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TECHNICAL MEMORANDUM FOR NO FURTHER ACTION AT POTENTIAL SOURCE OF CONTAMINATION 19 NAS CECIL FIELD FL

11/1/1998

HARDING LAWSON ASSOCIATES

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TECHNICAL MEMORANDUM FOR NO FURTHER ACTION

POTENTIAL SOURCE OF CONTAMINATION 19

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

UNIT IDENTIFICATION CODE: N60200
CONTRACT NO.: N62467-89-D-0317/090

NOVEMBER 1998

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

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Harding Lawson Associates

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November 12, 1998

Ms. Debbie Vaughn-Wright
Remedial Project Manager
Federal Facilities Branch
Waste Management Division, 10th Floor
USEPA Region IV
61 Forsyth Street
Atlanta, Georgia 30303

Subject: Final Technical Memorandum for No Further Action
Potential Source of Contamination (PSC) 19
Naval Air Station Cecil Field, Jacksonville, Florida
Contract No. N62467-89D-0317/090

Dear Ms. Vaughn-Wright:

On behalf of Southern Division, Naval Facilities Engineering Command, Harding Lawson Associates ES, Inc. is pleased to forward two copies of the subject document for your files.

Comments or questions you may have concerning this technical memorandum should be directed to Mr. Mark Davidson at (843) 820-5526.

Sincerely,

HARDING LAWSON ASSOCIATES

Rao Angara
Task Order Manager

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TECHNICAL MEMORANDUM
FOR NO FURTHER ACTION

POTENTIAL SOURCE OF CONTAMINATION 19

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Unit Identification Code: N60200

Contract No.: N62467-89-D-0317/090

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Mark Davidson, Code 1879, Engineer-in-Charge

November 1998

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-0317/090 are complete and accurate and comply with all requirements of this contract.

DATE: November 12, 1998

NAME AND TITLE OF CERTIFYING OFFICIAL: Rao Angara
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Eric Blomberg, P.G.
Project Technical Lead

(DFAR 252.227-7036)

CECPSC19.TM
PMW.11.98

This document that describes the field screening investigation of Potential Source of Contamination 19, Naval Air Station Cecil Field, Jacksonville, Florida, has been prepared under the direction of a Florida-registered professional geologist. The work and professional opinions rendered in this report were conducted or developed in accordance with commonly accepted procedures consistent with applicable standards of practice.

Eric Blomberg, P.G.
Professional Geologist No.: 1695
Expires July 31, 1999

Date: 11-12-98

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PMW.11.98

EXECUTIVE SUMMARY

Harding Lawson Associates (HLA) has been contracted by the Southern Division, Naval Facilities Engineering Command to complete a field screening investigation for Potential Source of Contamination (PSC) 19 at Naval Air Station Cecil Field.

PSC 19, Rowell Creek Rubble Disposal Area, is located in the western part of the main base, south of 6th Street, immediately west of Rowell Creek and northwest of Lake Fretwell. PSC 19 was used principally as a construction rubble debris area. The majority of the debris is concrete, including concrete slabs and concrete structures that appear to be storm water drainage vaults. Other debris disposed of include asphalt, mattresses, wood, and general rubbish. PSC 19 is approximately 2,600 feet long and 400 to 800 feet wide, or approximately 35 acres. The period of dumping activity conducted at the site is unknown. A collapsed storage building is located at the northernmost part of PSC 19 near 6th Street.

In 1987, HLA identified PSC 19 during a site investigation and reported the site in their Resource Conservation and Recovery Act Facilities Investigation Report (HLA, 1998). Site location and types of materials were noted during the Resource Conservation and Recovery Act facilities investigation (RFI) site visit, but no samples were collected.

In 1993, HLA collected surface water and sediment samples from areas near PSC 19. The samples were analyzed for target compound list organics and target analyte list inorganics.

In 1994, HLA conducted a site visit at PSC 19 to verify the RFI information and develop a sampling plan, which was presented in the Field Investigation Plan (ABB-ES, 1995). The site visit confirmed that surface features from past disposal activities no longer existed.

In 1995, HLA recommended that additional investigative work be conducted at PSC 19. The additional work plan was reported in the Field Investigation Plan for Potential Sources of Contamination (PSC) 4, 6, 9, 12, 18, and 19 (ABB-ES, 1995).

The following conclusions pertaining to PSC 19 are based on the results of the field screening investigation:

- Surface and near surface (1 to 2 feet below land surface) soil is relatively permeable, fine-grained sand, with some silt and clay.
- Based on field measurements, horizontal groundwater flow in the surficial aquifer is interpreted to be east-southeasterly toward Rowell Creek and Lake Fretwell.
- No volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, or polychlorinated biphenyls (PCBs) were detected in surface and subsurface soil above Florida Department of Environmental Protection cleanup goals.

- No VOCs, SVOCs, pesticides, and PCBs were detected above biological technical assistance group (BTAG) soil screening criteria.

- Ten inorganics in surface soil exceeded BTAG criteria. They were aluminum, cadmium, chromium, copper, iron, lead, mercury, thallium, vanadium, and zinc.

- Only one inorganic, cadmium, slightly exceeded the Dutch surface soil screening criterion of 1 milligrams per kilogram (mg/kg).

- No VOCs, SVOCs, pesticides, or PCBs were detected in groundwater samples above State and Federal drinking water standards.

- Aluminum and iron were detected in groundwater above State secondary drinking water standards of 200 micrograms per liter ($\mu g/\ell$) and 300 $\mu g/\ell$, respectively.

- No VOCs, SVOCs, pesticides, or PCBs were detected in surface water samples.

- Three inorganics in surface water exceeded BTAG criteria. They were aluminum, iron, and zinc.

- No VOCs or SVOCs were detected in sediment samples.

- Three pesticides (dichlorodiphenyldichloroethene [DDE], dichlorodiphenyltrichloroethane [DDT], and alpha-chlordane) were detected in one sediment sample (CF19SD2) above Florida quality assessment guidelines (FQAG) and/or BTAG criteria. DDE was detected in CF19SD2 at 0.0023 J mg/kg, which is slightly above the threshold effect level (TEL) FQAG guidance value and BTAG fauna criteria of 0.00207 mg/kg and 0.0022 mg/kg, respectively. DDT was detected at 0.0019 J mg/kg, which is slightly above the TEL FQAG guidance value of 0.00119 mg/kg. Alpha-chlordane was detected in sample CF19SD3 at 0.0023 J mg/kg, which is slightly above the TEL FQAG guidance value of 0.00226 mg/kg.

- One PCB (Aroclor-1254) was detected in only one sample, CF19SD3, at a concentration of 0.088 J mg/kg, which is above the BTAG flora and fauna criterion of 0.0227 mg/kg.

- No compounds were detected above the regulatory screening criteria in the subsurface soil sample collected from test pit TP-3.

- No adverse human health or ecological effects are expected in human or ecological receptors that come into contact with surface soil, subsurface soil, sediment, surface water, or groundwater at PSC 19.

TABLE OF CONTENTS

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chapter	Title	Page No.
1.0	INTRODUCTION	1-1
2.0	SITE DESCRIPTION AND HISTORY	2-1
2.1	PHYSICAL SETTING	2-1
2.2	SITE HISTORY	2-1
2.3	SITE GEOLOGY	2-1
2.4	SITE HYDROGEOLOGY	2-1
3.0	PREVIOUS INVESTIGATIONS	3-1
4.0	INVESTIGATIVE AND SAMPLING PROGRAM	4-1
4.1	GEOPHYSICAL SURVEY	4-1
4.2	MONITORING WELL INSTALLATION AND GROUNDWATER SAMPLING	4-1
4.3	SOIL SAMPLING	4-2
4.4	SURFACE WATER AND SEDIMENT SAMPLING	4-2
4.5	TEST PITTING	4-2
5.0	NATURE AND EXTENT	5-1
5.1	SURFACE SOIL	5-1
5.2	SUBSURFACE SOIL	5-6
5.3	GROUNDWATER	5-10
5.4	SURFACE WATER AND SEDIMENT	5-15
5.5	TEST PIT SOIL	5-23
6.0	PRELIMINARY RISK EVALUATION	6-1
6.1	PUBLIC HEALTH PRE	6-1
6.2	ECOLOGICAL PRE	6-1
6.2.1	Ecological PRE Conclusions	6-2
7.0	CONCLUSIONS AND RECOMMENDATIONS	7-1
7.1	CONCLUSIONS	7-1
7.2	RECOMMENDATIONS	7-2

REFERENCES

APPENDICES

Appendix A: Analytical Data from Previous Investigations
Appendix B: Boring Logs and Water-Level Measurements
Appendix C: Confirmatory Analytical Data
Appendix D: Test Pitting Results
Appendix E: Preliminary Risk Evaluation Methodology

LIST OF FIGURES

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Figure	Title	Page No.
2-1	Site Location Map	2-2
2-2	Site Map	2-3
2-3	Locations of Observed Debris	2-4
2-4	September 1997 Water Table Surface Map	2-5
3-1	Organics in Surface Water and Sediment - 1993 Investigation	3-2
3-2	Inorganics in Surface Water and Sediment - 1993 Investigation	3-3
5-1	Organics in Surface Soil	5-2
5-2	Inorganics in Surface Soil	5-3
5-3	Organics in Subsurface Soil	5-7
5-4	Organics in Groundwater	5-11
5-5	Inorganics in Groundwater	5-12
5-6	Organics in Surface Water and Sediment	5-16
5-7	Inorganics in Surface Water and Sediment	5-17

LIST OF TABLES

Table	Title	Page No.
5-1	Organics in Surface Soil	5-4
5-2	Inorganics in Surface Soil	5-5
5-3	Organics in Subsurface Soil	5-8
5-4	Inorganics in Subsurface Soil	5-9
5-5	Organics in Groundwater	5-13
5-6	Inorganic Compounds in Groundwater	5-14
5-7	Inorganics in Surface Water	5-18
5-8	Organics in Sediment	5-19
5-9	Inorganics in Sediment	5-20
5-10	Organics in Test Pit Subsurface Soil	5-24

GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
bls	below land surface
BTAG	biological technical assistance group
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethene
DDT	dichlorodiphenyltrichloroethane
FDEP	Florida Department of Environmental Protection
FQAG	Florida quality assessment guidelines
FWQS	Florida water quality standards
HLA	Harding Lawson Associates
IR	Installation Restoration
mg/kg	milligrams per kilogram
$\mu g/\ell$	micrograms per liter
NAS	Naval Air Station
PCB	polychlorinated biphenyl
PRE	preliminary risk evaluation
PSC	potential source of contamination
RFI	Resource Conservation and Recovery Act (RCRA) facility investigation
SVOC	semivolatile organic compound
TAL	target analyte list
TCL	target compound list
TEL	threshold effect level
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound

1.0 INTRODUCTION

Harding Lawson Associates (HLA), has been contracted by the Department of the Navy, Southern Division, Naval Facilities Engineering Command, to conduct a field screening investigation for Potential Source of Contamination (PSC) 19 at Naval Air Station (NAS) Cecil Field in Jacksonville, Florida. The PSC investigation is being completed under contract number N62467-89-D-0317/090 as part of the Navy's Installation Restoration (IR) program.

The purpose of this technical memorandum is to decide whether or not further investigation of the site is needed as part of the IR program. This technical memorandum summarizes the related field operations, results, conclusions, and recommendations of the PSC 19 field screening investigation.

The goals of the PSC investigation are to determine the presence or absence of contamination and obtain the necessary information for a preliminary risk evaluation (PRE). The PRE will use the investigative results to identify potential risks to human and ecological receptors.

2.0 SITE DESCRIPTION AND HISTORY

2.1 PHYSICAL SETTING. PSC 19, Rowell Creek Rubble Disposal Area, is located in the western part of the main base (Figure 2-1). PSC 19 is located south of 6th Street, immediately west of Rowell Creek and northwest of Lake Fretwell (Figure 2-2). Aerial photographs and site visits indicate that the area of investigation for the site is approximately 2,600 feet long and 400 to 600 feet wide or approximately 35 acres.

