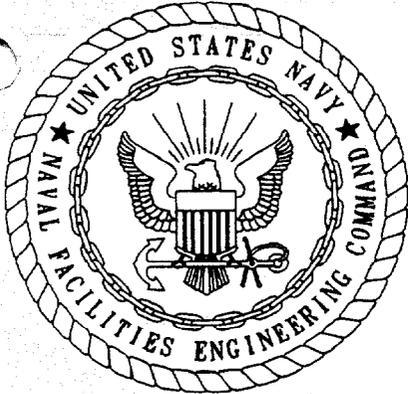


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FINAL BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL SITE SCREENING
REPORT STUDY AREA 20 NTC ORLANDO FL
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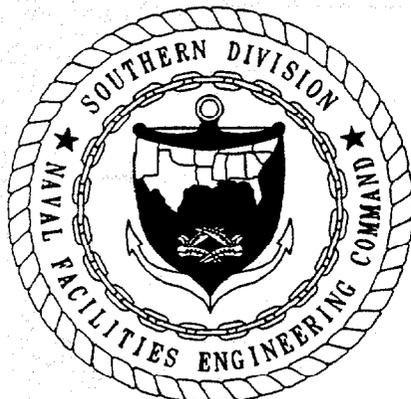
**BASE REALIGNMENT AND CLOSURE
ENVIRONMENTAL SITE SCREENING REPORT**

STUDY AREA 20

**NAVAL TRAINING CENTER
ORLANDO, FLORIDA**

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

JUNE 1997



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

**BASE REALIGNMENT AND CLOSURE
ENVIRONMENTAL SITE SCREENING REPORT**

STUDY AREA 20

**NAVAL TRAINING CENTER
ORLANDO, FLORIDA**

Unit Identification Code: N65928

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

Prepared by:

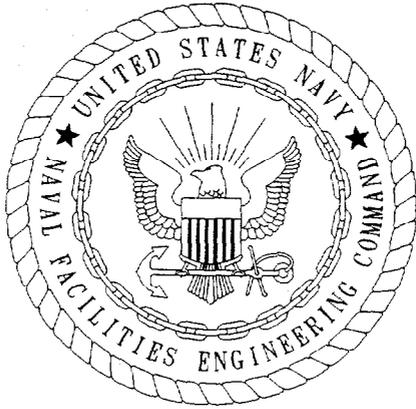
**ABB Environmental Services, Inc.
2590 Executive Center Circle, East
Tallahassee, Florida 32301**

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 1997



CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

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

DATE: June 2, 1997

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)

TABLE OF CONTENTS

BRAC Environmental Site Screening Report
Study Area 20
Naval Training Center
Orlando, Florida

<u>Chapter</u>	<u>Title</u>	<u>Page No.</u>
1.0	STUDY AREA 20, WAREHOUSE STORAGE (BUILDING 7187)	1-1
1.1	STUDY AREA 20, BACKGROUND AND CONDITIONS	1-1
1.2	STUDY AREA 20, INVESTIGATION SUMMARY	1-1
	1.2.1 Surface Soil Samples	1-1
	1.2.2 Soil Boring Investigation	1-1
	1.2.3 Groundwater Monitoring Well Installation and Sampling	1-4
1.3	STUDY AREA 20, RESULTS	1-4
	1.3.1 Surface Soil Analytical Results	1-4
	1.3.2 Subsurface Soil Analytical Results	1-4
	1.3.3 Groundwater Analytical Results	1-5
1.4	STUDY AREA 20, CONCLUSIONS AND RECOMMENDATIONS	1-5

REFERENCES

APPENDICES

- Appendix A: Boring Logs and Monitoring Well Installation Diagrams
- Appendix B: Positive Hits Tables
- Appendix C: Summary of Analytical Results

LIST OF FIGURES

BRAC Environmental Site Screening Report
Study Area 20
Naval Training Center
Orlando, Florida

<u>Figure</u>	<u>Title</u>	<u>Page No.</u>
1	Location of Study Area 20	1-2
2	Surface Soil Sample, Soil Boring and Monitoring Well Locations, McCoy Annex, Building 7187 (Warehouse Storage), Study Area 20	1-3

GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
bls	below land surface
CAR	contamination assessment report
CLP	Contract Laboratory program
DDE	dichlorodiphenyldichloroethene
DQO	data quality objective
EBS	environmental baseline survey
FDEP	Florida Department of Environmental Protection
FID	flame ionization detector
FOST	Finding of Suitability to Transfer
mg/kg	milligrams per kilogram
µg/kg	micrograms per kilogram
OPT	Orlando Partnering Team
OU	operable unit
PAH	polynuclear aromatic hydrocarbons
ppm	parts per million
RBC	risk-based concentration
SCG	soil cleanup goal
TAL	target analyte list
TCAR	tank closure assessment report
TCL	target compound list
TMP	Tank Management Plan
TSS	total suspended solids
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound

1.0 STUDY AREA 20, WAREHOUSE STORAGE (BUILDING 7187)

This report contains information gathered as a result of site screening activities conducted at Study Area 20. In March of 1996, after the review of site screening results, the Orlando Partnering Team (OPT) concluded that the site required no further action and was transferable under the conditions of a Finding of Suitability to Lease or a Finding of Suitability to Transfer (FOST).

1.1 STUDY AREA 20, BACKGROUND AND CONDITIONS. This section includes a brief background summary for Study Area 20 (Figure 1). Further details can be found in the Site Screening Plan (ABB Environmental Services, Inc. [ABB-ES], 1995).

Building 7187, which was built in 1952 for use as a meat storage and processing facility, is a 9,100-square-foot cinderblock structure currently used by the Marines to store office equipment, and by the fire department to store fire-fighting equipment (Figure 2). The boiler attached to the building is abandoned and no longer functional.

An abandoned steel pesticide storage shed in poor repair is located outside of the facility. Rusted 5-gallon buckets were observed in the storage shed.

A 550-gallon UST (diesel fuel), installed in 1952, is out of service. Petroleum odors were noted in the vicinity of the tank during a site walkover for the EBS.

1.2 STUDY AREA 20, INVESTIGATION SUMMARY. The site screening investigations conducted at Study Area 20 are described below.

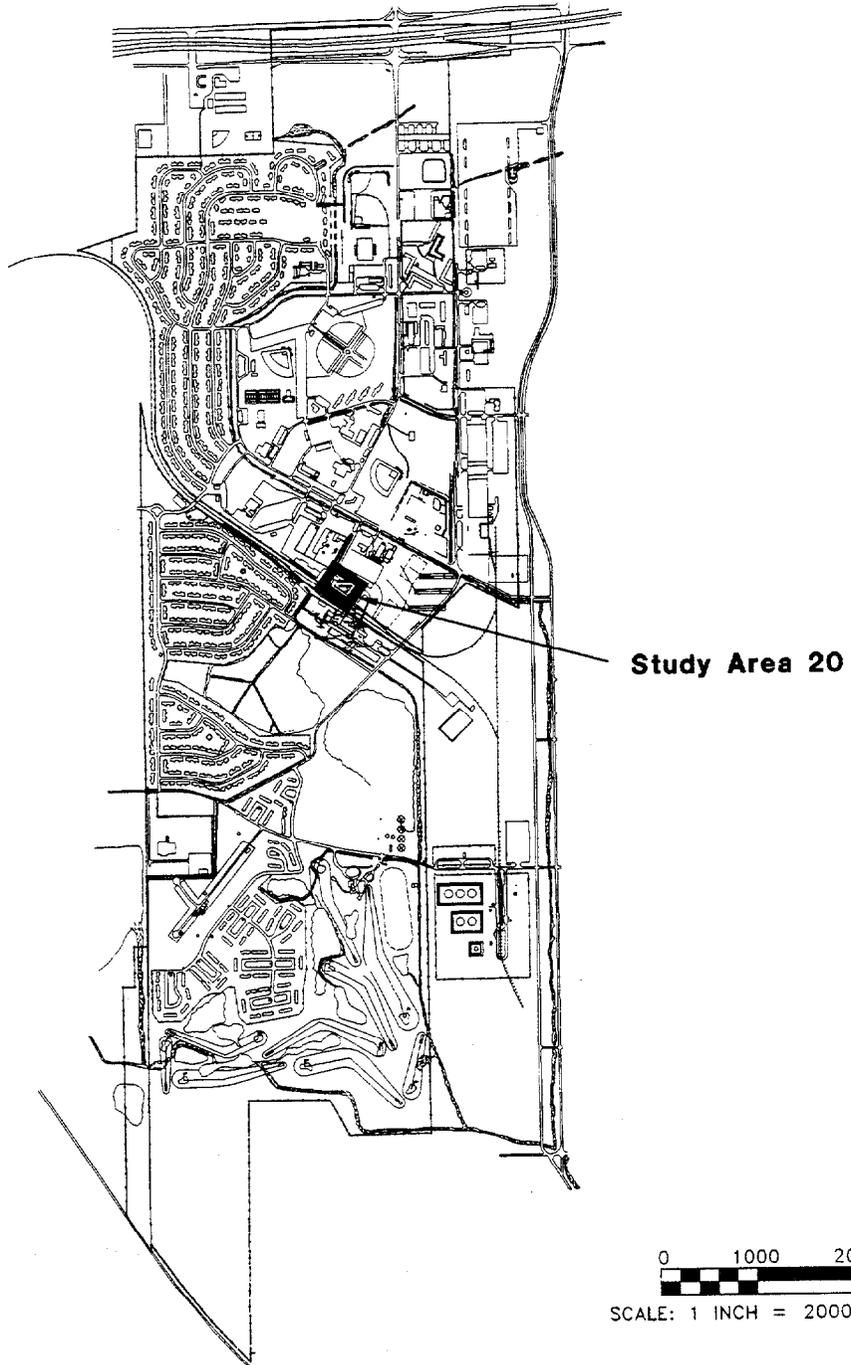
1.2.1 Surface Soil Samples The investigation at Study Area 20 included two surface soil samples (20S004 [0 to 1 foot below land surface (bls)] and 20S005 [0 to 1 foot bls]) located at either end of Building 7187 (Figure 2). There were no positive flame ionization detector (FID) readings during sample collection.

