	NA	0.55 U	0.56 U	NA	0.57 U	NA	0.68 U
Sodium	172 B	178 B	45.9 B	NA	3.6 U	105 B	NA	78.1 B	NA	122 B
Thallium	0.16 U	0.15 U	0.39 U	NA	0.39 U	0.39 U	NA	0.4 U	NA	0.47 U
Vanadium	12.3 B	11.6 B	4.6 B	NA	0.53 U	8.6 B	NA	6 B	NA	10.7 B
Zinc	148 J	127 J	47.2 J	NA	0.5 J	100 J	NA	57 J	NA	80.8 J
General chemistry, mg/kg										
pH, Solid	NA	NA	8.05	NA	7.05	8	NA	8.15	NA	NA

TABLE C-2

SUMMARY OF SOIL ANALYTICAL RESULTS
SUPPLEMENTAL SAMPLING

Appendix C

Table C-2. Summary of Soil Analytical Results, Study Area 18
Supplemental PAH Sampling

Naval Training Center, Orlando
Orlando, FL

SampleID	18S01301	18B01301	18S01401	18B01401	18S01501	18B01501	18S01601	18B01601	18S01701	18S01701D
LabID	A7K220128013	A7K220128014	A7K220128015	A7K220128016	A7K220130001	A7K260160010	A7K220130003	A7K220130004	A7K250138002	A7K250138003
Sampling Date	11/21/97	11/21/97	11/21/97	11/21/97	11/21/97	11/25/97	11/21/97	11/21/97	11/24/97	11/24/97
1-Methylnaphthalene	39 U	36 U	37 U	39 U	38 U	37 U	36 U	37 U	72 U	180 U
2-Methylnaphthalene	39 U	36 U	37 U	39 U	38 U	37 U	36 U	37 U	72 U	180 U
Acenaphthene	39 U	36 U	37 U	39 U	38 U	570	36 U	37 U	290	180 U
Acenaphthylene	39 U	36 U	37 U	39 U	38 U	1000	36 U	37 U	72 U	180 U
Anthracene	39 U	36 U	37 U	39 U	38 U	77	36 U	37 U	72 U	180 U
Benzo(a)anthracene	15 PF	3.6 U	3.7 U	3.9 U	3.7 U	51	3.6 U	3.6 U	140	26
Benzo(a)pyrene	3.9 U	3.6 U	3.7 U	3.9 U	3.7 U	49	3.6 U	3.6 U	310	18 U
Benzo(b)fluoranthene	3.9 U	3.6 U	3.7 U	3.9 U	3.7 U	110	3.6 U	3.6 U	320	51
Benzo(ghi)perylene	3.9 U	3.6 U	3.7 U	3.9 U	3.7 U	110	3.6 U	3.6 U	270	51
Benzo(k)fluoranthene	2 U	1.8 U	4.3	2 U	1.9 U	52	2.6	1.9 U	120	24
Chrysene	37	3.6 U	13	10	3.7 U	52	3.6 U	4.6	180	42
Dibenz(a,h)anthracene	3.9 U	3.6 U	3.7 U	3.9 U	3.7 U	110	3.6 U	3.6 U	67 PF	38
Fluoranthene	6.7	6	3.7 U	4.5	3.7 U	97	3.6 U	3.6 U	180	18 U
Fluorene	39 U	36 U	37 U	39 U	38 U	120	36 U	37 U	72 U	180 U
Indeno(1,2,3-cd)pyrene	3.9 U	3.6 U	3.7 U	3.9 U	3.7 U	50	3.6 U	3.6 U	43 PF	18 U
Naphthalene	39 U	36 U	37 U	39 U	38 U	540	36 U	37 U	72 U	180 U
Phenanthrene	39 U	36 U	37 U	39 U	38 U	68	36 U	37 U	72 U	180 U
Pyrene	3.9 U	24	3.7 U	5.6	3.7 U	45	3.6 U	3.6 U	57	65