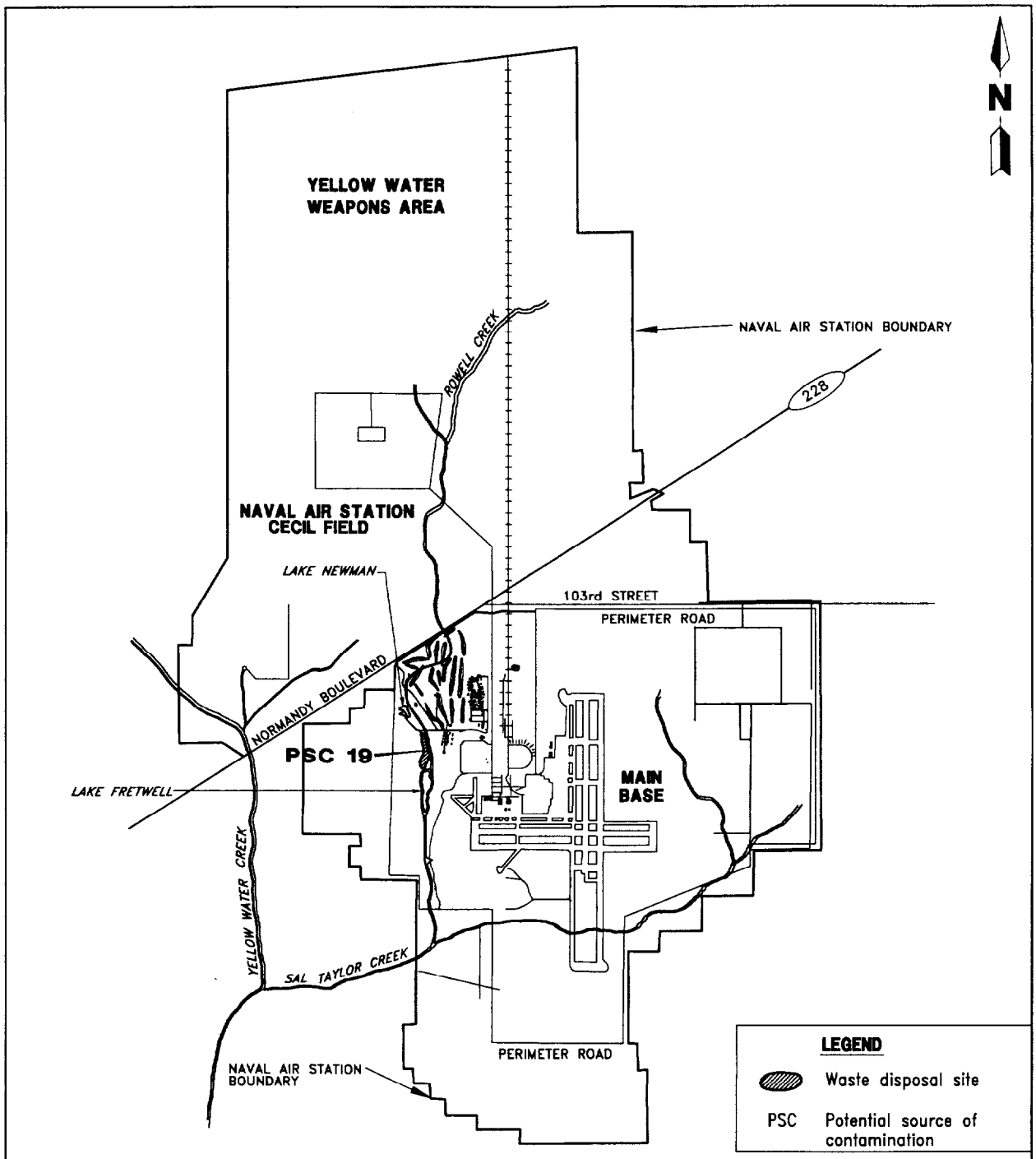
The land surface at PSC 19 is relatively flat, sloping east and south toward Rowell Creek and Lake Fretwell. The site and surrounding areas are forested with mature trees. The understory is sparse in the western part, becoming more dense in the eastern part of the site. An unpaved road borders the western and southern sides of the site.

2.2 SITE HISTORY. The history of PSC 19, Rowell Creek rubble disposal area, is presented in the Field Investigation Plan (ABB Environmental Services, Inc. [ABB-ES], 1995). PSC 19 was used principally as a construction rubble disposal area. The majority of the debris is concrete, including concrete slabs and concrete structures that appear to be stormwater drainage vaults. Other debris disposed of include asphalt, mattresses, wood, general rubbish, and 1- and 5-gallon plastic containers found predominantly in the southern third of PSC 19. Contents are not identified and most containers have no labels. The general rubbish was disposed of at the southernmost part of the site. The volume of material disposed of at the site is unknown and it is unknown if any debris has been buried at the site. The piles of rubble are not continuous or contiguous. The debris appears to have been dumped in the north, north central, and southern most parts of the site. Debris is also visible along the western side of the site in volumes ranging from less than 1 cubic foot to 20 cubic yards. The total volume of debris at PSC 19 is estimated to be less than 1,000 cubic yards. The period of dumping activity at the site is unknown. A collapsed storage building is located at northernmost part of PSC 19 near 6th Street. Figure 2-3 shows the locations of observed debris at PSC 19.

2.3 SITE GEOLOGY. A full description of the regional geology at NAS Cecil Field is presented in the General Information Report (HLA, 1998).

2.4 SITE HYDROGEOLOGY. The surficial aquifer system in the area of PSC 19 is located in the undifferentiated geologic deposits. These unconsolidated deposits overlay the top of a clay unit (Hawthorn Group), which separates the surficial aquifer system from the intermediate aquifer system. The surficial aquifer system is under water table conditions (unconfined) and the only aquifer encountered in this investigation.

Water-level measurement data collected during this investigation are interpreted to indicate that groundwater flow is to the east-southeast toward Rowell Creek and Lake Fretwell. The water table measured in September 1997 was 2 to 5 feet below land surface (bls). Interpreted piezometric conditions of the water table based on measurements from the shallow monitoring wells are plotted on a plan view map on Figure 2-4. Water-level measurements are presented in Appendix B. It



NOTE:
Adapted from Initial Assessment Study,
Naval Air Station, Cecil Field, (Envirodyne), 1985.

FIGURE 2-1
SITE LOCATION MAP

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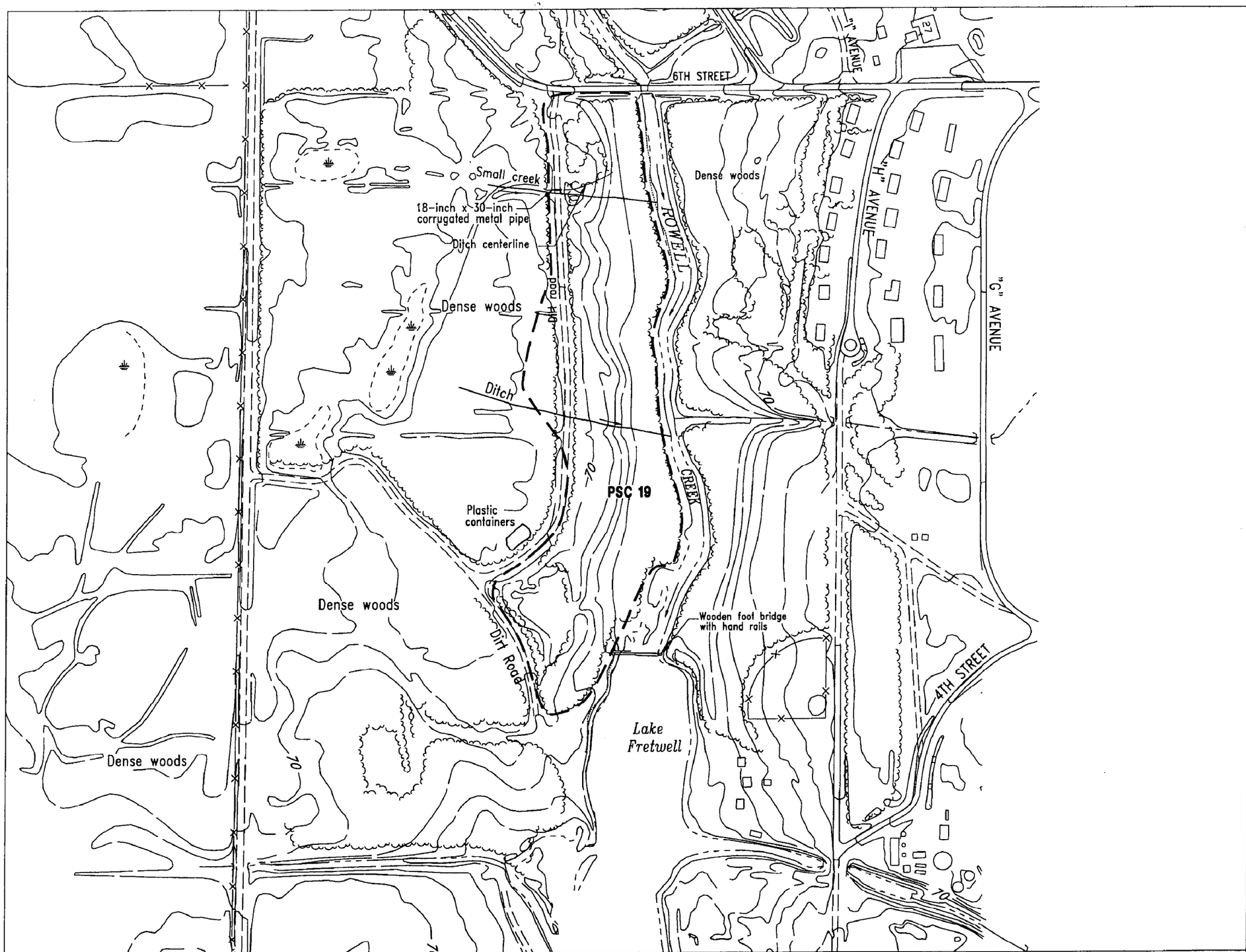

LEGEND

PSC	Potential source of contamination
— — —	Area of Investigation
—70—	Topographic contour

0 200 400
SCALE: 1 INCH = 400 FEET

FIGURE 2-2
SITE MAP

TECHNICAL MEMORANDUM FOR NO FURTHER ACTION, POTENTIAL SOURCE OF CONTAMINATION 19

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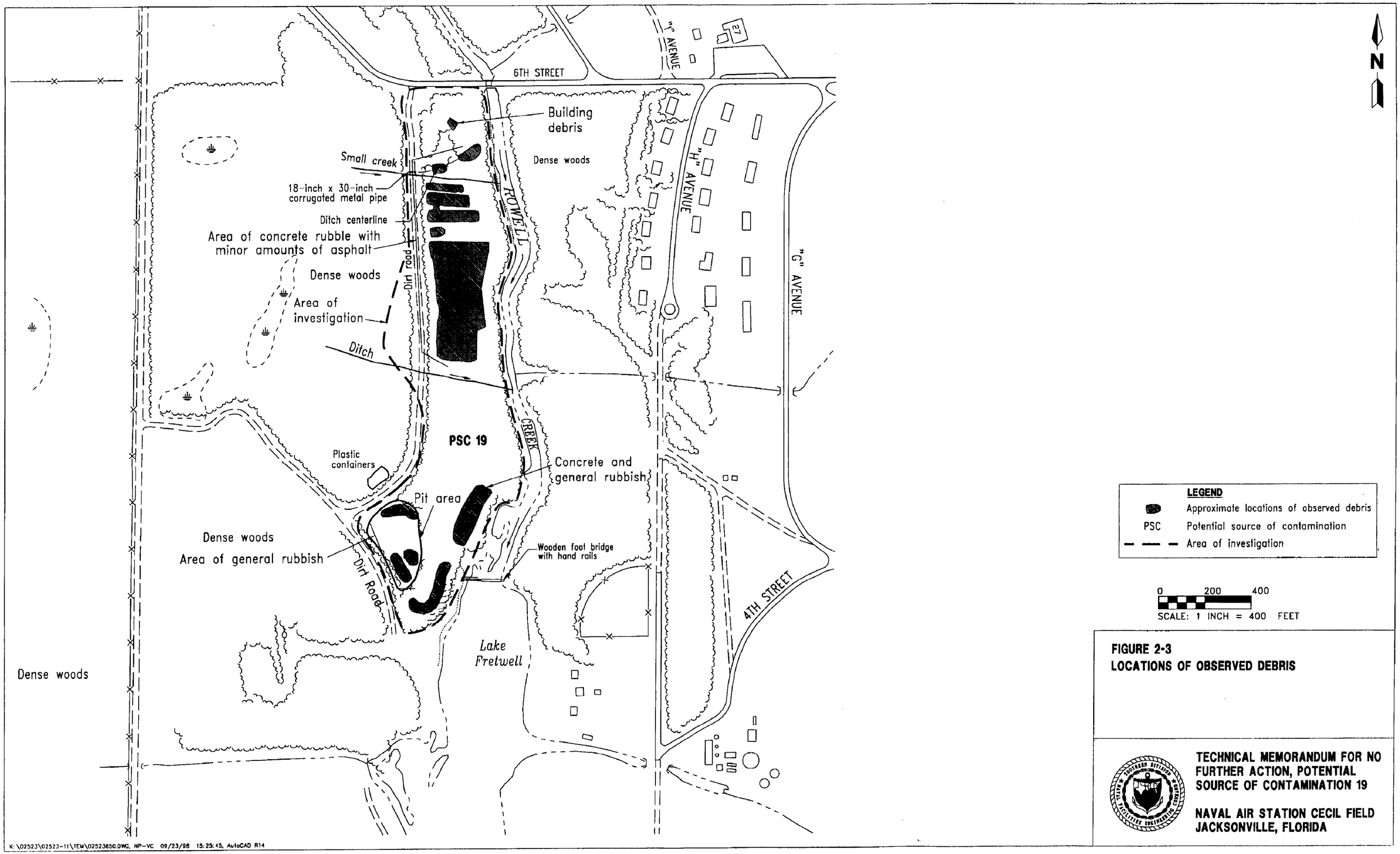