1.2.2 Soil Boring Investigation One soil boring (20B001) was advanced to a depth of approximately 14 feet bls using a hollow-stem auger drilling technique (Figure 2). This boring was located near the abandoned pesticide storage shed. During drilling, FID readings between 5 and 9 parts per million were detected between 10 and 14 feet bls. These readings were below the estimated water table. One surface (20B00101) and one subsurface (20B00102) soil sample were collected during the drilling at depths of 0 to 1 foot bls and 6 to 8 feet bls.

Two additional soil borings were hand-augered to depths of 5 to 6 feet bls (Figure 2). One soil sample was collected from each hand-auger boring at depths of 5 to 6 feet bls (20B002) and 4 to 5 feet bls (20B003). There were no positive FID readings during sample collection.

Four soil samples were collected and submitted for full suite Contract Laboratory program (CLP) target compound list (TCL), target analyte list (TAL), and herbicide analyses, in accordance with U.S. Environmental Protection Agency (USEPA) Level IV data quality objectives (DQOs).

McCOY ANNEX



**FIGURE 1
LOCATION OF STUDY AREA 20**



**BASE REALIGNMENT AND
CLOSURE ENVIRONMENTAL SITE
SCREENING REPORT**

**NAVAL TRAINING CENTER
ORLANDO, FLORIDA**

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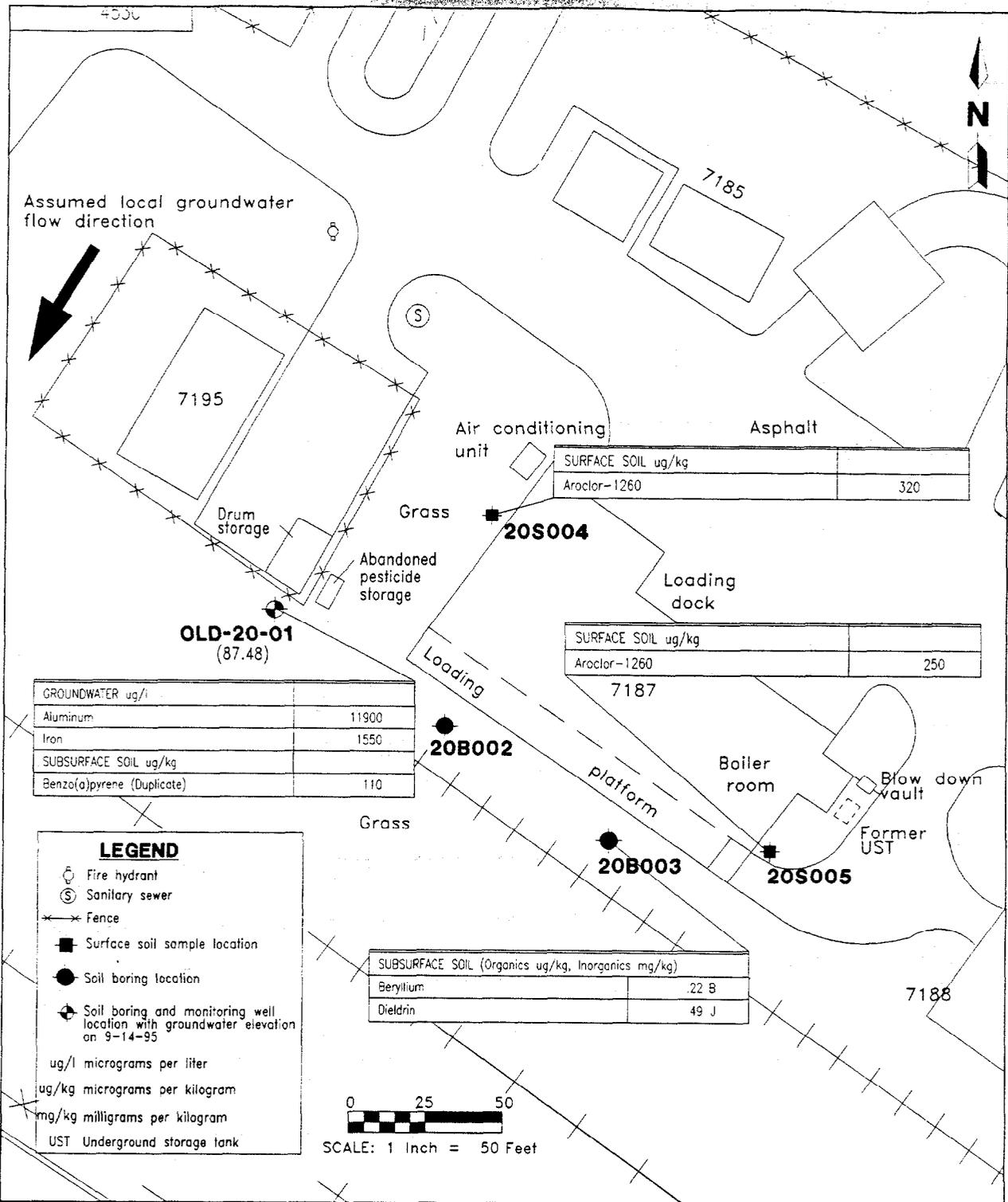


FIGURE 2
SURFACE SOIL SAMPLE, SOIL BORING AND MONITORING WELL LOCATIONS, MCCOY ANNEX BUILDING 7187, (WAREHOUSE STORAGE) STUDY AREA 20



BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL SITE SCREENING REPORT

NAVAL TRAINING CENTER ORLANDO, FLORIDA

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Soil boring logs are included in Appendix A.

1.2.3 Groundwater Monitoring Well Installation and Sampling Soil boring 20B001 was completed as monitoring well OLD-20-01. The well was screened across the water table. One groundwater sample was collected using a low-flow technique and submitted for total suspended solids (TSS) and full suite CLP TCL, TAL, and herbicide analyses, in accordance with USEPA Level IV DQOs. The monitoring well installation diagram is included in Appendix A.

1.3 STUDY AREA 20, RESULTS. The results of site screening investigations at Study Area 20 are discussed below.

Analytical results from the surface soil, subsurface soil, and groundwater collected from Study Area 20 are presented as Positive Hits 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 positive hits tables) are displayed in chem-boxes near their respective explorations on Figure 2.