Appendix C

Table C-2. Summary of Soil Analytical Results, Study Area 18

Supplemental PAH Sampling

Naval Training Center, Orlando

Orlando, FL

SampleID	18B01701		18S01801		18B01801		18S01901		18B01901		18S02001		18B02001		18S02101		18B02101	
LabID	A7K250138004		A7K250138005		A7K260160008		A7K250138007		A7K250138008		A7K250138009		A7K260160011		A7K250138011		A7K260160009	
Sampling Date	11/24/97		11/24/97		11/25/97		11/24/97		11/24/97		11/24/97		11/25/97		11/24/97		11/25/97	
1-Methylnaphthalene	190	U	35	U	37	U	45	U	120		40	U	39	U	38	U	37	U
2-Methylnaphthalene	190	U	35	U	37	U	45	U	42	U	40	U	39	U	38	U	37	U
Acenaphthene	190	U	35	U	39		45	U	42	U	40	U	39	U	38	U	37	U
Acenaphthylene	190	U	38		37	U	45	U	42	U	40	U	39	U	38	U	37	U
Anthracene	190	U	35	U	37	U	45	U	42	U	40	U	39	U	38	U	37	U
Benzo(a)anthracene	24		31	PF	4.5		64	PF	4.2	U	8.6	PF	3.9	U	3.7	U	3.7	U
Benzo(a)pyrene	20		49		5		92		13		6.7		3.9	U	3.7	U	3.7	U
Benzo(b)fluoranthene	54		56		10		100		7.3		12		3.9	U	3.7	U	3.7	U
Benzo(ghi)perylene	51		43		3.7	U	82		18		11		3.9	U	3.7	U	3.7	U
Benzo(k)fluoranthene	22		22		4.2		40		4.7	PF	6.4		2	U	1.9	U	1.9	U
Chrysene	38		47		7.1		76		8.7		11		3.9	U	3.7	U	3.7	U
Dibenz(a,h)anthracene	19	U	4.5	PF	3.7	U	15	PF	5.1	PF	6.7	PF	3.9	U	3.7	U	3.7	U
Fluoranthene	63		120		8.9		140		12		13		3.9	U	3.7	U	3.7	U
Fluorene	190	U	35	U	37	U	45	U	42	U	40	U	39	U	38	U	37	U
Indeno(1,2,3-cd)pyrene	44		16		3.7	U	15	PF	4.2	U	8.6		3.9	U	3.7	U	3.7	U
Naphthalene	190	U	41		37	U	78		42	U	40	U	39	U	38	U	37	U
Phenanthrene	190	U	35	U	37	U	64		42	U	40	U	39	U	38	U	37	U
Pyrene	57		140		3.7	U	110		28		11		3.9	U	3.7	U	3.7	U

TABLE C-3

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
INITIAL SITE SCREENING

Appendix C
Table C-3. Summary of Groundwater Analytical Results
Study Area 18
Initial Site Screening

Naval Training Center, Orlando
Orlando, FL

Sample ID	18G00101	18G00102	18G00201	18G00301	18G00401
Lab ID	G7705002	MB169003	G7607007	G7607008	G7607009
Sampling Date	30-May-95	17-Jun-96	18-May-95	18-May-95	18-May-95
Volatile organics, ug/L					
1,1,1-Trichloroethane	NA	NA	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	NA	NA	1 U	1 U	1 U
1,1,2-Trichloroethane	NA	NA	1 U	1 U	1 U
1,1-Dichloroethane	NA	NA	1 U	1 U	1 U
1,1-Dichloroethene	NA	NA	1 U	1 U	1 U
1,2-Dibromo-3-chloropropane	NA	NA	1 U	1 U	1 U
1,2-Dibromoethane	NA	NA	1 U	1 U	1 U
1,2-Dichloroethane	NA	NA	1 U	1 U	1 U
1,2-Dichloropropane	NA	NA	1 U	1 U	1 U
2-Butanone	NA	NA	5 UR	5 UR	5 UR
2-Hexanone	NA	NA	5 UR	5 UR	5 UR
4-Methyl-2-pentanone	NA	NA	5 U	5 U	5 U
Acetone	NA	NA	7 UR	6 UR	5 UR
Benzene	NA	NA	1 U	1 U	1 U
Bromochloromethane	NA	NA	1 U	1 U	1 U
Bromodichloromethane	NA	NA	1 U	1 U	1 U
Bromoform	NA	NA	1 U	1 U	1 U
Bromomethane	NA	NA	1 U	1 U	1 U
Carbon disulfide	NA	NA	1 U	1 U	1 U
Carbon tetrachloride	NA	NA	1 U	1 U	1 U
Chlorobenzene	NA	NA	1 U	1 U	1 U
Chloroethane	NA	NA	1 U	1 U	1 U
Chloroform	NA	NA	1 U	1 U	1 U
Chloromethane	NA	NA	1 U	1 U	1 U
cis-1,2-Dichloroethene	NA	NA	1 U	1 U	1 U
cis-1,3-Dichloropropene	NA	NA	1 U	1 U	1 U
Dibromochloromethane	NA	NA	1 U	1 U	1 U
Ethylbenzene	NA	NA	1 U	1 U	1 U
Methylene chloride	NA	NA	2 U	2 U	2 U
Styrene	NA	NA	1 U	1 U	1 U
Tetrachloroethene	NA	NA	1 U	1 U	1 U
Toluene	NA	NA	1 U	1 U	1 U
trans-1,2-Dichloroethene	NA	NA	1 U	1 U	1 U
trans-1,3-Dichloropropene	NA	NA	1 U	1 U	1 U
Trichloroethene	NA	NA	1 U	1 U	1 U
Vinyl chloride	NA	NA	1 U	1 U	1 U
Xylene (total)	NA	NA	0.3 J	1 U	1
Semivolatile organics, ug/L					
1,2,4-Trichlorobenzene	10 U	NA	10 U	10 U	10 U
1,2-Dichlorobenzene	10 U	NA	1 U	1 U	1 U
1,3-Dichlorobenzene	10 U	NA	1 U	1 U	1 U
1,4-Dichlorobenzene	10 U	NA	1 U	1 U	1 U
2,2'-oxybis(1-Chloropropane)	10 U	NA	10 U	10 U	10 U
2,4,5-Trichlorophenol	25 U	NA	25 U	25 U	25 U
2,4,6-Trichlorophenol	10 U	NA	10 U	10 U	10 U
2,4-Dichlorophenol	10 U	NA	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	NA	10 U	10 U	10 U