FIGURE 2-3
LOCATIONS OF OBSERVED DEBRIS

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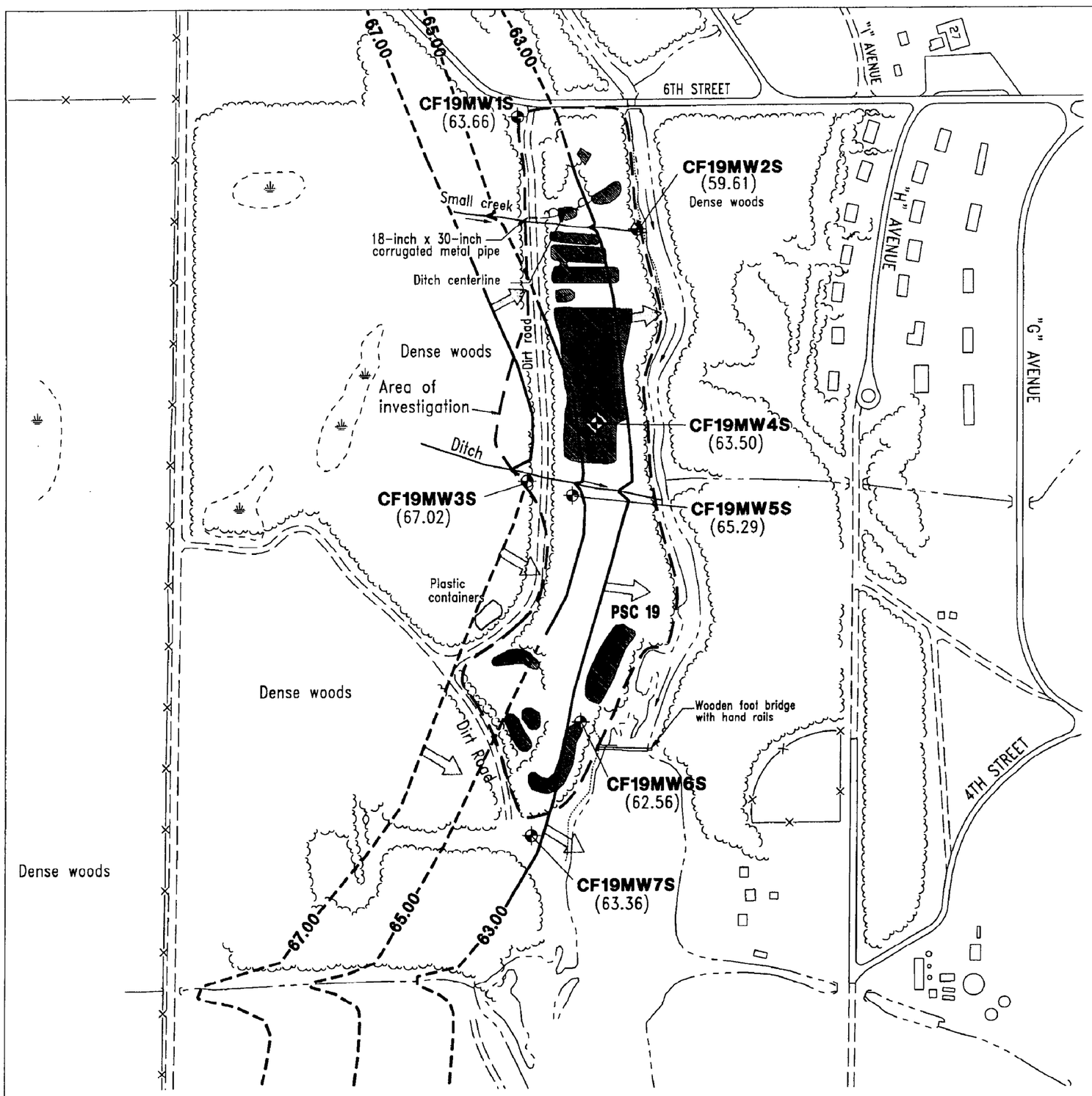

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LEGEND

CF19MW1S	Monitoring well location and designation
(59.61)	Groundwater elevation in feet (National Geodetic Vertical Datum [NGVD])
67.00	Groundwater contour in feet (NGVD), contour interval = 2 feet
	Groundwater flow direction
	Approximate locations of observed debris
PSC	Potential source of contamination

NOTE:
CF19MW2S value is invalid.

0 200 400
SCALE: 1 INCH = 400 FEET

FIGURE 2-4
SEPTEMBER 1997 WATER TABLE SURFACE MAP

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NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

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should be noted that the water levels measured in monitoring well CF19MW2S do not fit well with other PSC 19 water-level data. It is interpreted that the reported elevation of monitoring well CF19MW2S was incorrectly surveyed. This interpretation is based on the fact that the water-level measurements from this well have been consistent, but 2 to 4 feet less than other PSC 19 water-level data. Repeated measurements bear the same results. Water levels in this well are below the water level of Rowell Creek. A review of PSC 19 water-level data and data from other NAS Cecil Field surficial aquifer data indicate that the eastern part of PSC 19 is in an area of discharge. Groundwater in the vicinity of Rowell Creek discharges to the creek. This interpretation is supported by U.S. Geological Survey (USGS) modelling and research of the surficial aquifer at NAS Cecil Field (USGS, 1996). If the water level in monitoring well CF19MW2S was truly lower than the water level of Rowell Creek, the well location would be a point of recharge. A point of recharge and a point discharge cannot simultaneously exist at the same location. The well elevation was, therefore, incorrectly surveyed because of the following findings: (1) discharge to Rowell Creek is hydraulically logical, (2) discharge is supported by both PSC 19 water-level data and other facility data, and (3) the water-level measurements from CF19MW2S have been consistent.

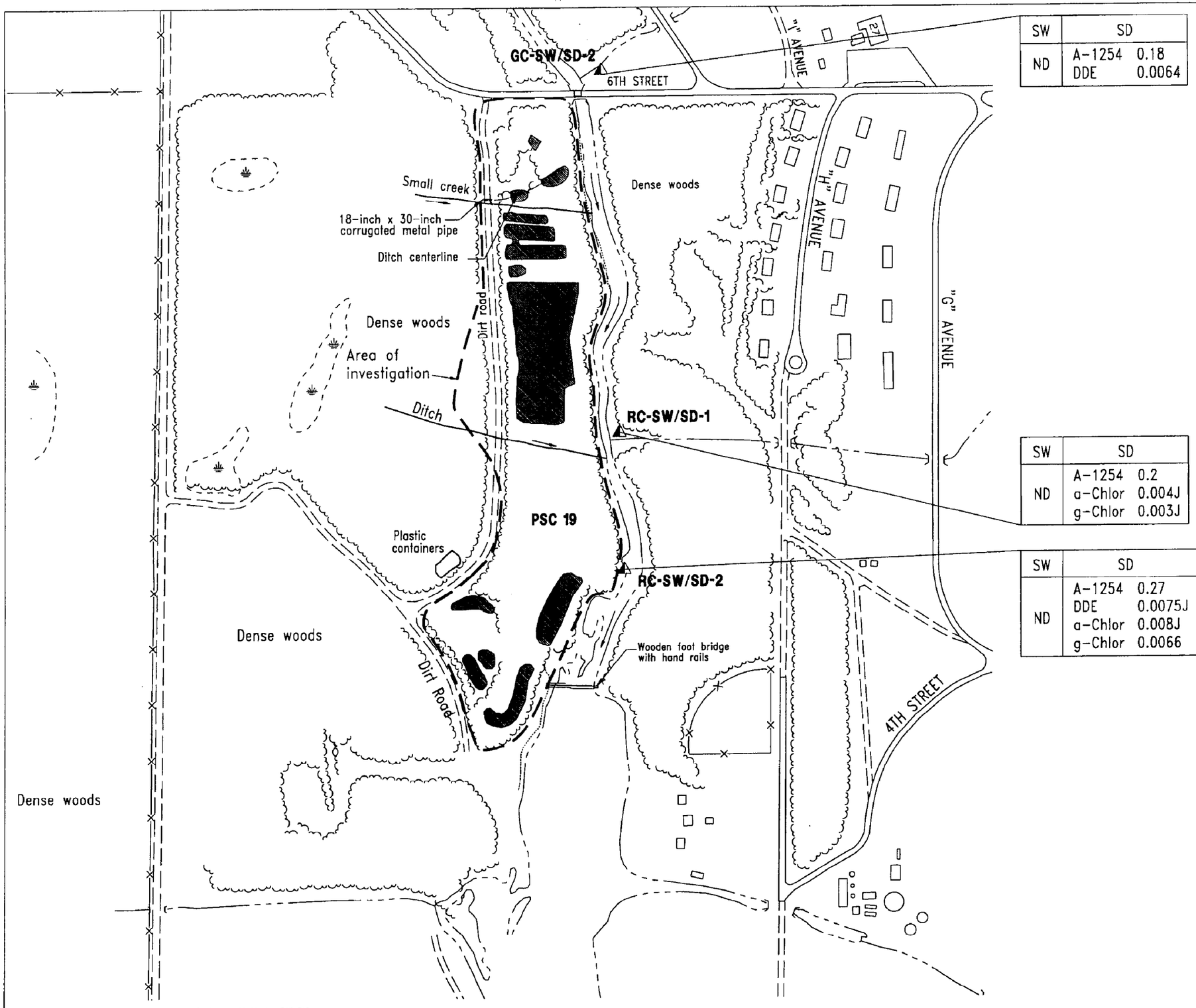
3.0 PREVIOUS INVESTIGATIONS

In 1987, Harding Lawson Associates identified PSC 19 during a site investigation and reported the site in their Resource Conservation and Recovery Act facility investigation (RFI) report, 1988. Site location and types of materials were noted during the RFI site visit, but no samples were collected. The presence of stressed vegetation was not noted during the site visit, or subsequent visits by HLA.

In 1993, HLA collected surface water and sediment samples from areas near PSC 19 (Figure 3-1). Samples were collected from a tributary to Rowell Creek approximately 200 feet north of PSC 19 (sample GC-SW/SD-2) and from two locations in Rowell Creek and east of PSC 19 (RC-SW/SD-1 and RC-SW/SD-2). The samples were analyzed for target compound list (TCL) organics and target analyte list (TAL) inorganics. Polychlorinated biphenyls (PCBs) and pesticides were detected in all three sediment samples. It is interpreted that the source of these contaminants is north of PSC 19, as pesticides and PCBs have been detected in areas north of PSC 19. Sites north of, but near to, PSC 19 were used for the mixing, application, and disposal of pesticides. These sites include the facility golf course, the golf course maintenance and pesticide disposal facility (AOI-22), and a pesticide disposal site (Operable Unit 6, Site 11) located on the golf course.

Specific organic and inorganic compounds detected during the 1993 surface water and sediment sampling event that were also detected during the 1997 PSC 19 sampling event are shown on Figures 3-1 and 3-2. Complete sample analytical results are presented in Appendix A.

In 1994, HLA (then ABB-ES) conducted a site visit at PSC 19 to verify the RFI information and develop a conceptual understanding of site and waste conditions. A sampling plan was developed for the site and presented in the Field Investigation Plan, March 1995 (ABB-ES, 1995).



SW	SD	
ND	A-1254	0.18
	DDE	0.0064

SW	SD	
ND	A-1254	0.2
	a-Chlor	0.004J
	g-Chlor	0.003J

SW	SD	
ND	A-1254	0.27
	DDE	0.0075J
	a-Chlor	0.008J
	g-Chlor	0.0066

LEGEND

RC-SW/SD-2 ▲	Surface water and sediment sample location and designation
▬	Approximate locations of observed debris
PSC	Potential source of contamination
BTAG	Biological technical assistance group
FQAG	Florida Quality Assessment Guidelines
A-1254	Aroclor-1254
DDE	4,4-dichlorodiphenyldichloroethene
a-Chlor	alpha-Chlordane
g-Chlor	gamma-Chlordane
J	Estimated value
ND	Not detected
NG	None given
TEL	threshold effect level
PEL	probable effect level
SD	Sediment
SW	Surface water

N

NOTES:

Compounds presented are those equal to or greater than BTAG or FQAG criteria that were also detected in sediment samples collected at PSC 19 during the 1997 investigation.

No organic compounds were detected in surface water samples above BTAG or FQAG criteria.

U.S. Environmental Protection Agency
Region III BTAG Criteria for Sediment

Parameter	Value Flora	Value Fauna
A-1254	0.0227	0.0227
DDE	NG	0.0022

Florida Department of Environmental Protection
Quality Assessment Guidelines for Sediment

Parameter	Value TEL	Value PEL
a-Chlor	0.00226	0.00479

Values are reported in milligrams per kilogram.