1.3.1 Surface Soil Analytical Results Surface soil analytical results (Table B-1) indicate detections of volatile organics, semivolatile organics, pesticides/polychlorinated biphenyls and inorganics. Volatile organic detections include acetone, benzene, chlorobenzene, and toluene, all at concentrations below their respective residential risk-based concentrations (RBCs) and soil cleanup goals (SCGs). Semivolatile organic compounds consisting of polynuclear aromatic hydrocarbon (PAH) compounds benzo(a)pyrene, benzo(a)anthracene, chrysene, fluoranthene, phenanthrene, and pyrene were detected at locations 20S001 and 20S005. All PAH detections were below their respective residential RBCs and SCGs, except for benzo(a)pyrene, which was detected in a field duplicate at location 20B001 at 110J micrograms per kilogram ($\mu\text{g}/\text{kg}$), exceeding the residential RBC of 88 $\mu\text{g}/\text{kg}$ and SCG of 100 $\mu\text{g}/\text{kg}$. At location 20S005, 4,4'-dichlorodiphenyldichloroethene (DDE) and alpha-chlordane were detected, but at concentrations below their respective residential RBCs and SCGs. Aroclor-1260 was detected at 20S004 and 20S005 (320 $\mu\text{g}/\text{kg}$ and 250 $\mu\text{g}/\text{kg}$), which exceeded the residential RBC of 83 $\mu\text{g}/\text{kg}$. However, these values are below the SCG of 900 $\mu\text{g}/\text{kg}$ for Aroclor-1260. Inorganics detected above background in surface soil samples included barium, mercury, and zinc. All inorganic detections, however, were below their respective residential RBCs and SCGs.

Leachability-based SCG values do not apply, as no organic compounds were present in groundwater above Florida Department of Environmental Protection (FDEP) groundwater guidance concentrations (see below).

1.3.2 Subsurface Soil Analytical Results Subsurface soil analytical results (Table B-2) indicate detections of volatile organics, pesticides, and inorganics. Acetone was detected at location 20B001 but appears to be a sampling and/or laboratory analytical artifact as there are no other ketones detected. The concentration is also well below the corresponding residential RBC. Dieldrin was detected in 20B003 at 49J $\mu\text{g}/\text{kg}$, exceeding the residential RBC of 40 $\mu\text{g}/\text{kg}$. Inorganics detected above background values included aluminum, barium, beryllium, calcium, chromium, cobalt, iron, lead, magnesium, manganese, potassium, sodium, vanadium, and zinc. However, except for one beryllium detection of 0.22 milligrams per kilogram (mg/kg) (20B003) slightly exceeding the residential RBC

of 0.15 mg/kg, all other inorganic detections do not exceed their respective residential RBCs.

Leachability-based SCG values do not apply, as no organic compounds were present in groundwater above FDEP groundwater guidance concentrations (see below).

1.3.3 Groundwater Analytical Results No organic compounds were detected in groundwater (Table B-3). Aluminum, barium, chromium, iron, manganese, and vanadium were detected at concentrations above their respective background screening values. Only aluminum and iron exceeded their respective FDEP groundwater secondary standards.

Secondary standards have been established for Class G-I and G-II aquifers by the State of Florida, largely along Federal guidelines, to ensure that groundwater meets at least minimum criteria for taste, odor, and color, and does not pose a health risk.

Based on records reviews and interviews, there have been no known site activities that may have contributed to the observed exceedances of background screening levels for aluminum (11,900 $\mu\text{g}/\ell$ versus a background screening concentration of 4,067 $\mu\text{g}/\ell$) and iron (1,550 $\mu\text{g}/\ell$ versus a background screening concentrations of 1,227 $\mu\text{g}/\ell$) in well OLD-20-01. Surface and subsurface soil concentrations of these analytes did not exceed background screening concentrations. The groundwater sample was very turbid (133 nephelometric turbidity units), suggesting that suspended solids may have contributed to the observed secondary standard exceedance.

Analytes exceeding Florida secondary standards should also be compared with RBCs for tapwater published by the USEPA, Region III. The tapwater guidance concentrations for these analytes are 37,000 and 11,000 $\mu\text{g}/\ell$, respectively. Other groundwater parameters measured during sampling were within normal limits: pH was 6.05, temperature was 79.7 degrees Fahrenheit, and conductivity was 100 micromhos per centimeter. ABB-ES concludes that the aluminum and iron exceeding Florida's secondary standards are naturally occurring, are not related to past site activities, and do not pose a risk to human health or the environment.

1.4 STUDY AREA 20, CONCLUSIONS AND RECOMMENDATIONS. Based on available information and site screening data, it is concluded that there is minimal contamination in the various media sampled at Study Area 20. Detections of Aroclor-1260 in surface soil samples exceeded the residential RBC but are below the SCG. The dieldrin detection slightly exceeding the residential RBC is not unusual in an urban environment. The beryllium detection in one sample is very close to the background screening value.

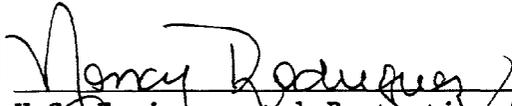
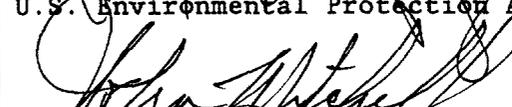
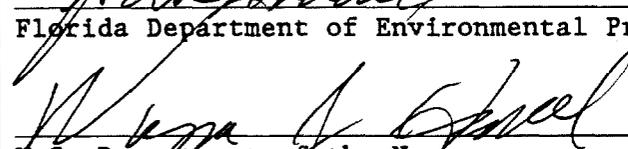
Aluminum and iron concentrations above FDEP groundwater secondary standards may be related to suspended solids. The TSS concentration in this groundwater sample was 36 milligrams per liter. Refer to Subsection 1.3.3 for a discussion of the secondary standards exceedances.

The 550-gallon UST was removed in January 1996 under the NTC, Orlando Tank Management Plan (TMP) (ABB-ES, 1996). The tank closure assessment report (TCAR) was completed in May 1996 with the recommendation to conduct a contamination

assessment report (CAR). FDEP approved the TCAR on June 1996, and the CAR is scheduled to be completed in June 1997.

ABB-ES recommends that SA 20 be made eligible for transfer, and reclassification of the site from 7/Grey to 2/Blue.

The undersigned members of the Base Realignment and Closure Team concur with the findings and recommendations of the preceding investigation.

<u>STUDY AREA 20</u>	
 _____ U.S. Environmental Protection Agency, Region IV	<u>6/19/97</u> _____ Date
 _____ Florida Department of Environmental Protection	<u>6/19/97</u> _____ Date
 _____ U.S. Department of the Navy	<u>6/19/97</u> _____ Date

REFERENCES

ABB Environmental Services, Inc. (ABB-ES), 1995, Site Screening Plan, Groups I through V Study Areas and Miscellaneous Additional Sites, Naval Training Center (NTC), Orlando, Florida: prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOCM), North Charleston, South Carolina.

ABB-ES, 1996, Base Realignment and Closure Tank Management Plan, NTC, Orlando, Florida: prepared for SOUTHNAVFACENGCOCM, North Charleston, South Carolina.

APPENDIX A

BORING LOGS AND MONITORING WELL INSTALLATION DIAGRAMS

Project: BRAC NTC, Group III Site Screening		Well ID: S.A. 20	Boring ID: OLD-20-01
Client: SOUTHVIYNAVFACENCOM		Contractor: GEOTEK	Job No.: CTO-107
Northing:	Easting:	Date started: 05/10/95	Compltd: 05/10/95
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: 14 Ft.	Dpth to \varnothing 7 Ft.
ABB Rep.: M. Hawes	Well development date: PVC		Site:

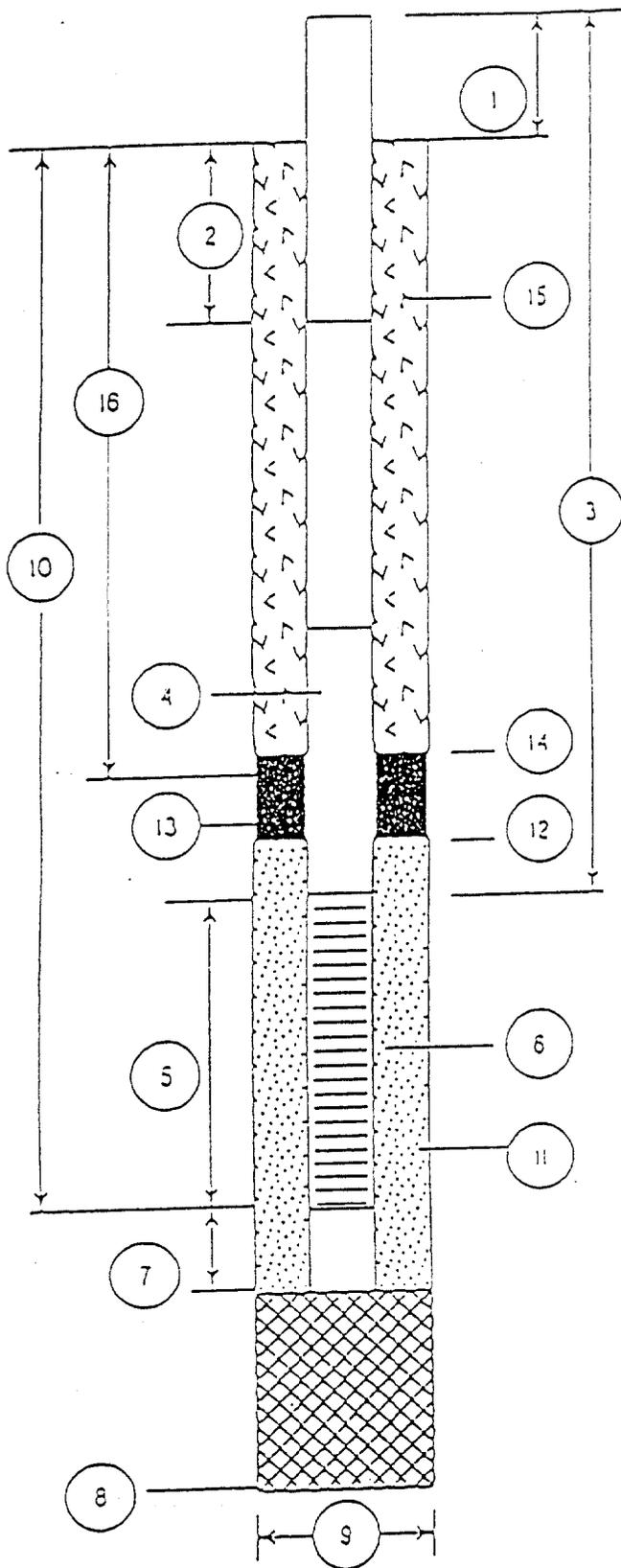
Depth Ft.	Laboratory Sample ID.	Sample Recovery	Headspace (ppm)	Soil/Rock Description and comments	Lithologic symbol	Soil class.	Blows/6-in.	Well diag.
0-1'	20B00101 20B00101D			SAND: Dark brown, silty, some organics, fine-medium grain		SM		
4.6				SAND: Tan, trace silts, fine grain, coarse sand, good sorting		SP	4.6	
6.8		70%					6.8	
10.13	20B00102 20B00102MS 20B00102MSD	70%					10.13	
11.10							11.10	
10.12							10.12	
11.9		50%					11.9	
9							9	
5.7		70%					5.7	
7.8							7.8	
3.8							3.8	
6.6		70%					6.6	
3.3							3.3	
5.5							5.5	

DEPARTMENT OF THE NAVY
 SOUTHERN DIVISION
 NAVAL FACILITIES ENGINEERING COMMAND
 CHARLESTON, SC.

WELL CONSTRUCTION DETAIL

WELL NUMBER: OLD-20-01

DATE OF INSTALLATION: 5/10/95



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 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 Filler: 20/30 Silica Sand
Quantity Used: 450 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
POSITIVE HITS TABLES

Appendix B

Table B-1. Summary of Positive Detections in Surface Soil Analytical Results, Study Area 20

Naval Training Center, Orlando
Orlando, FL

Identifier	Background Screening ¹	SCG ²	RBC ³ for Residential Soil	RBC ³ for Industrial Soil	20S00401	20S00501	20B00101	20B00101D
Sampling Date					5/2/95	5/2/95	5/10/95	5/10/95
Feet bls					1	1	1	1
Volatile Organics, ug/kg								
Acetone		260,000	7,800,000 n	200,000,000 n		7 J		
Benzene		1,400	22,000 c	200,000 c	2 J			
Chlorobenzene		44,000	16,000,000 n	41,000,000 n	2 J			
Toluene		520,000	16,000,000 n	41,000,000 n	3 J			
Semivolatile Organics, ug/kg								
Benzo(a)anthracene		1,400	880 c	7,800 c		87 J		
Benzo(a)pyrene		100	88 c	780 c				110 J
Chrysene		140,000	88,000 c	780,000 c		100 J		120 J
Fluoranthene		2,900,000	3,100,000 n	82,000,000 n		160 J	100 J	100 J
Phenanthrene		1,700,000	2,300,000 n	61,000,000 n		140 J		
Pyrene		2,200,000	2,300,000 n	61,000,000 n		160 J		180 J
Pesticides/PCBs, ug/kg								
4,4'-DDE		3,000	1,900 c	17,000 c		3.3 J		
alpha-chlordane		800	490 c	4,400 c				1.2 J
Aroclor-1260		900	83 c	740 c	320	250		
Inorganics, mg/kg								
Aluminum	4,870	75,000	78,000 n	1,000,000 n	1,470 J	2,030 J	1,920 J	2,000 J
Arsenic	1.9	0.8	0.43 c/23 n	3.8 c/610 n		0.92 B	0.95 B	1.1 B
Barium	21.6	5,200	5,500 n	140,000 n	51.7 J	5.2 J	3.2 J	3.7 J
Beryllium	0.46	0.2	0.15	1.3	0.04 J	0.07 J	0.02 J	0.06 J
Calcium	33,568	ND	1,000,000	1,000,000	2,430 J	20,400 J	976 J	894 J
Chromium	11	290	390 n	10,000 n			3	3.8
Copper	2.6	ND	3,100 n	82,000 n	1.7 B	2.6 B	1.9 B	2.4 B
Iron	843	ND	23,000 n	610,000 n	259 J	666 J	555 J	730 J
Lead	21.3	500	400	400	5.7 J	10 J	4.8 J	5.6 J

Appendix B

Table B-1. Summary of Positive Detections in Surface Soil Analytical Results, Study Area 20

Naval Training Center, Orlando
Orlando, FL

Identifier	Background Screening ¹	SCG ²	RBC ³ for Residential Soil	RBC ³ for Industrial Soil	20S00401	20S00501	20B00101	20B00101D
Sampling Date					5/2/95	5/2/95	5/10/95	5/10/95
Feet bls					1	1	1	1
Magnesium	381	ND	460,468	460,468	30.8 B	176 B	34.9 B	46 B
Manganese	10.8	370	1,800 n	47,000 n	2.1 B	8.5	4.8	5.5
Mercury	0.05	23	23 n	610 n	0.03 B	0.21		0.03 B
Vanadium	4.9	490	550 n	14,000 n	0.81 B	2.6 B	3.7 B	4 B
Zinc	4.6	23,000	23,000 n	610,000 n	7.3	20	5.6	7
General chemistry, mg/kg								
Total Petroleum Hydrocarbons	ND	ND	ND	ND	135	63.9		

Appendix B

Table B-1. Summary of Positive Detections in Surface Soil Analytical Results, Study Area 20

Naval Training Center, Orlando
Orlando, FL

NOTES:

¹ The background screening value is twice the average of detected concentrations for inorganic analytes.

² SCG = Soil Cleanup Goals for Florida (Florida Department of Environmental Protection memorandum, September 29, 1995). Arsenic value is as revised in Applicability of Soil Cleanup Goals for Florida (FDEP memorandum, January 19, 1996). Values indicated are from a residential scenario.

Chromium values are for Chromium VI.

³ 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, potassium, and sodium) screening values were derived based on recommended daily allowances (RDAs).

RBC for Aroclor-1260 is not available, value is RBC for PCBs.

RBC for phenanthrene is not available, value is based on pyrene.

RBC for alpha-chlordane is based on chlordane.

n = noncarcinogenic pathway

c = carcinogenic pathway

ND = Not determined.

bls = below land surface

DDE = dichlorodiphenyldichloroethene.

mg/kg = milligrams per kilogram.

ug/kg = micrograms per kilogram.

PCB = polychlorinated biphenyl.

OSWER = Office of Solid Waste and Emergency Response.

USEPA = U.S. Environmental Protection Agency.

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

J = Reported concentration is an estimated quantity.