Appendix C
Table C-3. Summary of Groundwater Analytical Results
Study Area 18
Initial Site Screening

Naval Training Center, Orlando
Orlando, FL

Sample ID	18G00101	18G00102	18G00201	18G00301	18G00401
Lab ID	G7705002	MB169003	G7607007	G7607008	G7607009
Sampling Date	30-May-95	17-Jun-96	18-May-95	18-May-95	18-May-95
2,4-Dinitrophenol	25 UJ	NA	25 UJ	25 UJ	25 UJ
2,4-Dinitrotoluene	10 U	NA	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	NA	10 U	10 U	10 U
2-Chloronaphthalene	10 U	NA	10 U	10 U	10 U
2-Chlorophenol	10 U	NA	10 U	10 U	10 U
2-Methylnaphthalene	10 U	NA	10 U	10 U	10 U
2-Methylphenol	10 U	NA	10 U	10 U	10 U
2-Nitroaniline	25 U	NA	25 U	25 U	25 U
2-Nitrophenol	10 U	NA	10 U	10 U	10 U
3,3'-Dichlorobenzidine	10 U	NA	10 U	10 U	10 U
3-Nitroaniline	25 U	NA	25 U	25 U	25 U
4,6-Dinitro-2-methylphenol	25 U	NA	25 U	25 U	25 U
4-Bromophenyl-phenylether	10 U	NA	10 U	10 U	10 U
4-Chloro-3-methylphenol	10 U	NA	10 U	10 U	10 U
4-Chloroaniline	10 U	NA	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10 U	NA	10 U	10 U	10 U
4-Methylphenol	10 U	NA	10 U	10 U	10 U
4-Nitroaniline	25 U	NA	25 U	25 U	25 U
4-Nitrophenol	25 U	NA	25 U	25 U	25 U
Acenaphthene	10 U	NA	2 J	10 U	10 U
Acenaphthylene	10 U	NA	10 U	10 U	10 U
Anthracene	10 U	NA	10 U	10 U	10 U
Benzo(a)anthracene	10 U	NA	10 U	10 U	10 U
Benzo(a)pyrene	0.2 U	NA	0.2 U	0.2 U	0.2 U
Benzo(b)fluoranthene	10 U	NA	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	NA	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	NA	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	10 U	NA	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10 U	NA	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	2 U	NA	1	1 U	2 U
Butylbenzylphthalate	10 U	NA	10 U	10 U	10 U
Carbazole	10 U	NA	10 U	10 U	10 U
Chrysene	10 U	NA	10 U	10 U	10 U
Di-n-butylphthalate	10 U	NA	10 U	10 U	10 U
Di-n-octylphthalate	10 U	NA	10 U	10 U	10 U
Dibenz(a,h)anthracene	10 U	NA	10 U	10 U	10 U
Dibenzofuran	10 U	NA	10 U	10 U	10 U
Diethylphthalate	10 U	NA	10 U	10 U	10 U
Dimethylphthalate	10 U	NA	10 U	10 U	10 U
Fluoranthene	10 U	NA	10 U	10 U	10 U
Fluorene	10 U	NA	10 U	10 U	10 U
Hexachlorobenzene	1 U	NA	1 U	1 U	1 U
Hexachlorobutadiene	10 U	NA	10 U	10 U	10 U
Hexachlorocyclopentadiene	10 U	NA	10 U	10 U	10 U
Hexachloroethane	10 U	NA	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	NA	10 U	10 U	10 U
Isophorone	10 U	NA	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10 U	NA	10 U	10 U	10 U