0 200 400
SCALE: 1 INCH = 400 FEET

FIGURE 3-1
ORGANIC COMPOUNDS IN SURFACE WATER AND SEDIMENT
1993 INVESTIGATION

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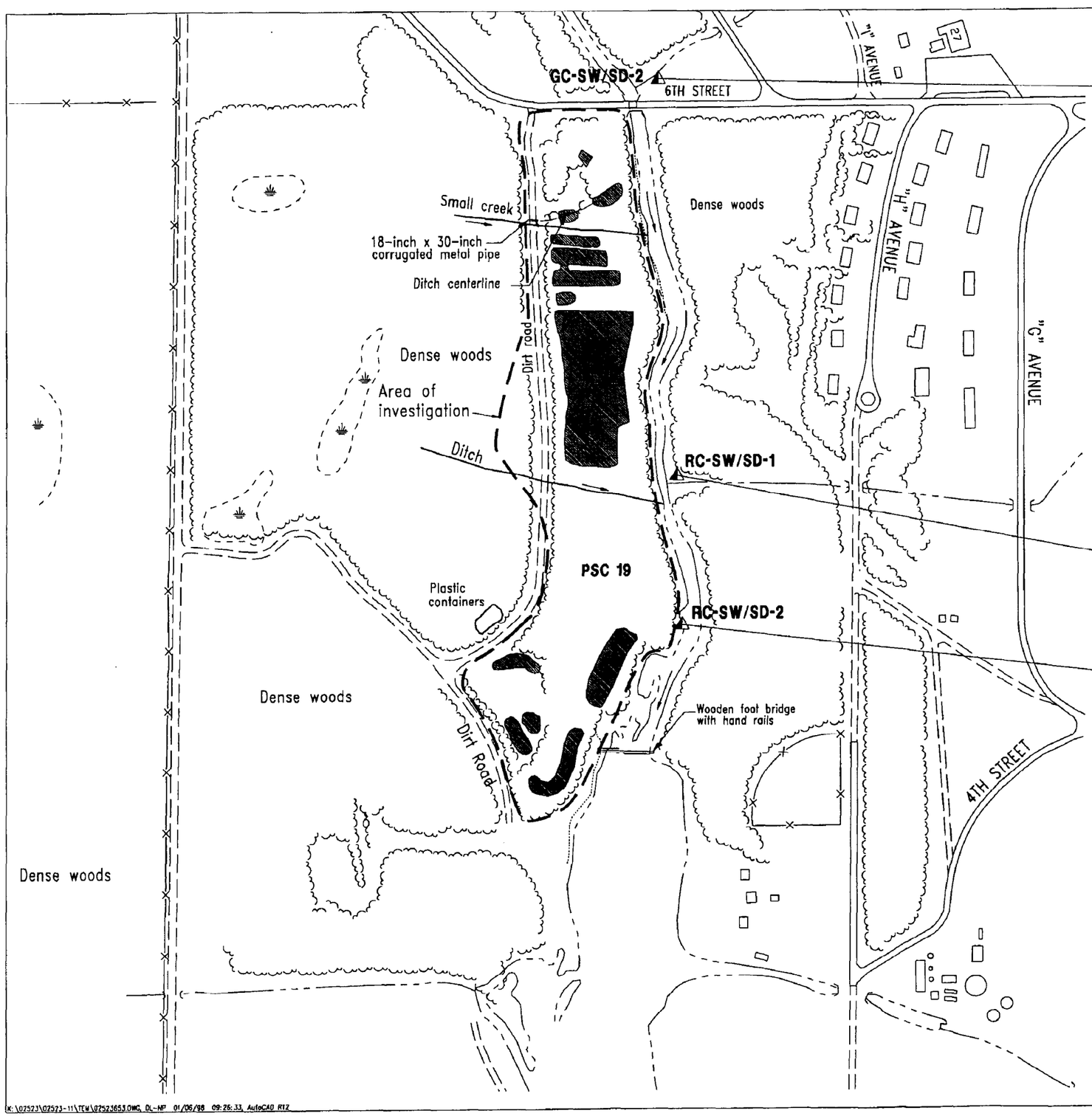

	SW	SD
Fe	953J	<
Cr	<	<

	SW	SD
Al	86.9J	<
Fe	925	<
Cr	<	Cr 5.5

	SW	SD
Al	107J	<
Fe	996	<
Cr	<	Cr 7.9

LEGEND

RC-SW/SD-2 ▲	Surface water and sediment sample location and designation
	Approximate locations of observed debris
PSC	Potential source of contamination
Al	Aluminum
Cr	Chromium
Fe	Iron
BTAG	*Biological technical assistance group*
SW	Surface water
SD	Sediment
J	Estimated value
NG	None given
<	Value is less than BTAG criteria

N

NOTES:

Compounds presented are those equal to or greater than BTAG criteria that were also detected in surface water and sediment samples collected at PSC 19 during the 1997 investigation.

U.S. Environmental Protection Agency
Region III BTAG Criteria for Sediment

Parameter	Sample Type	Value Flora	Value Fauna
Al	SW	460	25
Cr	SD	0.005	260
Fe	SW	NG	NG

Values for surface water are reported in micrograms per kilogram.

Values for sediment are reported in milligrams per kilogram.

0 200 400
SCALE: 1 INCH = 400 FEET

FIGURE 3-2
INORGANIC COMPOUNDS IN SURFACE WATER AND SEDIMENT 1993 INVESTIGATION

TECHNICAL MEMORANDUM FOR NO FURTHER ACTION, POTENTIAL SOURCE OF CONTAMINATION 19

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4.0 INVESTIGATIVE AND SAMPLING PROGRAM

The subsurface geologic materials recovered during the installation of 7 monitoring wells at PSC 19 are generally undifferentiated geologic deposits of fine- to medium-grained, poorly- to well-sorted quartz sand mixed with varying amounts of silt and clay. Boring logs are presented in Appendix B.

4.1 GEOPHYSICAL SURVEY. A geophysical survey was conducted at PSC 19 by ABB-ES personnel in the summer of 1997. The site was surveyed using a magnetometer and a Geonics EM-31 electromagnetometer unit. PSC 19 was surveyed using the "walking survey" method. The walking survey utilizes a continuous survey mode of a geophysical instrument, while the instrument operator walks over areas of interests, including background locations, site boundaries or boundaries of areas of activity, and obvious and potential target areas, such as the rubble piles. The operator notes background conditions, then monitors the instrument readings, noting and locating areas where instrument reading varies significantly from background conditions. After the walking survey was completed, the areas of interest were traversed along north-and-south and east-and-west traverse lines. Because there were very few readings above background, survey readings were not recorded as a permanent record.

The geophysical survey indicated little to no variation from background conditions in the vicinity of the concrete rubble piles. Where readings appeared above background, metal objects such as pipes and drainage culverts were clearly visible. The geophysical survey results indicate that the rubble piles contain little to no iron or other metal in the concrete. Survey results did not indicate buried materials in the north and central parts of PSC 19.

In the southern part of PSC 19, in the area of the old borrow pit, several locations were identified with magnetometer and EM-31 readings greater than background. These locations were marked with flagging for future reference, if required. Areas with readings above background were small, localized, and isolated from each other. Many of these areas were often a single location with a reading above background, indicating instrument noise or a small individual object. Other areas were usually 3 to 5 feet in length and width, indicating one large object or several small objects. At most locations metal objects such as piping, discarded lawn furniture, and metal cable were evident. The geophysical surveys indicate that some debris is buried in the borrow pit area. Magnetometer readings indicate these objects are shallow, being just beneath the land surface. It was interpreted that the geophysical survey results show a pattern of areas above background typical of the indiscriminate dumping associated with rubbish heaps.

4.2 MONITORING WELL INSTALLATION AND GROUNDWATER SAMPLING. Groundwater conditions in the upper part of the surficial aquifer were assessed by installing seven shallow monitoring wells at PSC 19 in July 1997. The seven monitoring wells (CF19MW1S through CF19MW7S) were installed to depths of approximately 15 to 20 feet bls. Groundwater samples were collected from seven monitoring wells at PSC 19 during July 1997. The groundwater samples were analyzed by an approved analytical laboratory for TCL organics and TAL inorganics. Analytical results

are included in Appendix C and are discussed in Chapter 5.0 of this technical memorandum.

Two monitoring wells were installed upgradient of PSC 19 (CF19MW1S and CF19MW3S); four monitoring wells were installed downgradient of PSC 19 (CF19MW2S, CF19MW4S, CF19MW6S, and CF19MW7S); and one monitoring well was installed in the central part of PSC 19 (CF19MW5S).

4.3 **SOIL SAMPLING** Five surface soil samples and seven subsurface soil samples were collected at PSC 19 in February 1997. The surface soil and subsurface soil samples were collected from areas upgradient, downgradient, and within the locations of the debris piles. The samples were analyzed by an approved analytical laboratory for TCL organics and TAL inorganics.

4.4 **SURFACE WATER AND SEDIMENT SAMPLING** Three surface water and sediment samples were collected in the vicinity of PSC 19. Two samples were collected from the small ditches that transect the site at the point where they empty into Rowell Creek. One was collected from Rowell Creek upgradient of the site. The surface water and sediment samples were analyzed by an approved analytical laboratory for TCL organics and TAL inorganics. Surface water samples were also analyzed for hardness and total dissolved solids. Sediment samples were also analyzed for total organic carbon. Analytical results are included in Appendix C and are discussed in Chapter 5.0 of this technical memorandum.

4.5 **TEST PITTING** In August 1998, Bechtel Environmental Inc. conducted test pitting in the old barrow pit area at PSC 19 to investigate anomalies identified during the geophysical survey. Three test pit locations were excavated until debris was unearthed or groundwater was encountered. (See Appendix D for test pit locations.)

Several metal buckets (approximately 3 gallons in size) were discovered in test pit TP-3. One of the buckets was partially filled (approximately 2 inches thick) with an unidentified substance that appeared to be petroleum grease. One soil sample was collected in the center of TP-3 (to investigate the potential release of petroleum products) and was analyzed for the Kerosene Analytical Group parameters. Analytical results are presented in Chapter 5.0.

5.0 NATURE AND EXTENT

As specified in the Field Investigation Plan (ABB-ES, 1995), a geophysical survey and surface, subsurface soil, groundwater, surface water and sediment samples were conducted to assess the presence of contamination at PSC 19.

5.1 SURFACE SOIL. Five surface soil samples (CF19SS1 through CF19SS5) were collected at a depth of 0 to 1 foot bls. Summaries of the confirmatory analytical results for surface soil samples are presented on Figures 5-1 and 5-2 and are summarized in Tables 5-1 and 5-2. A complete analytical data set for PSC 19 confirmatory samples is presented in Appendix C.

Surface soil analytical results were compared to guidance criteria from the following sources: (1) the most conservative soil cleanup goals for Florida, as listed in a memorandum dated September 29, 1995 (Florida Department of Environmental Protection [FDEP], 1995); (2) background concentrations in soil or detection limits soil criteria for evaluating the severity of contamination under the Dutch Soil Cleanup (Interim) Act (Richardson, 1987); and (3) U.S. Environmental Protection Agency (USEPA) Region III biological technical assistance groups (BTAG) Screening Levels, (USEPA, 1995).

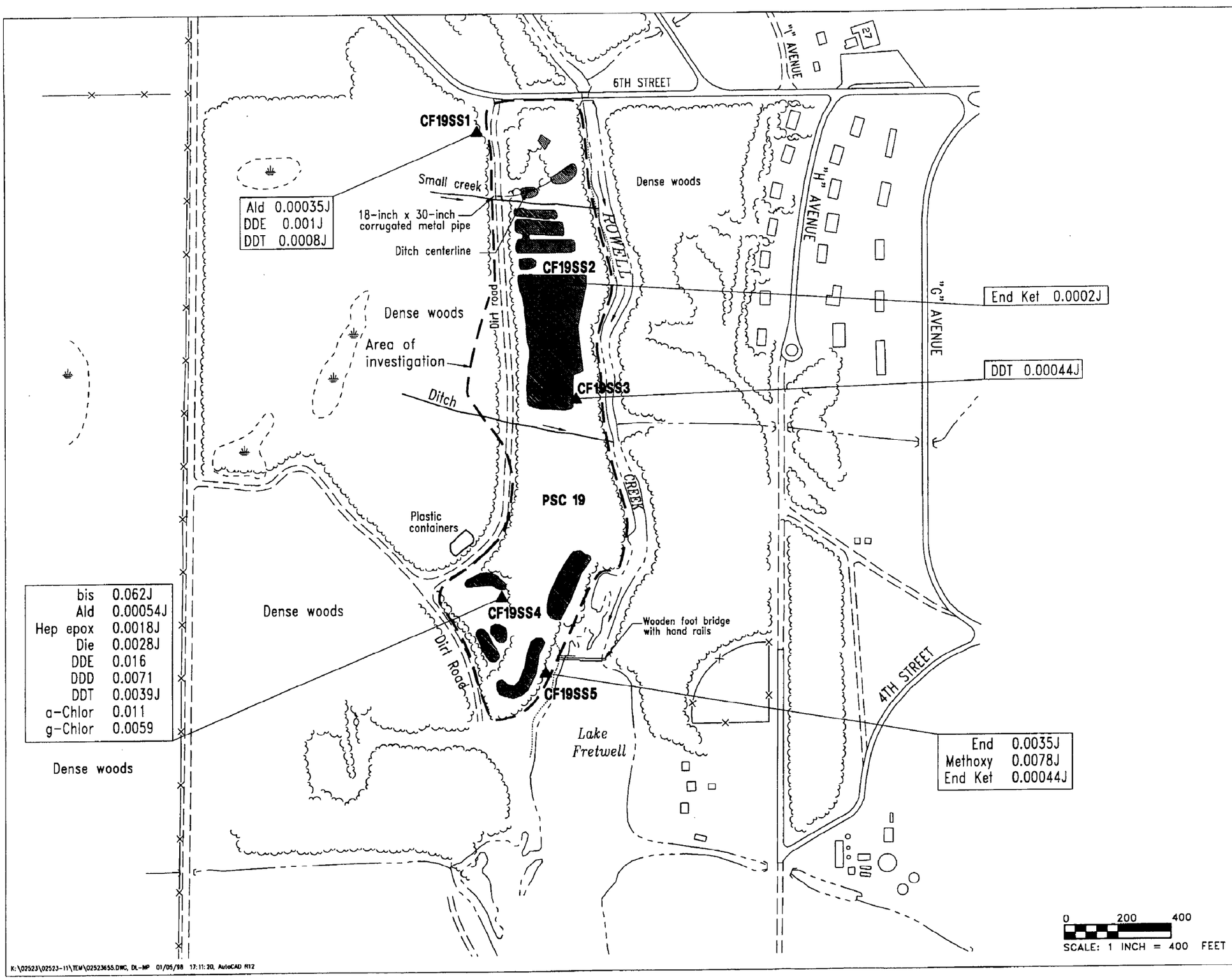
Organics in Surface Soil. No volatile organic compound (VOCs) were detected in PSC 19 surface soil samples.