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

Appendix B

Table B-2. Summary of Positive Detections in Subsurface Soil Analytical Results, Study Area 20

Naval Training Center, Orlando
Orlando, FL

Identifier	Background Screening ¹	SCG ²	RBC ³ for		20B00102	20B00201	20B00301
			Residential Soil	Industrial Soil			
Sampling Date					5/10/95	5/2/95	5/2/95
Feet bls					6	5	4
Volatile Organics, ug/kg							
Acetone		NA	7,800,000 n	200,000,000 n	38		
Pesticides/PCBs, ug/kg							
Dieldrin		NA	40 c	360 c			49 J
Inorganics, mg/kg							
Aluminum	11,130	NA	78,000 n	1,000,000 n	9,970 J	1,220 J	15,900 J
Arsenic	2.0	NA	0.43 c/23 n	3.8 c/610 n	0.73 B		1.4 B
Barium	11.3	NA	5,500	140,000 n	41 J	2 J	11.1 J
Beryllium	0.18	NA	0.15 c	1.3 c	0.12 J		0.22 B
Calcium	321	NA	1,000,000	1,000,000	617 J	43.9 J	584 J
Chromium	11.3	NA	390 n	10,000 n	9.5		13
Cobalt	1.3	NA	4,700,000 n	120,000,000	0.69 B		2.1 B
Copper	2.8	NA	3,100 n	82,000 n		0.51 B	1.1 B
Iron	829	NA	23,000 n	610,000 n	618 J	81.7 J	1,510
Lead	7.0	NA	400	400	7.7 J	2.1 J	6.5 J
Magnesium	38.9	NA	460,468	460,468	180 B		206 B
Manganese	0.69	NA	1,800 n	47,000 n	2.2 B	0.32 B	2.4 B
Mercury	0.12	NA	23 n	610 n			0.08
Nickel	11.3	NA	1,600 n	41,000 n			7 B
Potassium		NA	297,016	297,016	180 B		163 B
Sodium		NA	1,000,000	1,000,000			27.9 B
Vanadium	5.9	NA	550 n	14,000 n	12.7	1.4 B	12.4
Zinc	0.66	NA	23,000 n	610,000 n	0.8 B	0.66 B	1.7 B

Appendix B

Table B-2. Summary of Positive Detections in Subsurface Soil Analytical Results, Study Area 20

Naval Training Center, Orlando
Orlando, FL

NOTES:

¹ The background screening value is twice the average of detected concentrations for inorganic analytes.

² SCG = Soil Cleanup Goals for Florida (Florida Department of Environmental Protection memorandum, September 29, 1995).

³ 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 and potassium) screening values were derived based on recommended daily allowances (RDAs).

n = noncarcinogenic pathway

c = carcinogenic pathway

NA = Not applicable.

bls = below land surface

mg/kg = milligrams per kilogram.

ug/kg = micrograms per kilogram.

PCB = polychlorinated biphenyl.

OSWER = Office of Solid Waste and Emergency Response.

USEPA = U.S. Environmental Protection Agency.

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

J = Reported concentration is an estimated quantity.

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

Appendix B

Table B-3. Summary of Positive Detections in Groundwater Analytical Results, Study Area 20

Naval Training Center, Orlando
Orlando, FL

Well ID						OLD-20-01
Identifier	Background Screening ¹	FDEPG	FEDMCL	RBC ² for Tap Water	20G00101	
Sampling Date						5/18/95
Inorganics, ug/L						
Aluminum	4,067	200 ³	ND	37,000 n	11,900	
Barium	31.4	2,000 ⁵	2,000	2,600 n	42.3	B
Calcium	36,830	ND	ND	1,000,000	17,100	
Chromium	7.8	100 ⁶	100	180 n	10	
Iron	1,227	300 ³	ND	11,000 n	1,550	
Lead	4	15 ⁵	15	15	2.3	B
Magnesium	4,560	ND	ND	118,807	2,120	B
Manganese	17	50 ³	ND	840 n	20.2	
Potassium	5,400	ND	ND	297,016	1,330	B
Sodium	18,222	160,000 ⁵	ND	396,022	1,400	B
Vanadium	21	49 ⁴	ND	260 n	24	B
General chemistry, mg/L						
Total Suspended Solids	ND	ND	ND	ND	36	

Appendix B

Table B-3. Summary of Positive Detections in Groundwater Analytical Results, Study Area 20

Naval Training Center, Orlando
Orlando, FL

NOTES:

¹ Groundwater background screening value is twice the average of detected concentrations for inorganic analytes.

² 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 (RDAs).

³ Secondary Standard.

⁴ Systemic Toxicant

⁵ Primary Standard

n = noncarcinogenic pathway

ND = Not determined.

ID = identifier

USEPA = U.S. Environmental Protection Agency.

FDEPG = Florida Department of Environmental Protection, Groundwater Guidance Concentrations, June 1994.

FEDMCL= Federal Maximum Contaminant Levels, Primary Drinking Water Regulations and Health Advisories, October 1996.

B = Reported concentration is between the instrument detection limit (IDL) and the contract required detection limit (CRDL).

J = Reported concentration is an estimated quantity.

ug/l = micrograms per liter.

mg/l = milligrams per liter.

Bold/shaded numbers indicate exceedance of groundwater guidance and background.

Blank space indicates analyte/compound was not detected at the reporting limit.

APPENDIX C

SUMMARY OF ANALYTICAL RESULTS

Appendix C
Table C-1. Summary of Surface Soil Analytical Results
Study Area 20

Naval Training Center, Orlando
Orlando, FL

Sample ID	20S00401	20S00501	20B00101	20B00101D
Lab ID	G7469003	G7469004	G7544007	G7544009
Sampling Date	2-May-95	2-May-95	10-May-95	10-May-95
Volatile organics, ug/kg				
1,1,1-Trichloroethane	10 U	10 U	11 U	11 U
1,1,2,2-Tetrachloroethane	10 U	10 U	11 U	11 U
1,1,2-Trichloroethane	10 U	10 U	11 U	11 U
1,1-Dichloroethane	10 U	10 U	11 U	11 U
1,1-Dichloroethene	10 U	10 U	11 U	11 U
1,2-Dichloroethane	10 U	10 U	11 U	11 U
1,2-Dichloroethene (total)	10 U	10 U	11 U	11 U
1,2-Dichloropropane	10 U	10 U	11 U	11 U
2-Butanone	10 U	10 U	11 U	11 U
2-Hexanone	10 U	10 U	11 U	11 U
4-Methyl-2-pentanone	10 U	10 U	11 U	11 U
Acetone	10 U	7 J	11 U	11 U
Benzene	2 J	10 U	11 U	11 U
Bromodichloromethane	10 U	10 U	11 U	11 U
Bromoform	10 U	10 U	11 U	11 U
Bromomethane	10 U	10 U	11 U	11 U
Carbon disulfide	10 U	10 U	11 U	11 U
Carbon tetrachloride	10 U	10 U	11 U	11 U
Chlorobenzene	2 J	10 U	11 U	11 U
Chloroethane	10 U	10 U	11 U	11 U
Chloroform	10 U	10 U	11 U	11 U
Chloromethane	10 U	10 U	11 U	11 U
cis-1,3-Dichloropropene	10 U	10 U	11 U	11 U
Dibromochloromethane	10 U	10 U	11 U	11 U
Ethylbenzene	10 U	10 U	11 U	11 U
Methylene chloride	10 U	10 U	11 U	11 U
Styrene	10 U	10 U	11 U	11 U
Tetrachloroethene	10 U	10 U	11 U	11 U
Toluene	3 J	10 U	11 U	11 U
trans-1,3-Dichloropropene	10 U	10 U	11 U	11 U
Trichloroethene	10 U	10 U	11 U	11 U
Vinyl chloride	10 U	10 U	11 U	11 U
Xylene (total)	10 U	10 U	11 U	11 U
Semivolatile organics, ug/kg				
1,2,4-Trichlorobenzene	420 U	340 U	360 U	380 U
1,2-Dichlorobenzene	420 U	340 U	360 U	380 U
1,3-Dichlorobenzene	420 U	340 U	360 U	380 U
1,4-Dichlorobenzene	420 U	340 U	360 U	380 U
2,2'-oxybis(1-Chloropropane)	420 U	340 U	360 U	380 U
2,4,5-Trichlorophenol	1000 U	840 U	900 U	950 U
2,4,6-Trichlorophenol	420 U	340 U	360 U	380 U
2,4-Dichlorophenol	420 U	340 U	360 U	380 U
2,4-Dimethylphenol	420 U	340 U	360 U	380 U
2,4-Dinitrophenol	1000 U	840 U	900 U	950 U
2,4-Dinitrotoluene	420 U	340 U	360 U	380 U
2,6-Dinitrotoluene	420 U	340 U	360 U	380 U
2-Chloronaphthalene	420 U	340 U	360 U	380 U
2-Chlorophenol	420 U	340 U	360 U	380 U