Appendix C
Table C-3. Summary of Groundwater Analytical Results
Study Area 18
Initial Site Screening

Naval Training Center, Orlando
Orlando, FL

Sample ID	18G00101	18G00102	18G00201	18G00301	18G00401
Lab ID	G7705002	MB169003	G7607007	G7607008	G7607009
Sampling Date	30-May-95	17-Jun-96	18-May-95	18-May-95	18-May-95
N-Nitrosodiphenylamine (1)	10 U	NA	10 U	10 U	10 U
Naphthalene	10 U	NA	12	10 U	10 U
Nitrobenzene	10 U	NA	10 U	10 U	10 U
Pentachlorophenol	1 U	NA	1 U	1 U	1 U
Phenanthrene	10 U	NA	10 U	10 U	10 U
Phenol	10 U	NA	10 U	10 U	10 U
Pyrene	10 U	NA	10 U	10 U	10 U
Pesticides/PCBs, ug/L					
4,4'-DDD	0.1 UJ	NA	0.1 UJ	0.1 UJ	NA
4,4'-DDE	0.1 UJ	NA	0.1 UJ	0.1 UJ	NA
4,4'-DDT	0.1 UJ	NA	0.1 UJ	0.1 UJ	NA
Aldrin	0.05 UJ	NA	0.05 UJ	0.05 UJ	NA
alpha-BHC	0.05 UJ	NA	0.05 UJ	0.05 UJ	NA
alpha-Chlordane	0.05 UJ	NA	0.05 UJ	0.05 UJ	NA
Aroclor-1016	0.5 UJ	NA	0.5 UJ	0.5 UJ	NA
Aroclor-1221	0.5 UJ	NA	0.5 UJ	0.5 UJ	NA
Aroclor-1232	0.5 UJ	NA	0.5 UJ	0.5 UJ	NA
Aroclor-1242	0.5 UJ	NA	0.5 UJ	0.5 UJ	NA
Aroclor-1248	0.5 UJ	NA	0.5 UJ	0.5 UJ	NA
Aroclor-1254	0.5 UJ	NA	0.5 UJ	0.5 UJ	NA
Aroclor-1260	0.5 UJ	NA	0.5 UJ	0.5 UJ	NA
beta-BHC	0.05 UJ	NA	0.05 UJ	0.05 UJ	NA
delta-BHC	0.05 UJ	NA	0.05 UJ	0.05 UJ	NA
Dieldrin	0.1 UJ	NA	0.1 UJ	0.1 UJ	NA
Endosulfan I	0.05 UJ	NA	0.05 UJ	0.05 UJ	NA
Endosulfan II	0.1 UJ	NA	0.1 UJ	0.1 UJ	NA
Endosulfan sulfate	0.1 UJ	NA	0.1 UJ	0.1 UJ	NA
Endrin	0.1 UJ	NA	0.1 UJ	0.1 UJ	NA
Endrin aldehyde	0.1 UJ	NA	0.1 UJ	0.1 UJ	NA
Endrin ketone	0.1 UJ	NA	0.1 UJ	0.1 UJ	NA
gamma-BHC (Lindane)	0.05 UJ	NA	0.05 UJ	0.05 UJ	NA
gamma-Chlordane	0.05 UJ	NA	0.05 UJ	0.05 UJ	NA
Heptachlor	0.05 UJ	NA	0.05 UJ	0.05 UJ	NA
Heptachlor epoxide	0.05 UJ	NA	0.05 UJ	0.05 UJ	NA
Methoxychlor	0.5 UJ	NA	0.5 UJ	0.5 UJ	NA
Toxaphene	5 UJ	NA	5 UJ	5 UJ	NA
Herbicides, ug/L					
2,4,5-T	0.5 U	NA	2 U	2 U	NA
2,4,5-TP (Silvex)	0.5 U	NA	1.7 U	1.7 U	NA
2,4-D	2.5 U	NA	12 U	12 U	NA
2,4-DB	2.5 U	NA	9.1 U	9.1 U	NA
Dalapon	5 U	NA	58 U	58 U	NA
Dicamba	0.5 U	NA	2.7 U	2.7 U	NA
Dichlorprop	2.5 U	NA	6.5 U	6.5 U	NA
Dinoseb	0.5 U	NA	0.7 U	0.7 U	NA
MCPA	250 U	NA	2500 U	2500 U	NA
MCPP	250 U	NA	2000 U	2000 U	NA
Inorganics, ug/L					