One semivolatile organic compound (SVOC), bis(2-ethylhexyl)phthalate, a common environmental sampling and analysis contaminant, was detected in surface soil sample CF19SS4 at a concentration of 0.062 J milligrams per kilogram (Table 5-1). This concentration is below the FDEP residential-based soil cleanup criterion of 48 milligrams per kilogram (mg/kg) (Table 5-1). No Dutch or BTAG screening criteria are given for bis(2-ethylhexyl)phthalate.

Eleven pesticides were detected in PSC 19 surface soil samples. These included aldrin, heptachlor epoxide, dieldrin, 4,4'-dichlorodiphenyldichloroethene (DDE), 4,4'-dichlorodiphenyldichloroethane (DDD), 4,4'-dichlorodiphenyldichloroethane, 4,4'-dichlorodiphenyltrichloroethane (DDT), endrin, endrin ketone, methoxychlor, alpha-chlordane, and gamma-chlordane.

Aldrin was detected in two samples (CF19SS1 and CF19SS4) at concentrations of 0.00035 J and 0.00054 J mg/kg, respectively. Heptachlor epoxide, dieldrin, DDD, and DDE were detected in only one sample (CF19SS4) at concentrations of 0.0018 J, 0.0028 J, 0.0071 J, and 0.016 mg/kg, respectively. DDT was detected in three samples at concentrations of 0.0008 J mg/kg (CF19SS1), 0.00044 J mg/kg (CF19SS3), and 0.0039 mg/kg (CF19SS4). Endrin, endrin ketone, and methoxychlor were detected in only one sample (CF19SS5) at concentrations of 0.00035 J, 0.00044 J, and 0.0078 J, respectively. Alpha-chlordane and gamma-chlordane were detected in only one sample (CF19SS4) at concentrations of 0.011 and 0.0059 mg/kg, respectively. All of these pesticide concentrations are below FDEP soil cleanup, Dutch, and BTAG criteria.

Inorganics in Surface Soil. Sixteen inorganic analytical parameters were detected in the surface soil samples collected at PSC 19. None of these inorganic concentrations exceeded the FDEP residential-based soil cleanup goals. The



LEGEND

CF19SS1 ▲	Surface soil sample location and designation
⬬	Approximate locations of observed debris
PSC	Potential source of contamination
bis	bis(2-Ethylhexyl)phthalate
Ald	Aldrin
Hep epox	Heptahlor epoxide
Die	Dieldrin
DDE	4,4-dichlorodiphenyldichloroethene
DDD	4,4-dichlorodiphenyldichloroethane
DDT	4,4-dichlorodiphenyltrichloroethane
End	Endrin
End ket	Endrin ketone
Methoxy	Methoxychlor
a-Chlor	alpha-Chlordane
g-Chlor	gamma-Chlordane
J	Estimated value

NOTES:

Florida Department of Environmental Protection
Soil Cleanup Goals

bis	48
Ald	0.06
Hep epox	0.1
Die	0.07
DDE	3
DDD	4.5
DDT	3.1
End	23
End ket	23
Methoxy	380
a-Chlor	0.8
g-Chlor	0.8

Values are reported in milligrams per kilogram.

FIGURE 5-1
ORGANIC COMPOUNDS IN SURFACE SOIL

TECHNICAL MEMORANDUM FOR NO FURTHER ACTION, POTENTIAL SOURCE OF CONTAMINATION 19

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

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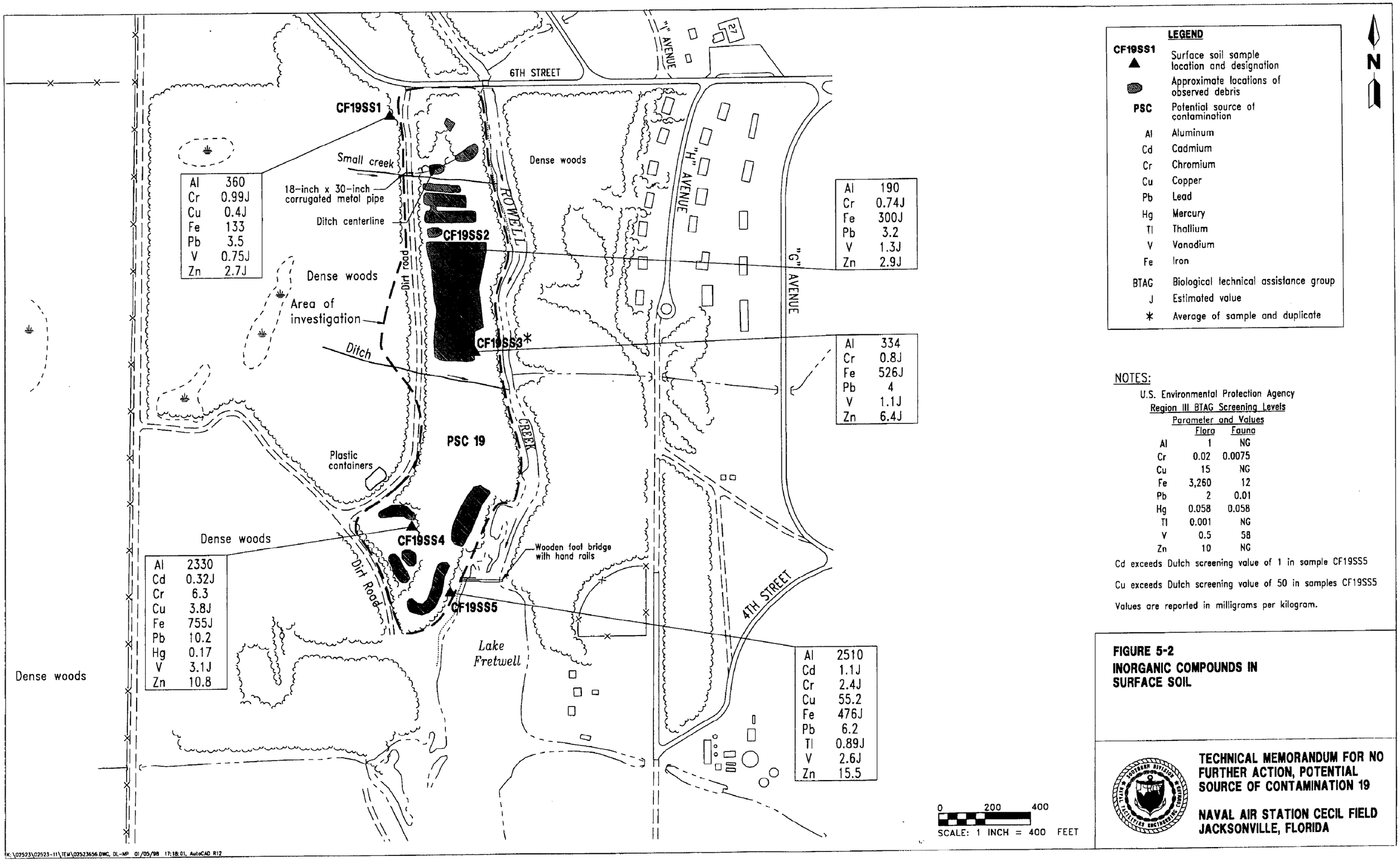

LEGEND

CF19SS1 ▲	Surface soil sample location and designation
	Approximate locations of observed debris
PSC	Potential source of contamination
Al	Aluminum
Cd	Cadmium
Cr	Chromium
Cu	Copper
Pb	Lead
Hg	Mercury
Tl	Thallium
V	Vanadium
Fe	Iron
BTAG	Biological technical assistance group
J	Estimated value
*	Average of sample and duplicate

NOTES:

U.S. Environmental Protection Agency
Region III BTAG Screening Levels

Parameter	Flora	Fauna
Al	1	NG
Cr	0.02	0.0075
Cu	15	NG
Fe	3,260	12
Pb	2	0.01
Hg	0.058	0.058
Tl	0.001	NG
V	0.5	58
Zn	10	NG

Cd exceeds Dutch screening value of 1 in sample CF19SS5

Cu exceeds Dutch screening value of 50 in samples CF19SS5

Values are reported in milligrams per kilogram.

FIGURE 5-2
INORGANIC COMPOUNDS IN SURFACE SOIL

TECHNICAL MEMORANDUM FOR NO FURTHER ACTION, POTENTIAL SOURCE OF CONTAMINATION 19

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

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Table 5-1
Organics in Surface Soil

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analytical Parameter	Frequency of Detection[1]	Range of Reporting Limits	Range of Detected Concentrations	FDEP Soil Cleanup Goals[2]	Dutch Numbers[3]	BTAG Criteria[4] Flora/Fauna
Surface Soil						
Semivolatile Organic Compounds (mg/kg)						
bis(2-Ethylhexyl)phthalate	1/5	0.47	0.062J	48	NG	NG/NG
Pesticides and PCBs (mg/kg)						
Aldrin	2/5	0.002	0.00035J to 0.00054J	0.06	0.1	0.1/0.1
Heptachlor epoxide	1/5	0.002	0.0018J	0.1	0.1	0.1/0.1
Dieldrin	1/5	0.005	0.0028J	0.07	0.1	0.1/0.1
4,4-DDD	1/5	0.005	0.0071J	4.5	0.1	0.1/0.1
4,4-DDE	1/5	0.005	0.016	3	0.1	0.1/0.1
4,4-DDT	3/5	0.004 to 0.005	0.0008J to 0.004J	3.1	0.1	0.1/0.1
Endrin	1/5	0.004	0.00035J	23	0.1	0.1/0.1
Endrin ketone	1/5	0.004	0.00044J	[5]23	[5]0.1	[5]0.1/[5]0.1
alpha-Chlordane	1/5	0.002	0.011	0.8	0.1	0.1/0.1
gamma-Chlordane	1/5	0.002	0.0059	0.8	0.1	0.1/0.1
Methoxychlor	1/5	0.023	0.0078J	380	0.1	0.1/0.1

[1] Frequency of detection is the number of samples in which the analyte was detected over the total number of samples analyzed (CF19SS1, CF19SS2, CF19SS3, CF19SS4, and CF19SS5 including a duplicate at CF19SS3).
[2] FDEP memorandum dated September 29, 1995. Values presented are the lesser of the cleanup goals based on a residential land-use scenario.
[3] Dutch Soil Cleanup (Interim) Act from Richardson, G.M., 1987. Values presented are the lesser of the cleanup goals based on background concentrations in Dutch soil or detection limits using Contract Laboratory Program methods.
[4] U.S. Environmental Protection Agency Region III BTAG Screening Levels, August 1995.
[5] No value was given for endrin ketone; therefore, value given is for endrin.

Notes: FDEP = Florida Department of Environmental Protection.
BTAG = biological technical assistance group.
mg/kg = milligrams per kilogram.
J = estimated value.
NG = none given.
PCB = polychlorinated biphenyl.
DDD = dichlorodiphenyldichloroethane.
DDE = dichlorodiphenyldichloroethene.
DDT = dichlorodiphenyltrichloroethane.