Appendix C
Table C-1. Summary of Surface Soil Analytical Results
Study Area 20

Naval Training Center, Orlando
Orlando, FL

Sample ID	20S00401	20S00501	20B00101	20B00101D
Lab ID	G7469003	G7469004	G7544007	G7544009
Sampling Date	2-May-95	2-May-95	10-May-95	10-May-95
2-Methylnaphthalene	420 U	340 U	360 U	380 U
2-Methylphenol	420 U	340 U	360 U	380 U
2-Nitroaniline	1000 U	840 U	900 U	950 U
2-Nitrophenol	420 U	340 U	360 U	380 U
3,3'-Dichlorobenzidine	420 U	340 U	360 U	380 U
3-Nitroaniline	1000 U	840 U	900 U	950 U
4,6-Dinitro-2-methylphenol	1000 U	840 U	900 U	950 U
4-Bromophenyl-phenylether	420 U	340 U	360 U	380 U
4-Chloro-3-methylphenol	420 U	340 U	360 U	380 U
4-Chloroaniline	420 U	340 U	360 U	380 U
4-Chlorophenyl-phenylether	420 U	340 U	360 U	380 U
4-Methylphenol	420 U	340 U	360 U	380 U
4-Nitroaniline	1000 U	840 U	900 U	950 U
4-Nitrophenol	1000 U	840 U	900 U	950 U
Acenaphthene	420 U	340 U	360 U	380 U
Acenaphthylene	420 U	340 U	360 U	380 U
Anthracene	420 U	340 U	360 U	380 U
Benzo(a)anthracene	420 U	87 J	360 U	380 U
Benzo(a)pyrene	420 U	340 U	360 U	110 J
Benzo(b)fluoranthene	420 U	340 U	360 U	380 U
Benzo(g,h,i)perylene	420 U	340 U	360 U	380 U
Benzo(k)fluoranthene	420 U	340 U	360 U	380 U
bis(2-Chloroethoxy)methane	420 U	340 U	360 U	380 U
bis(2-Chloroethyl)ether	420 U	340 U	360 U	380 U
bis(2-Ethylhexyl)phthalate	420 U	340 U	360 U	380 U
Butylbenzylphthalate	420 U	340 U	360 U	380 U
Carbazole	420 U	340 U	360 U	380 U
Chrysene	420 U	100 J	360 U	120 J
Di-n-butylphthalate	420 U	340 U	360 U	380 U
Di-n-octylphthalate	420 U	340 U	360 U	380 U
Dibenz(a,h)anthracene	420 U	340 U	360 U	380 U
Dibenzofuran	420 U	340 U	360 U	380 U
Diethylphthalate	420 U	340 U	360 U	380 U
Dimethylphthalate	420 U	340 U	360 U	380 U
Fluoranthene	420 U	160 J	100 J	100 J
Fluorene	420 U	340 U	360 U	380 U
Hexachlorobenzene	420 U	340 U	360 U	380 U
Hexachlorobutadiene	420 U	340 U	360 U	380 U
Hexachlorocyclopentadiene	420 U	340 U	360 U	380 U
Hexachloroethane	420 U	340 U	360 U	380 U
Indeno(1,2,3-cd)pyrene	420 U	340 U	360 U	380 U
Isophorone	420 U	340 U	360 U	380 U
N-Nitroso-di-n-propylamine	420 U	340 U	360 U	380 U
N-Nitrosodiphenylamine (1)	420 U	340 U	360 U	380 U
Naphthalene	420 U	340 U	360 U	380 U
Nitrobenzene	420 U	340 U	360 U	380 U
Pentachlorophenol	1000 U	840 U	900 U	950 U
Phenanthrene	420 U	140 J	360 U	380 U
Phenol	420 U	340 U	360 U	380 U

Appendix C
Table C-1. Summary of Surface Soil Analytical Results
Study Area 20

Naval Training Center, Orlando
Orlando, FL

Sample ID	20S00401	20S00501	20B00101	20B00101D
Lab ID	G7469003	G7469004	G7544007	G7544009
Sampling Date	2-May-95	2-May-95	10-May-95	10-May-95
Pyrene	420 U	160 J	360 U	180 J
Pesticides/PCBs, ug/kg				
4,4'-DDD	3.7 U	3.4 U	3.6 U	3.6 U
4,4'-DDE	3.7 U	3.3 J	3.6 U	3.6 U
4,4'-DDT	3.7 U	3.4 U	3.6 U	3.6 U
Aldrin	1.9 U	1.7 U	1.8 U	1.8 U
alpha-BHC	1.9 UJ	1.7 UJ	1.8 U	1.8 UJ
alpha-Chlordane	1.9 U	1.7 U	1.8 U	1.2 J
Aroclor-1016	37 U	34 U	36 U	36 U
Aroclor-1221	75 U	68 U	73 U	73 U
Aroclor-1232	37 U	34 U	36 U	36 U
Aroclor-1242	37 U	34 U	36 U	36 U
Aroclor-1248	37 U	34 U	36 U	36 U
Aroclor-1254	37 U	34 U	36 U	36 U
Aroclor-1260	320	250	36 U	36 U
beta-BHC	1.9 U	1.7 U	1.8 U	1.8 U
delta-BHC	1.9 U	1.7 U	1.8 U	1.8 U
Dieldrin	3.7 UJ	3.4 UJ	3.6 UJ	3.6 UJ
Endosulfan I	1.9 U	1.7 U	1.8 U	1.8 U
Endosulfan II	3.7 U	3.4 U	3.6 U	3.6 U
Endosulfan sulfate	3.7 U	3.4 U	3.6 U	3.6 U
Endrin	3.7 U	3.4 U	3.6 U	3.6 U
Endrin aldehyde	3.7 U	3.4 U	3.6 U	3.6 U
Endrin ketone	3.7 U	3.4 U	3.6 U	3.6 U
gamma-BHC (Lindane)	1.9 U	1.7 U	1.8 U	1.8 U
gamma-Chlordane	1.9 U	1.7 U	1.8 U	1.8 U
Heptachlor	1.9 U	1.7 U	1.8 U	1.8 U
Heptachlor epoxide	1.9 U	1.7 U	1.8 U	1.8 U
Methoxychlor	19 U	17 U	18 U	18 U
Toxaphene	190 U	170 U	180 U	180 U
Herbicides, ug/kg				
2,4,5-T	45 U	41 U	43 U	43 U
2,4,5-TP (Silvex)	38 U	35 U	37 U	37 U
2,4-D	270 U	250 U	260 U	260 U
2,4-DB	200 U	180 U	200 U	190 U
Dalapon	1300 U	1200 U	1300 U	1300 U
Dicamba	61 U	55 U	59 U	58 U
Dichlorprop	150 U	130 U	140 U	140 U
Dinoseb	16 U	14 U	15 U	15 U
MCPA	56000 U	51000 U	54000 U	53000 U
MCPP	45000 U	41000 U	43000 U	43000 U
Inorganics, ug/kg				
Aluminum	1470 J	2030 J	1920 J	2000 J
Antimony	6 U	6 U	6.4 U	6.5 U
Arsenic	0.39 UJ	0.92 B	0.95 B	1.1 B
Barium	51.7 J	5.2 J	3.2 J	3.7 J
Beryllium	0.04 J	0.07 J	0.02 J	0.06 J
Cadmium	0.63 U	0.63 U	0.67 U	0.68 U
Calcium	2430 J	20400 J	976 J	894 J

Appendix C
 Table C-1. Summary of Surface Soil Analytical Results
 Study Area 20

Naval Training Center, Orlando
 Orlando, FL

Sample ID	20S00401	20S00501	20B00101	20B00101D
Lab ID	G7469003	G7469004	G7544007	G7544009
Sampling Date	2-May-95	2-May-95	10-May-95	10-May-95
Chromium	2.1 U	3.2 U	3	3.8
Cobalt	0.59 U	0.59 U	0.63 U	0.64 U
Copper	1.7 B	2.6 B	1.9 B	2.4 B
Iron	259 J	666 J	555 J	730 J
Lead	5.7 J	10 J	4.8 J	5.6 J
Magnesium	30.8 B	176 B	34.9 B	46 B
Manganese	2.1 B	8.5	4.8	5.5
Mercury	0.03 B	0.21	0.02 U	0.03 B
Nickel	2.9 U	2.9 U	3.1 U	3.1 U
Potassium	90.3 U	90.3 U	96 U	97.3 U
Selenium	0.47 U	0.47 U	0.5 U	0.5 U
Silver	0.53 U	0.53 U	0.56 U	0.57 U
Sodium	7.7 U	9 U	11.8 U	12 U
Thallium	0.37 U	0.37 U	0.39 U	0.4 U
Vanadium	0.81 B	2.6 B	3.7 B	4 B
Zinc	7.3	20	5.6	7
General Chemistry, mg/kg				
Total Petroleum Hydrocarbons	135	63.9	NA	NA

Appendix C
 Table C-2. Summary of Subsurface Soil Analytical Results
 Study Area 20