Appendix C
Table C-3. Summary of Groundwater Analytical Results
Study Area 18
Initial Site Screening

Naval Training Center, Orlando
Orlando, FL

Sample ID	18G00101		18G00102		18G00201		18G00301		18G00401	
Lab ID	G7705002		MB169003		G7607007		G7607008		G7607009	
Sampling Date	30-May-95		17-Jun-96		18-May-95		18-May-95		18-May-95	
Aluminum	65600		5620		21900		14100		7360	
Antimony	2.5	UJ	2.6	U	2.5	U	2.5	U	2.5	U
Arsenic	14.6	J	3	BJ	33.4		1.9	U	6.2	J
Barium	590	J	71.1	B	159	B	74.4	B	208	
Beryllium	3.6	B	0.57	B	0.36	B	0.32	B	1.5	B
Cadmium	3.1	U	3.8	B	3.1	U	3.1	U	3.1	U
Calcium	14300		7760		6490		1660	B	5130	
Chromium	95.6		21.8		27.5		14.4	U	27.8	
Cobalt	8.3	J	3	B	3.4	B	3.3	B	3.6	B
Copper	27.6		11.8	B	4.8	B	3	U	1.4	U
Iron	23400		5410		4500		4530		13400	
Lead	54.8		2.7	U	12		3.9		5.1	
Magnesium	9950		3020	B	2370	B	2760	B	5610	
Manganese	53.5		27.6		20.3		14.8	B	19.6	
Mercury	0.68		0.12	B	0.12	U	0.12	U	0.12	U
Nickel	76		13.8	B	14.2	U	14.2	U	14.2	U
Potassium	7190		9470		1200	B	1060	B	3040	B
Selenium	8.5		1.4	U	2.3	U	2.3	U	2.3	U
Silver	2.6	U	2.2	U	2.6	U	2.6	U	2.6	U
Sodium	30000		31700	J	10000		9620		28900	
Thallium	79.4	J	0.86	U	18.1	UJ	18.1	UJ	18.1	UJ
Vanadium	211		19.8	B	22.4	B	18.1	B	38.4	B
Zinc	20.1		9.4	U	4.4	U	4	U	4.6	U
General Chemistry, mg/L										
Total Suspended Solids	106		8		8		1	U	37	

Appendix c
Notes for Summary of Analytical Results Tables
Study Area 18

Naval Training Center, Orlando
Orlando Florida

NA = Identified parameter not analyzed.
Sample ID = Sample Identifier
Lab ID = Laboratory identifier

Units:

mg/kg milligram per kilogram
µg/kg microgram per kilogram
mg/L milligram per liter
µg/L microgram per liter

The following standard analytical data qualifiers have the following definitions:

U The analyte/compound was analyzed for but was not detected above the reported sample quantitation limit
The number preceding the U qualifier is the reported sample quantitation limit.

J The analyte/compound was positively identified and the associated numerical value is an estimated concentration of the analyte/compound in the sample.

UJ The analyte/compound was not detected above the reported sample quantitation limit.
The reported quantitation limit, however, is approximate and may or may not represent the actual limit of quantitation necessary to accurately measure the analyte/compound in the sample.

R The sample results are rejected during data validation because of serious deficiencies in meeting quality control criteria.

B For inorganics only, reported concentration is between the instrument detection limit and the contract required detection limit.

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%.

D D = Reported concentrations if from a dilution/reanalysis.

C C = Confirmed by gas chromatography/mass spectroscopy.

NA Not analyzed.

APPENDIX D

REPORT OF INTERIM REMEDIAL ACTION ENVIRONMENTAL DETACHMENT CHARLESTON, STUDY AREA 18

(To be provided by the Environmental Detachment Charleston)