Table 5-2
Inorganics in Surface Soil

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analytical Parameter	Frequency of Detection[1]	Range of Reporting Limits	Range of Detected Concentrations	NAS Cecil Field Screening Criteria	FDEP Soil Cleanup Goals[2]	Dutch Numbers[3]	BTAG Criteria[4] Flora/Fauna
Surface Soil							
Inorganic Analytes (mg/kg)							
Aluminum	5/5	40	190 to 2,510	4,400	75,000	NG	1/NG
Barium	5/5	40	2.4J to [5]9.8J	14	5,200	200	440/440
Cadmium	2/5	1	0.32J to 1.1J	1.7	37	1	2.5/NG
Calcium	5/5	1,000	153J to 4,600J	9	NG	NG	NG
Chromium	5/5	2	0.74J to 6.3	8	290	100	0.02/0.0075
Cobalt	3/5	10	0.29J to 0.55J	3	4,700	20	100pH/200
Copper	3/5	5	0.4J to 55.2	6	NG	50	15/NG
Iron	5/5	20	133 to 755J	1,490	NG	NG	3,260/12
Lead	5/5	0.6	3.2 to 10.2	197	500	50	2/0.01
Magnesium	5/5	1,000	30.4J to 131J	329	NG	NG	4,400/4,400
Manganese	5/5	3	4.1 to 16.7	22	370	NG	330/330
Mercury	1/5	0.1	0.17	0.16	23	0.5	0.058/0.058
Nickel	3/5	8	0.62J to 1.4J	4	1,500	50	2/NG
Thallium	1/5	1	0.89J	3	NG	NG	0.001/NG
Vanadium	5/5	10	0.75J to 3.1J	6	490	NG	0.5/58
Zinc	5/5	4	2.7J to 15.5	36	23,000	200	10/NG

[1] Frequency of detection is the number of samples in which the analyte was detected over the total number of samples analyzed (CF19SS1, CF19SS2, CF19SS3, CF19SS4, and CF19SS5 including a duplicate at CF19SS3).
[2] FDEP memorandum dated September 29, 1995. Values presented are the lesser of the cleanup goals based on a residential land-use scenario.
[3] Dutch Soil Cleanup (Interim) Act from Richardson, G.M., 1987. Values presented are the lesser of the cleanup goals based on background concentrations in Dutch soil or detection limits.
[4] U.S.Environmental Protection Agency Region III BTAG Screening Levels, August 1995.
[5] Average of sample and duplicate.

Notes: **Bold** indicates at least one sample exceeds the NAS Cecil Field screening criterion.
NG = none given.
FDEP = Florida Department of Environmental Protection.
BTAG = biological technical assistance group.
mg/kg = milligrams per kilogram.
NAS = Naval Air Station.
J = estimated value.
pH = value is dependent on pH.

analytical results are summarized in Table 5-2. Inorganics that exceed one or more Dutch or BTAG criterion are depicted on Figure 5-2.

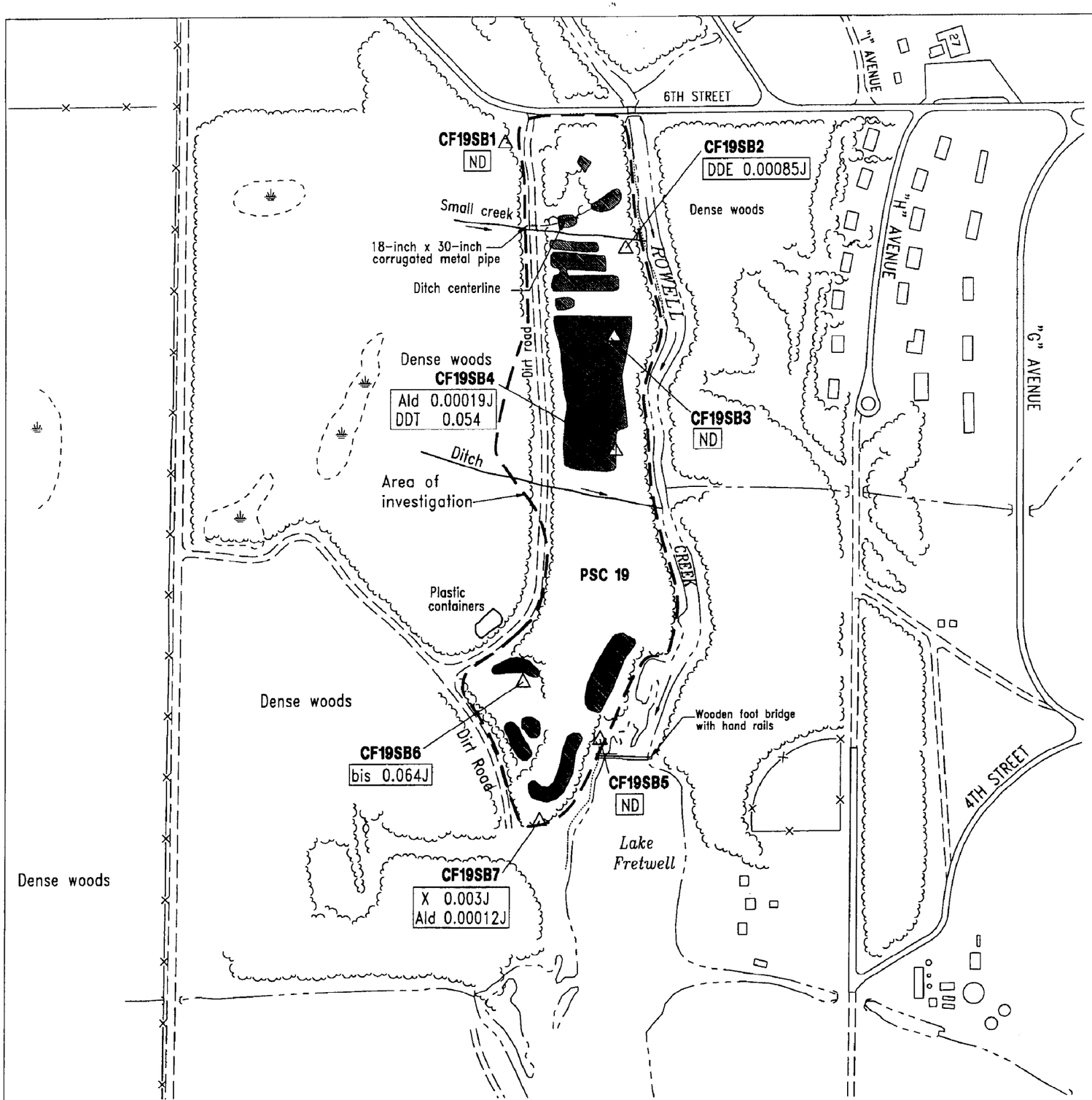
Two inorganics, cadmium and copper, were detected at concentrations greater than Dutch soil cleanup criteria. Cadmium was detected in the sample from CF19SS5 at a concentration of 1.1 J mg/kg. This value is only slightly above the Dutch soil cleanup value for cadmium of 1 mg/kg. Copper was also detected in the sample from CF19SS5 at a concentration of 55.2 mg/kg, which is above the Dutch soil cleanup value for copper of 50 mg/kg.

Nine inorganics (aluminum, chromium, copper, iron, lead, mercury, thallium, vanadium, and zinc) were detected at concentrations greater than BTAG flora and/or fauna criteria. Aluminum was detected in all five surface soil samples at concentrations ranging from 190 to 2,510 mg/kg. The BTAG flora criterion for aluminum is 1 mg/kg. Chromium was detected in all five samples at concentrations ranging from 0.74 J to 6.3 mg/kg. These concentrations exceed chromium BTAG flora and fauna criteria of 0.02 and 0.0075 mg/kg, respectively. Copper was detected in three samples at concentrations ranging from 0.4 J to 55.2 mg/kg. The sample from CF19SS5 (55.2 mg/kg) was above the BTAG flora criterion for copper of 15 mg/kg. Iron was detected in all five samples at concentrations ranging from 133 to 775 J mg/kg. All five concentrations exceed the BTAG fauna criterion of 12 mg/kg for iron. Lead was detected in all five samples at concentrations ranging from 3.2 to 10.2 mg/kg. Both flora and fauna BTAG criteria (2 and 0.01 mg/kg, respectively) for lead were exceeded in all five samples. Mercury was detected in only one of the five samples (CF19SS4) at a concentration of 0.17 mg/kg. This value exceeds the BTAG flora and fauna criterion for mercury of 0.058 mg/kg. Thallium was detected in only one of the five samples at a concentration of 0.89 J mg/kg (CF19SS5). This concentration exceeds the flora BTAG criterion for thallium of 0.001 mg/kg. Vanadium was detected in all five samples at concentrations ranging from 0.75 J to 3.1 J mg/kg. All five concentrations exceed the flora BTAG criterion for vanadium of 0.5 mg/kg. Zinc was detected in all five of the samples at concentrations ranging from 2.7 J to 15.5 mg/kg. Samples collected from CF19SS3 (10.6 mg/kg), CF19SS4 (10.8 mg/kg) and CF19SS5 (15.5 mg/kg) exceed the flora BTAG criterion for zinc of 10 mg/kg.

5.2 **SUBSURFACE SOIL**. Seven confirmatory subsurface soil samples (CF19SB1 through CF19SB7) were collected at a depth of 1 to 2 feet bls. All subsurface soil analytical results were below comparative guidance criteria. Summaries of the confirmatory analytical results for subsurface soil samples are presented on Figure 5-3 and in Tables 5-3 and 5-4. A complete analytical data set for PSC 19 confirmatory samples is presented in Appendix C.

Subsurface soil analytical results were compared to the following criteria: (1) industrial land-use soil cleanup goals for Florida, as listed in a memorandum dated September 29, 1995, (FDEP, 1995), (2) soil leaching values for Florida, as listed in a memorandum dated September 29, 1995, (FDEP, 1995), and (3) background concentrations in soil or detection limits soil criteria for evaluating the severity of contamination under the Dutch Soil Cleanup (Interim) Act (Richardson, 1987).

Organics in Subsurface Soil. One VOC, total xylenes, was detected in only one subsurface soil sample (CF19SB7) at a concentration of 0.003 J mg/kg. This concentration is below the FDEP industrial land-use soil cleanup goal, the FDEP



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LEGEND

CF12SB1 △	Subsurface soil sample location and designation
▬	Approximate locations of observed debris
PSC	Potential source of contamination
X	Total xylenes
bis	bis(2-Ethylhexyl)phthalate
Ald	Aldrin
DDE	4,4-dichlorodiphenyldichloroethene
DDT	4,4-dichlorodiphenyltrichloroethane
ND	Not detected
J	Estimated value

NOTE:
Values are reported in micrograms per kilogram.

Florida Department of Environmental Protection
Leaching Number

Parameter	
X	0.1
bis	11
Ald	0.05
DDE	0.2
DDT	0.5

0 200 400
SCALE: 1 INCH = 400 FEET

FIGURE 5-3
ORGANIC COMPOUNDS IN SUBSURFACE SOIL

TECHNICAL MEMORANDUM FOR NO FURTHER ACTION, POTENTIAL SOURCE OF CONTAMINATION 19

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

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Table 5-3
Organics in Subsurface Soil

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analytical Parameter	Frequency of Detection[1]	Range of Reporting Limits	Range of Detected Concentrations	FDEP Soil Cleanup Goals[2]	FDEP Soil Cleanup Goals[3]	Dutch Numbers[4]
Subsurface Soil						
Volatile Organic Compounds (mg/kg)						
Xylenes (total)	1/7	0.013	0.003J	92,000	0.1	0.5
Semivolatile Organic Compounds (mg/kg)						
bis(2-Ethylhexyl)phthalate	1/7	0.4	0.064J	110	11	NG
Pesticides and PCBs (mg/kg)						
Aldrin	2/7	0.002	0.00012J to 0.00019J	0.2	0.05	0.1
DDE	1/7	0.006	0.00085J	11	0.2	0.1
DDT	1/7	0.005	0.054	12	0.5	0.1

[1] Frequency of detection is the number of samples in which the analyte was detected over the total number of samples analyzed (CF19SB1, CF19SB2, CF19SB3, CF19SB4, CF19SB5, CF19SB6, and CF19SB7 including a duplicate at CF19SB4).
[2] FDEP memorandum dated September 29, 1995. Values presented are based on an industrial land-use scenario.
[3] FDEP memorandum dated September 29, 1995. Values presented are based on soil leaching.
[4] Dutch Soil Cleanup (Interim) Act from Richardson, G.M., 1987. Values presented are the lesser of the cleanup goals based on background concentrations in Dutch soil or detection limits using Contract Laboratory Program methods.

Notes: FDEP = Florida Department of Environmental Protection.
mg/kg = milligrams per kilogram.
J = estimated value.
NG = none given.
PCB = polychlorinated biphenyl.
DDE = 4,4'-dichlorodiphenyldichloroethene.
DDT = 4,4'-dichlorodiphenyltrichloroethane.