Naval Training Center, Orlando
 Orlando, FL

Sample ID	20B00102	20B00201	20B00301
Lab ID	G7544008	G7469001	G7469002
Sampling Date	10-May-95	2-May-95	2-May-95
Volatile organics, ug/kg			
1,1,1-Trichloroethane	12 U	12 U	12 U
1,1,2,2-Tetrachloroethane	12 U	12 U	12 U
1,1,2-Trichloroethane	12 U	12 U	12 U
1,1-Dichloroethane	12 U	12 U	12 U
1,1-Dichloroethene	12 U	12 U	12 U
1,2-Dichloroethane	12 U	12 U	12 U
1,2-Dichloroethene (total)	12 U	12 U	12 U
1,2-Dichloropropane	12 U	12 U	12 U
2-Butanone	12 U	12 U	12 U
2-Hexanone	12 U	12 U	12 U
4-Methyl-2-pentanone	12 U	12 U	12 U
Acetone	38	12 U	12 U
Benzene	12 U	12 U	12 U
Bromodichloromethane	12 U	12 U	12 U
Bromoform	12 U	12 U	12 U
Bromomethane	12 U	12 U	12 U
Carbon disulfide	12 U	12 U	12 U
Carbon tetrachloride	12 U	12 U	12 U
Chlorobenzene	12 U	12 U	12 U
Chloroethane	12 U	12 U	12 U
Chloroform	12 U	12 U	12 U
Chloromethane	12 U	12 U	12 U
cis-1,3-Dichloropropene	12 U	12 U	12 U
Dibromochloromethane	12 U	12 U	12 U
Ethylbenzene	12 U	12 U	12 U
Methylene chloride	12 U	12 U	12 U
Styrene	12 U	12 U	12 U
Tetrachloroethene	12 U	12 U	12 U
Toluene	12 U	12 U	12 U
trans-1,3-Dichloropropene	12 U	12 U	12 U
Trichloroethene	12 U	12 U	12 U
Vinyl chloride	12 U	12 U	12 U
Xylene (total)	12 U	12 U	12 U
Semivolatile organics, ug/kg			
1,2,4-Trichlorobenzene	400 U	390 U	390 U
1,2-Dichlorobenzene	400 U	390 U	390 U
1,3-Dichlorobenzene	400 U	390 U	390 U
1,4-Dichlorobenzene	400 U	390 U	390 U
2,2'-oxybis(1-Chloropropane)	400 U	390 U	390 U
2,4,5-Trichlorophenol	1000 U	980 U	980 U
2,4,6-Trichlorophenol	400 U	390 U	390 U
2,4-Dichlorophenol	400 U	390 U	390 U
2,4-Dimethylphenol	400 U	390 U	390 U
2,4-Dinitrophenol	1000 U	980 U	980 U
2,4-Dinitrotoluene	400 U	390 U	390 U
2,6-Dinitrotoluene	400 U	390 U	390 U
2-Chloronaphthalene	400 U	390 U	390 U
2-Chlorophenol	400 U	390 U	390 U

Appendix C
Table C-2. Summary of Subsurface Soil Analytical Results
Study Area 20

Naval Training Center, Orlando
Orlando, FL

Sample ID	20B00102	20B00201	20B00301
Lab ID	G7544008	G7469001	G7469002
Sampling Date	10-May-95	2-May-95	2-May-95
2-Methylnaphthalene	400 U	390 U	390 U
2-Methylphenol	400 U	390 U	390 U
2-Nitroaniline	1000 U	980 U	980 U
2-Nitrophenol	400 U	390 U	390 U
3,3'-Dichlorobenzidine	400 U	390 U	390 U
3-Nitroaniline	1000 U	980 U	980 U
4,6-Dinitro-2-methylphenol	1000 U	980 U	980 U
4-Bromophenyl-phenylether	400 U	390 U	390 U
4-Chloro-3-methylphenol	400 U	390 U	390 U
4-Chloroaniline	400 U	390 U	390 U
4-Chlorophenyl-phenylether	400 U	390 U	390 U
4-Methylphenol	400 U	390 U	390 U
4-Nitroaniline	1000 U	980 U	980 U
4-Nitrophenol	1000 U	980 U	980 U
Acenaphthene	400 U	390 U	390 U
Acenaphthylene	400 U	390 U	390 U
Anthracene	400 U	390 U	390 U
Benzo(a)anthracene	400 U	390 U	390 U
Benzo(a)pyrene	400 U	390 U	390 U
Benzo(b)fluoranthene	400 U	390 U	390 U
Benzo(g,h,i)perylene	400 U	390 U	390 U
Benzo(k)fluoranthene	400 U	390 U	390 U
bis(2-Chloroethoxy)methane	400 U	390 U	390 U
bis(2-Chloroethyl)ether	400 U	390 U	390 U
bis(2-Ethylhexyl)phthalate	400 U	390 U	390 U
Butylbenzylphthalate	400 U	390 U	390 U
Carbazole	400 U	390 U	390 U
Chrysene	400 U	390 U	390 U
Di-n-butylphthalate	400 U	390 U	390 U
Di-n-octylphthalate	400 U	390 U	390 U
Dibenz(a,h)anthracene	400 U	390 U	390 U
Dibenzofuran	400 U	390 U	390 U
Diethylphthalate	400 U	390 U	390 U
Dimethylphthalate	400 U	390 U	390 U
Fluoranthene	400 U	390 U	390 U
Fluorene	400 U	390 U	390 U
Hexachlorobenzene	400 U	390 U	390 U
Hexachlorobutadiene	400 U	390 U	390 U
Hexachlorocyclopentadiene	400 U	390 U	390 U
Hexachloroethane	400 U	390 U	390 U
Indeno(1,2,3-cd)pyrene	400 U	390 U	390 U
Isophorone	400 U	390 U	390 U
N-Nitroso-di-n-propylamine	400 U	390 U	390 U
N-Nitrosodiphenylamine (1)	400 U	390 U	390 U
Naphthalene	400 U	390 U	390 U
Nitrobenzene	400 U	390 U	390 U
Pentachlorophenol	1000 U	980 U	980 U
Phenanthrene	400 U	390 U	390 U
Phenol	400 U	390 U	390 U

Appendix C
Table C-2. Summary of Subsurface Soil Analytical Results
Study Area 20

Naval Training Center, Orlando
Orlando, FL

Sample ID	20B00102	20B00201	20B00301
Lab ID	G7544008	G7469001	G7469002
Sampling Date	10-May-95	2-May-95	2-May-95
Pyrene	400 U	390 U	390 U
Pesticides/PCBs, ug/kg			
4,4'-DDD	3.9 U	3.9 U	3.9 U
4,4'-DDE	3.9 U	3.9 U	3.9 U
4,4'-DDT	3.9 U	3.9 U	3.9 U
Aldrin	2 U	2 U	2 U
alpha-BHC	2 UJ	2 UJ	2 UJ
alpha-Chlordane	2 U	2 U	2 U
Aroclor-1016	39 U	39 U	39 U
Aroclor-1221	80 U	80 U	79 U
Aroclor-1232	39 U	39 U	39 U
Aroclor-1242	39 U	39 U	39 U
Aroclor-1248	39 U	39 U	39 U
Aroclor-1254	39 U	39 U	39 U
Aroclor-1260	39 U	39 U	39 U
beta-BHC	2 U	2 U	2 U
delta-BHC	2 U	2 U	2 U
Dieldrin	3.9 UJ	3.9 UJ	49 J
Endosulfan I	2 U	2 U	2 U
Endosulfan II	3.9 U	3.9 U	3.9 U
Endosulfan sulfate	3.9 U	3.9 U	3.9 U
Endrin	3.9 U	3.9 U	3.9 U
Endrin aldehyde	3.9 U	3.9 U	3.9 U
Endrin ketone	3.9 U	3.9 U	3.9 U
gamma-BHC (Lindane)	2 U	2 U	2 U
gamma-Chlordane	2 U	2 U	2 U
Heptachlor	2 U	2 U	2 U
Heptachlor epoxide	2 U	2 U	2 U
Methoxychlor	20 U	20 U	20 U
Toxaphene	200 U	200 U	200 U
Herbicides, ug/kg			
2,4,5-T	48 U	NA	NA
2,4,5-TP (Silvex)	40 U	NA	NA
2,4-D	290 U	NA	NA
2,4-DB	210 U	NA	NA
Dalapon	1400 U	NA	NA
Dicamba	64 U	NA	NA
Dichlorprop	150 U	NA	NA
Dinoseb	17 U	NA	NA
MCPA	60000 U	NA	NA
MCPP	48000 U	NA	NA
Inorganics, ug/kg			
Aluminum	9970 J	1220 J	15900 J
Antimony	7 U	7.4 U	6.9 U
Arsenic	0.73 B	0.48 U	1.4 B
Barium	41 J	2 J	11.1 J
Beryllium	0.12 J	0.03 UJ	0.22 B
Cadmium	0.73 U	0.78 U	0.73 U
Calcium	617 J	43.9 J	584 J