Table 5-4
Inorganics in Subsurface Soil

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analytical Parameter	Frequency of Detection[1]	Range of Reporting Limits	Range of Detected Concentrations	FDEP Soil Cleanup Goals[2]	FDEP Soil Cleanup Goals[3]	Dutch Numbers[4]
Subsurface Soil						
Inorganic Analytes (mg/kg)						
Aluminum	7/7	40	187 to 16,200	1E+06	NC	NG
Arsenic	1/7	2	0.74J	0.8	NC	20
Barium	7/7	40	1J to 12.4J	84,000	NC	200
Calcium	7/7	1,000	100J to [5]1,255J	NG	NG	NG
Chromium	7/7	2	[5]0.68J to 13.8	430	NC	100
Cobalt	2/7	10	0.71J to 0.87J	110,000	NC	20
Copper	1/7	5	1.8J	NG	NG	50
Iron	7/7	20	70.9J to 4,270J	NG	NG	NG
Lead	7/7	0.6	1.1 to 10.1	1,000	NC	50
Magnesium	7/7	1,000	16.3J to 349J	NG	NG	NG
Manganese	7/7	3	1.3J to 7.1	5,500	NC	NG
Nickel	2/7	8	0.74J to 4.5J	26,000	NC	50
Potassium	2/7	1,000	17.2J to 235J	NG	NG	NG
Vanadium	7/7	10	[5]0.75J to 12J	4,800	NC	NG
Zinc	4/7	4	[5]1.2J to 3.9J	560,000	NC	200

[1] Frequency of detection is the number of samples in which the analyte was detected over the total number of samples analyzed (CF19SB1, CF19SB2, CF19SB3, CF19SB4, CF19SB5, CF19SB6, and CF19SB7, including a duplicate at CF19SB4).
[2] FDEP memorandum dated September 29, 1995. Values presented are based on an industrial land-use scenario.
[3] FDEP memorandum dated September 29, 1995. Values presented are based on soil leaching.
[4] Dutch Soil Cleanup (Interim) Act from Richardson, G.M., 1987. Values presented are the lesser of the cleanup goals based on background concentrations in Dutch soil or detection limits.
[5] Average of sample and duplicate.

Notes: FDEP = Florida Department of Environmental Protection.
mg/kg = milligrams per kilogram.
1E+06 = 1,000,000 mg/kg.
J = estimated value.
NC = not calculated.
NG = none given.

leaching value, and the Dutch soil cleanup criterion for total xylenes of 92,000, 0.1, and 0.5 mg/kg, respectively.

One SVOC, bis(2-ethylhexyl)phthalate, a common environmental sampling and analysis contaminant, was detected in subsurface soil sample CF19SB6 at a concentration of 0.064 J mg/kg. This concentration is well below the FDEP industrial land-use soil cleanup and leaching criteria of 110 and 11 mg/kg, respectively. No Dutch screening criterion is given for bis(2-ethylhexyl)phthalate.

Three pesticides were detected in PSC 19 subsurface soil samples: aldrin, DDE, and DDT. Aldrin was detected in two of the seven samples at concentrations ranging from 0.00012 J to 0.00019 J mg/kg. These concentrations are below the FDEP industrial land-use soil cleanup goal, leaching value, and the Dutch soil cleanup criterion for aldrin of 0.2, 0.05, and 0.1 mg/kg, respectively. DDE was detected in only one sample (CF19SB2) at a concentration of 0.00085 J mg/kg. This value is below the FDEP industrial land-use soil cleanup goal, the leaching value, and the Dutch soil cleanup criterion for DDE of 11, 0.2, and 0.1 mg/kg, respectively. DDT was detected in only one sample, the reextraction of CF19SB4 (CF19SB4RE), at a concentration of 0.054 mg/kg. This value is below the FDEP industrial land-use soil cleanup goal, leaching value, and the Dutch soil cleanup criterion for DDT of 12, 0.5, and 0.1 mg/kg, respectively.

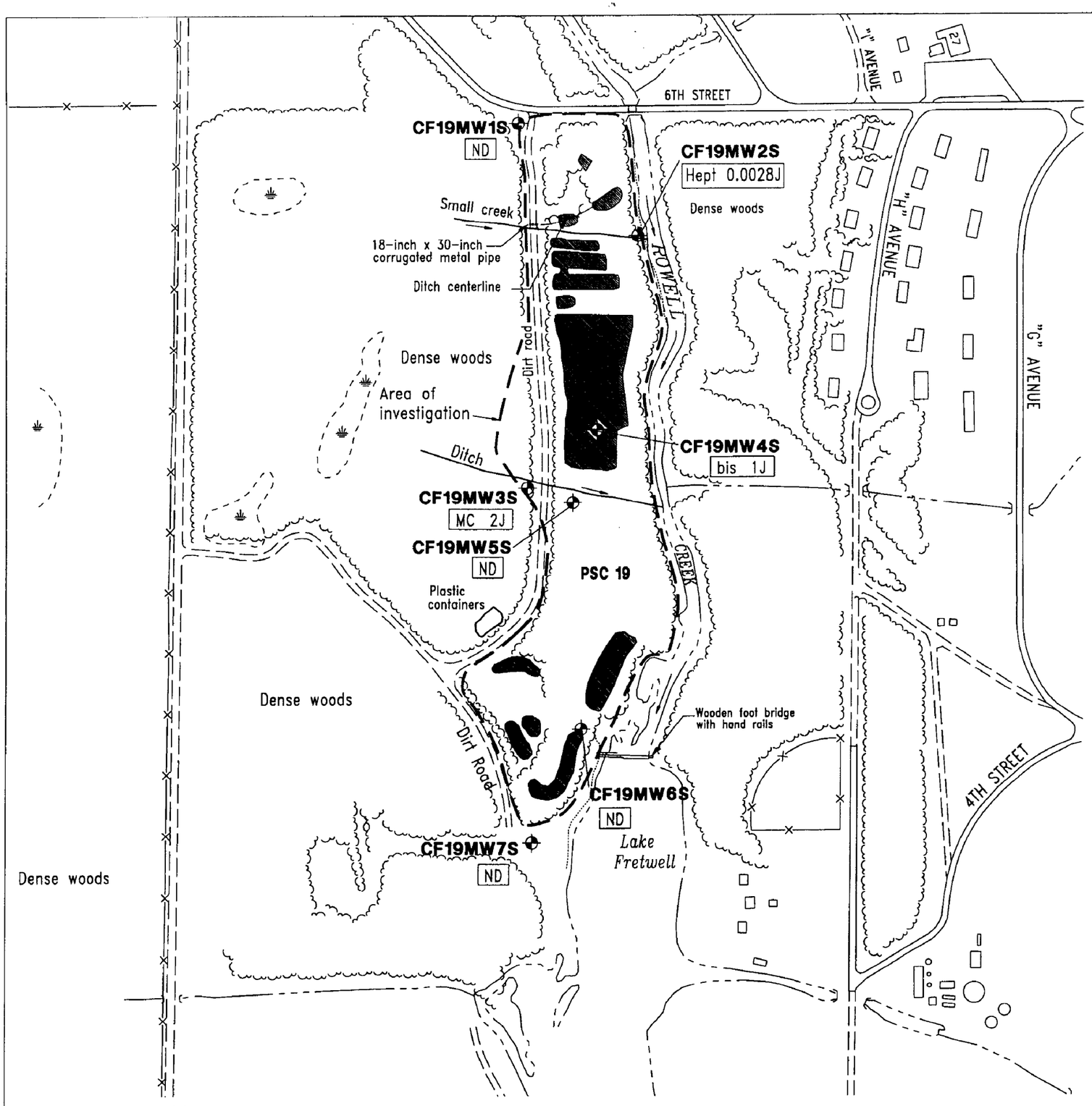
Inorganics in Subsurface Soil. Fifteen inorganic analytical parameters were detected in the confirmatory subsurface soil samples collected at PSC 9: aluminum, arsenic, barium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel,, potassium, vanadium, and zinc. None of these inorganic concentrations were greater than FDEP residential-based soil cleanup goals or Dutch screening criteria; therefore, these detected inorganics are not shown on a figure.

5.3 GROUNDWATER. Seven confirmatory groundwater samples (CF19MW1S, through CF19MW7S) were collected at PSC 19. The groundwater data were compared to State or Federal drinking water standards and screening criteria for NAS Cecil Field as established by the Base Closure Team. No organics were detected above criteria and only two inorganics (aluminum and iron) were detected above State drinking water criteria. Summaries of the confirmatory analytical results for groundwater samples are presented on Figures 5-4 and 5-5 and in Tables 5-5 and 5-6. A complete analytical data set for PSC 19 confirmatory samples is presented in Appendix C.

Organics in Groundwater. Methylene chloride, was detected in only one groundwater sample, CF19MW3S, at a concentration of 2 J micrograms per liter ($\mu g/\ell$). This value is below the State of Florida guidance for methylene chloride of 2.7 $\mu g/\ell$.

Bis(2-ethylhexyl)phthalate was detected in groundwater sample CF19MW4S at a concentration of 1 J $\mu g/\ell$. This value is below the State of Florida primary drinking water standard for bis(2-ethylhexyl)phthalate of 6 $\mu g/\ell$ and the BTAG freshwater flora and fauna criterion of 30 $\mu g/\ell$.

Heptachlor, was detected in only one groundwater sample, CF19MW2S, at a concentration of 0.0028 J $\mu g/\ell$. This value is below the State of Florida primary drinking water standard of 0.4 $\mu g/\ell$. It is also below the BTAG criterion for heptachlor of 0.0038 $\mu g/\ell$.



LEGEND

CF19MW1S	Monitoring well location and designation
	Approximate locations of observed debris
PSC	Potential source of contamination
MC	Methylene chloride
bis	bis(2-Ethylhexyl)phthalate
Hept	Heptachlor
J	Estimate value
ND	Not detected
P	Primary drinking water standard

NOTE:
Values are reported in micrograms per liter.

Florida Department of Environmental Protection
Groundwater Guidance Concentrations

bis	6	P
Hept	0.4	P
MC	5	P

0 200 400
SCALE: 1 INCH = 400 FEET

FIGURE 5-4
ORGANIC COMPOUNDS IN GROUNDWATER

TECHNICAL MEMORANDUM FOR NO FURTHER ACTION, POTENTIAL SOURCE OF CONTAMINATION 19

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

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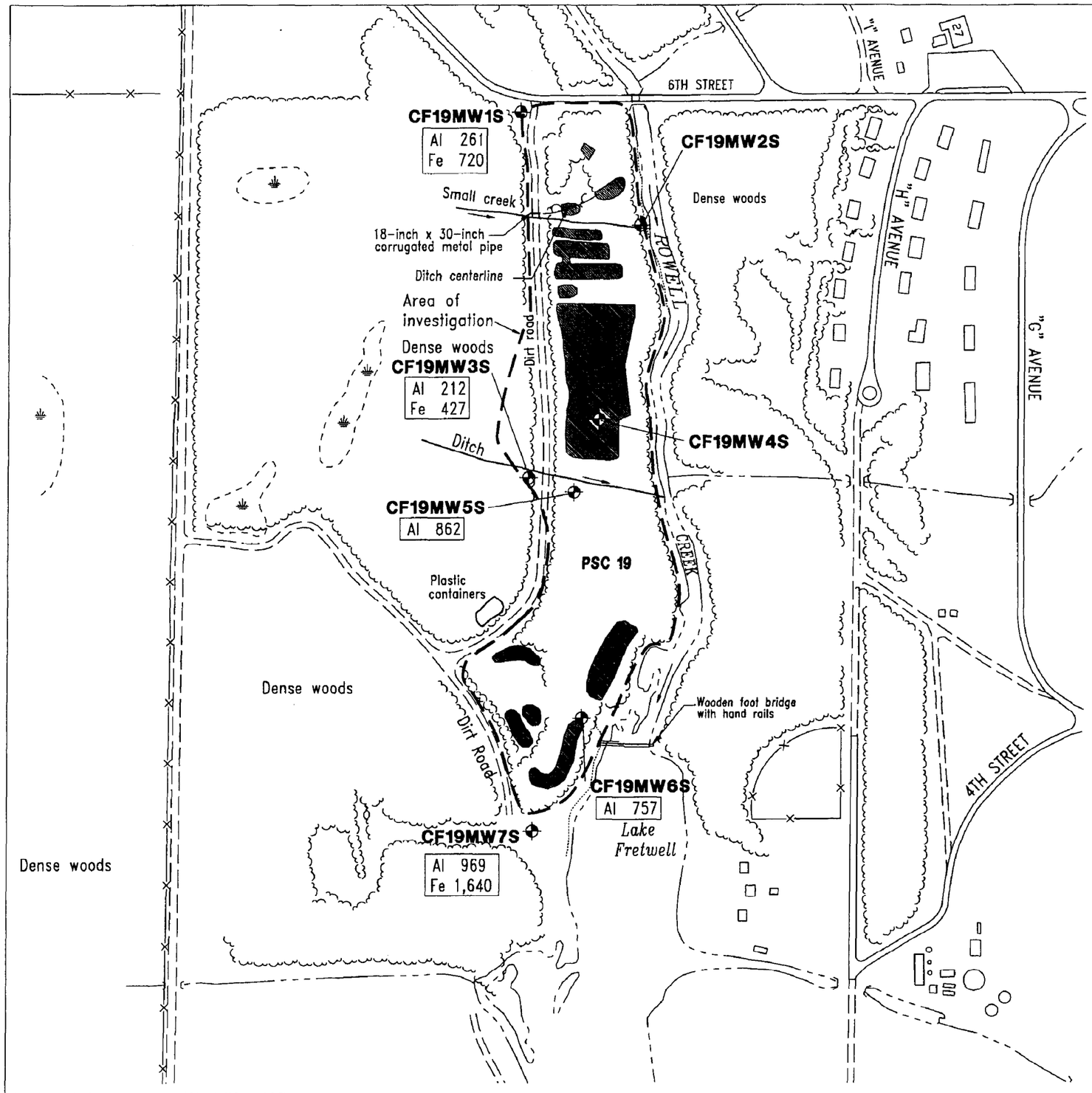

N

LEGEND

CF19MW1S	Monitoring well location and designation
	Approximate locations of observed debris
PSC	Potential source of contamination
Al	Aluminum
Fe	Iron
J	Estimate value
S	Secondary drinking water standard

NOTES:

Values presented are equal to or greater than a State or Federal drinking water value.