Appendix C
 Table C-2. Summary of Subsurface Soil Analytical Results
 Study Area 20

Naval Training Center, Orlando
 Orlando, FL

Sample ID	20B00102	20B00201	20B00301
Lab ID	G7544008	G7469001	G7469002
Sampling Date	10-May-95	2-May-95	2-May-95
Chromium	9.5	2 U	13
Cobalt	0.69 B	0.73 U	2.1 B
Copper	0.33 U	0.51 B	1.1 B
Iron	618 J	81.7 J	1510
Lead	7.7 J	2.1 J	6.5 J
Magnesium	180 B	11.5 U	206 B
Manganese	2.2 B	0.32 B	2.4 B
Mercury	0.03 U	0.03 U	0.08
Nickel	3.4 U	3.6 U	7 B
Potassium	180 B	111 U	163 B
Selenium	0.54 UJ	0.57 UJ	0.54 U
Silver	0.61 U	0.65 U	0.61 U
Sodium	14.8 U	8.8 U	27.9 B
Thallium	0.43 U	0.45 U	0.42 U
Vanadium	12.7	1.4 B	12.4
Zinc	0.8 B	0.66 B	1.7 B

Appendix C
 Table C-3. Summary of Groundwater Analytical Results
 Study Area 20

Naval Training Center, Orlando
 Orlando, FL

Sample ID	20G00101
Lab ID	G7607006
Sampling Date	18-May-95
Volatile organics, ug/L	
1,1,1-Trichloroethane	1 U
1,1,2,2-Tetrachloroethane	1 U
1,1,2-Trichloroethane	1 U
1,1-Dichloroethane	1 U
1,1-Dichloroethene	1 U
1,2-Dibromo-3-chloropropane	1 U
1,2-Dibromoethane	1 U
1,2-Dichloroethane	1 U
1,2-Dichloropropane	1 U
2-Butanone	5 UR
2-Hexanone	5 UR
4-Methyl-2-pentanone	5 U
Acetone	13 UR
Benzene	1 U
Bromochloromethane	1 U
Bromodichloromethane	1 U
Bromoform	1 U
Bromomethane	1 U
Carbon disulfide	1 U
Carbon tetrachloride	1 U
Chlorobenzene	1 U
Chloroethane	1 U
Chloroform	1 U
Chloromethane	1 U
cis-1,2-Dichloroethene	1 U
cis-1,3-Dichloropropene	1 U
Dibromochloromethane	1 U
Ethylbenzene	1 U
Methylene chloride	2 U
Styrene	1 U
Tetrachloroethene	1 U
Toluene	1 U
trans-1,2-Dichloroethene	1 U
trans-1,3-Dichloropropene	1 U
Trichloroethene	1 U
Vinyl chloride	1 U
Xylene (total)	1 U
Semivolatile organics, ug/L	
1,2,4-Trichlorobenzene	10 U
1,2-Dichlorobenzene	1 U
1,3-Dichlorobenzene	1 U
1,4-Dichlorobenzene	1 U
2,2'-oxybis(1-Chloropropane)	10 U
2,4,5-Trichlorophenol	25 U
2,4,6-Trichlorophenol	10 U
2,4-Dichlorophenol	10 U
2,4-Dimethylphenol	10 U
2,4-Dinitrophenol	25 UJ

Appendix C
 Table C-3. Summary of Groundwater Analytical Results
 Study Area 20

Naval Training Center, Orlando
 Orlando, FL

Sample ID	20G00101
Lab ID	G7607006
Sampling Date	18-May-95
2,4-Dinitrotoluene	10 U
2,6-Dinitrotoluene	10 U
2-Chloronaphthalene	10 U
2-Chlorophenol	10 U
2-Methylnaphthalene	10 U
2-Methylphenol	10 U
2-Nitroaniline	25 U
2-Nitrophenol	10 U
3,3'-Dichlorobenzidine	10 U
3-Nitroaniline	25 U
4,6-Dinitro-2-methylphenol	25 U
4-Bromophenyl-phenylether	10 U
4-Chloro-3-methylphenol	10 U
4-Chloroaniline	10 U
4-Chlorophenyl-phenylether	10 U
4-Methylphenol	10 U
4-Nitroaniline	25 U
4-Nitrophenol	25 U
Acenaphthene	10 U
Acenaphthylene	10 U
Anthracene	10 U
Benzo(a)anthracene	10 U
Benzo(a)pyrene	0.2 U
Benzo(b)fluoranthene	10 U
Benzo(g,h,i)perylene	10 U
Benzo(k)fluoranthene	10 U
bis(2-Chloroethoxy)methane	10 U
bis(2-Chloroethyl)ether	10 U
bis(2-Ethylhexyl)phthalate	1 U
Butylbenzylphthalate	10 U
Carbazole	10 U
Chrysene	10 U
Di-n-butylphthalate	10 U
Di-n-octylphthalate	10 U
Dibenz(a,h)anthracene	10 U
Dibenzofuran	10 U
Diethylphthalate	10 U
Dimethylphthalate	10 U
Fluoranthene	10 U
Fluorene	10 U
Hexachlorobenzene	1 U
Hexachlorobutadiene	10 U
Hexachlorocyclopentadiene	10 U
Hexachloroethane	10 U
Indeno(1,2,3-cd)pyrene	10 U
Isophorone	10 U
N-Nitroso-di-n-propylamine	10 U
N-Nitrosodiphenylamine (1)	10 U
Naphthalene	10 U

Appendix C
 Table C-3. Summary of Groundwater Analytical Results
 Study Area 20

Naval Training Center, Orlando
 Orlando, FL

Sample ID	20G00101
Lab ID	G7607006
Sampling Date	18-May-95
Nitrobenzene	10 U
Pentachlorophenol	1 U
Phenanthrene	10 U
Phenol	10 U
Pyrene	10 U
Pesticides/PCBs, ug/L	
4,4'-DDD	0.1 U
4,4'-DDE	0.1 U
4,4'-DDT	0.1 U
Aldrin	0.05 U
alpha-BHC	0.05 U
alpha-Chlordane	0.05 U
Aroclor-1016	0.5 U
Aroclor-1221	0.5 U
Aroclor-1232	0.5 U
Aroclor-1242	0.5 U
Aroclor-1248	0.5 U
Aroclor-1254	0.5 U
Aroclor-1260	0.5 U
beta-BHC	0.05 U
delta-BHC	0.05 U
Dieldrin	0.1 U
Endosulfan I	0.05 U
Endosulfan II	0.1 U
Endosulfan sulfate	0.1 U
Endrin	0.1 U
Endrin aldehyde	0.1 U
Endrin ketone	0.1 U
gamma-BHC (Lindane)	0.05 U
gamma-Chlordane	0.05 U
Heptachlor	0.05 U
Heptachlor epoxide	0.05 U
Methoxychlor	0.5 U
Toxaphene	5 U
Herbicides, ug/L	
2,4,5-T	2 U
2,4,5-TP (Silvex)	1.7 U
2,4-D	12 U
2,4-DB	9.1 U
Dalapon	58 U
Dicamba	2.7 U
Dichlorprop	6.5 U
Dinoseb	0.7 U
MCPA	2500 U
MCPP	2000 U
Inorganics, ug/L	
Aluminum	11900
Antimony	2.5 U
Arsenic	1.9 U

Appendix C
 Table C-3. Summary of Groundwater Analytical Results
 Study Area 20

Naval Training Center, Orlando
 Orlando, FL

Sample ID	20G00101
Lab ID	G7607006
Sampling Date	18-May-95
Barium	42.3 B
Beryllium	0.1 U
Cadmium	3.1 U
Calcium	17100
Chromium	10
Cobalt	2.9 U
Copper	8.6 U
Iron	1550
Lead	2.3 B
Magnesium	2120 B
Manganese	20.2
Mercury	0.12 U
Nickel	14.2 U
Potassium	1330 B
Selenium	2.3 U
Silver	2.6 U
Sodium	1400 B
Thallium	1.8 U
Vanadium	24 B
Zinc	2.5 U
General Chemistry, mg/L	
Total Suspended Solids	36

Notes for Analytical Results Tables
Study Area 20

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

The following standard validation 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.
- B The inorganic analyte was positively identified and the associated numerical value is an estimated concentration because the detection was below the contract required detection limit (CRDL) and above the instrument detection limit.
- 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.