Values are reported in micrograms per liter.

Florida Department of Environmental Protection
Groundwater Guidance Concentrations

Parameter	Regulatory Value and Type	
Al	200	S
Fe	300	S

0 200 400
SCALE: 1 INCH = 400 FEET

FIGURE 5-5
INORGANIC COMPOUNDS IN GROUNDWATER

TECHNICAL MEMORANDUM FOR NO FURTHER ACTION, POTENTIAL SOURCE OF CONTAMINATION 19

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

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Table 5-5
Organics in Groundwater

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analytical Parameter	Frequency of Detection[1]	Range of Reporting Limits	Range of Detected Concentrations	FDEP Regulatory Value[2]
Groundwater				
Volatile Organic Compounds (μg/ℓ)				
Methylene chloride	1/7	10	2 J	2.7 G
Semivolatile Organic Compounds (μg/ℓ)				
bis(2-Ethylhexyl)phthalate	1/7	10	1 J	6 PD
Pesticides and PCBs (μg/ℓ)				
Heptachlor	1/7	0.50	0.0028 J	0.4 PD

[1] Frequency of detection is the number of samples in which the analyte was detected over the total number of samples analyzed (CF19MW1S, CF19MW2S, CF19MW3S, CF19MW4S, CF19MW5S, CF19MW6S, and CF19MW7S, including a duplicate at CF19MW4S).
[2] Regulatory values represent values for drinking water standards or guidance values from either State or Federal agencies.

Notes: FDEP = Florida Department of Environmental Protection.
μg/ℓ = micrograms per liter.
J = estimated value.
G = guidance value.
PD = primary drinking water standard.
PCB = polychlorinated biphenyl.

Table 5-6
Inorganic Compounds in Groundwater

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analytical Parameter	Frequency of Detection[1]	Range of Reporting Limits	Range of Detected Concentrations	NAS Cecil Field Screening Criteria	FDEP Regulatory Value[2]
Groundwater					
Inorganic Analytes (μg/ℓ)					
Aluminum	6/7	200	[3]149J to 969	13,100	200 SD
Barium	7/7	200	5.1J to 23.1J	88.2	2,000 PD
Calcium	7/7	5,000	269J to 44,100	81,100	NG
Cobalt	2/7	50	1.2J to 1.4J	12.8	NG
Copper	3/7	25	4.2J to 5.4J	12.5	1,000 SD
Iron	7/7	100	[3]43.8J to 1,640	7,760	300 DS
Magnesium	7/7	5,000	430J to 957J	10,000	NG
Manganese	7/7	15	1.4J to 29.3	96.2	50 SD
Mercury	6/7	0.2	0.1J to 0.12J	0.34	2 PD
Potassium	3/7	5,000	112J to 332J	4,330	NG
Sodium	7/7	5,000	[3]2,695J to 7,140J	16,500	160,000 PD
Vanadium	6/7	50	1.1J to 7.5J	20.2	49 G
Zinc	4/7	20	5.7J to 10.5J	76.8	5,000 SD

[1] Frequency of detection is the number of samples in which the analyte was detected over the total number of samples analyzed (CF19MW1S, CF19MW2S, CF19MW3S, CF19MW4S, CF19MW5S, CF19MW6S and CF19MW7S; including a duplicate at CF19MW4S).
[2] Values represent regulatory drinking water standards or guidance values from either State or Federal agencies.
[3] Average of sample and duplicate.

Notes: NAS = Naval Air Station.
FDEP = Florida Department of Environmental Protection.
μg/ℓ = micrograms per liter.
J = estimated value.
SD = secondary drinking water standard - not a health-based criterion.
PD = primary drinking water standard.
NG = none given.
G = guidance value.

Inorganics in Groundwater. Thirteen inorganic analytical parameters were detected in the confirmatory groundwater samples collected at PSC 19. The confirmatory inorganic analytical results for groundwater are summarized in Table 5-6.

Only aluminum and iron were detected at concentrations above State or Federal drinking water standards. All aluminum and iron concentrations were below the NAS Cecil Field screening criteria of 13,000 $\mu g/\ell$ for aluminum and 7,800 $\mu g/\ell$ for iron. This screening criteria was developed by the NAS Cecil Field partnering team as a decision level to rule out the need for further investigation.

The values were determined by using the nonparametric upper outside value cutoffs as described in Understanding Robust and Exploratory Data Analysis (Hoaglin et al., 1983). These values reflect data collected across the entire base and separated by sample media. The distributions of aluminum and iron concentrations in groundwater samples are presented on Figure 5-6.

Aluminum was detected in six of the seven samples at concentrations ranging from 149 J $\mu g/\ell$ (average of sample and duplicate) at CF19MW4S to 969 $\mu g/\ell$ at CF19MW7S.

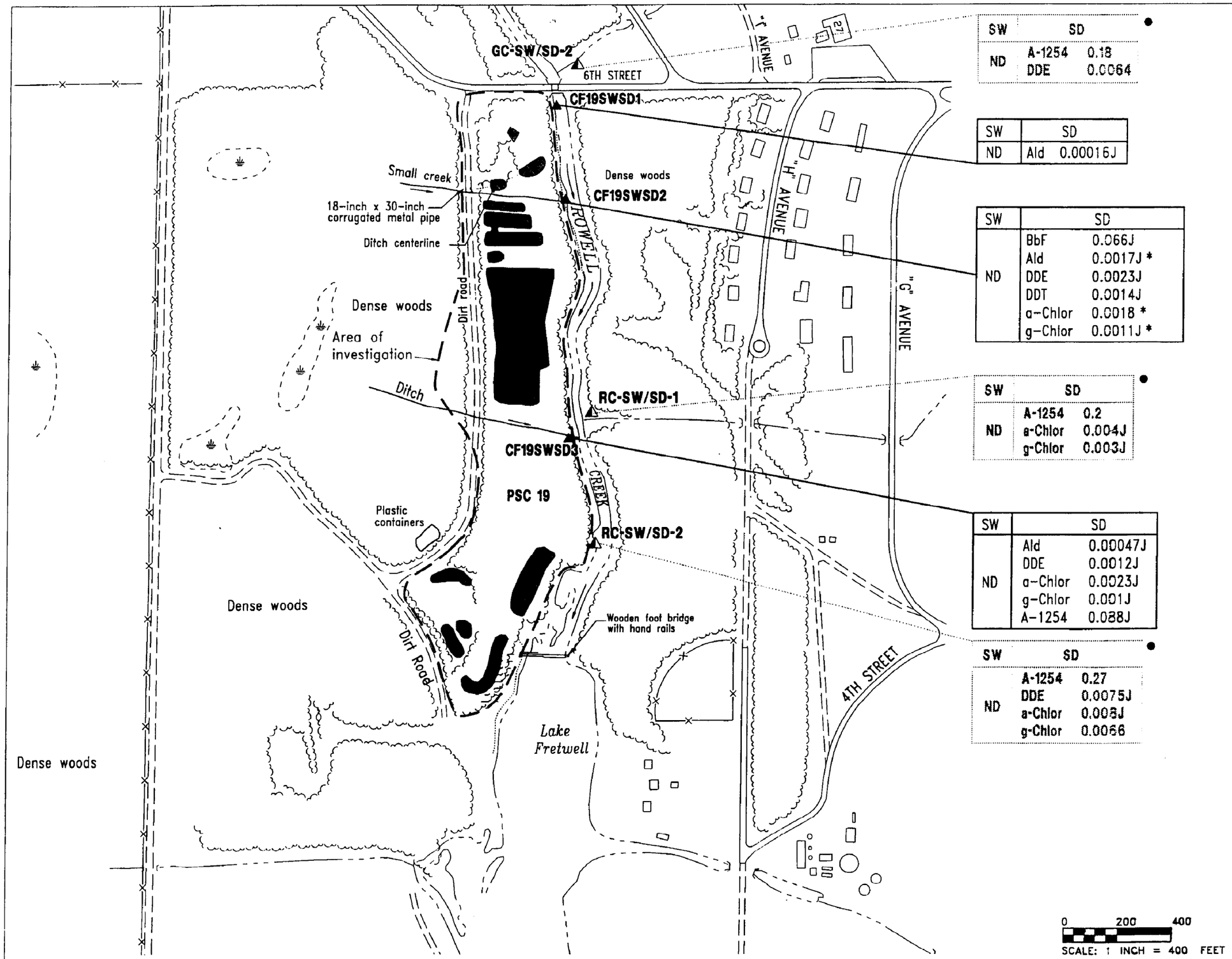
The samples from CF19MW1S (261 $\mu g/\ell$), CF19MW3S (212 $\mu g/\ell$), CF19MW5S (862 $\mu g/\ell$), CF19MW6S (757 $\mu g/\ell$), and CF19MW7S (969 $\mu g/\ell$) exceeded the State of Florida secondary drinking water standard of 200 $\mu g/\ell$. Iron was detected in all seven samples at concentrations 43.8 J $\mu g/\ell$ (average of sample and duplicate) at CF19MW4S to 1,640 $\mu g/\ell$ at CF19MW7S. The samples from CF19MW1S (720 $\mu g/\ell$), CF19MW3S (427 $\mu g/\ell$), and CF19MW7S (1,640 $\mu g/\ell$) exceeded the State of Florida secondary drinking water standard of 300 $\mu g/\ell$.

5.4 SURFACE WATER AND SEDIMENT. Three surface water and sediment samples (CF19SW/SD1, CF19SW/SD2, and CF19SW/SD3) were collected at PSC 19. Surface water analytical results were compared to the State of Florida water quality standards (FWQS), "Florida Surface Water Standards and Drinking Water Standards," April 1993 and to BTAG freshwater flora and fauna criteria. Sediment analytical results were compared to the State of Florida quality assessment guidelines (FQAG), FDEP's "Development of an Approach to the Assessment of Sediment Quality in Florida Coastal Waters," November 1994, and to BTAG sediment flora and fauna criteria. Summaries of the analytical results for surface water and sediment samples are presented on Figures 5-6 and 5-7 and in Tables 5-7, 5-8, and 5-9. A complete analytical data set for PSC 19 confirmatory samples is presented in Appendix C.

Organics in Surface Water. No VOCs were detected in surface water samples collected at PSC 19. During the 1993 Rowell Creek sampling event, acetone and methylene chloride were detected in the sample collected from RCSW1 at concentrations of 1 J $\mu g/\ell$ and 12 $\mu g/\ell$, respectively. Both of these compounds are common laboratory contaminants.

No SVOCs were detected in surface water samples collected at PSC 19 or in the surface water samples collected during the 1993 Rowell Creek sampling event.

No pesticides or PCBs were detected in surface water samples collected at PSC 19 or in the surface water samples collected during the 1993 Rowell Creek sampling event.



SW	SD	
ND	A-1254	0.18
	DDE	0.0064

SW	SD	
ND	Ald	0.00016J

SW	SD	
ND	BbF	0.066J
	Ald	0.0017J *
	DDE	0.0023J
	DDT	0.0014J
	a-Chlor	0.0018 *
	g-Chlor	0.0011J *

SW	SD	
ND	A-1254	0.2
	a-Chlor	0.004J
	g-Chlor	0.003J

SW	SD	
ND	Ald	0.00047J
	DDE	0.0012J
	a-Chlor	0.0023J
	g-Chlor	0.001J
	A-1254	0.088J

SW	SD	
ND	A-1254	0.27
	DDE	0.0075J
	a-Chlor	0.008J
	g-Chlor	0.0066

LEGEND

CF19SWSD1 ▲	Surface water and sediment sample location and designation
●	Approximate locations of observed debris
PSC	Potential source of contamination
BbF	Benzo(b)fluoranthene
Ald	Aldrin
DDE	4,4-Jichlorodiphenyldichloroethene
DDT	4,4-dichlorodiphenyltrichloroethane
a-Chlor	alpha-Chlordane
g-Chlor	gamma-Chlordane
A-1254	Aroclor-1254
ND	Not detected
NG	Not given
SD	Sediment
SW	Surface water
TEL	Threshold effect level
PEL	Probable effect level
*	Average of sample and duplicate
BTAG	Biological technical assistance group
J	Estimated value

NOTES:

No organic compounds were detected in surface water samples.

● = 1993 values

Values for sediment are reported in milligrams per kilogram.

U.S. Environmental Protection Agency
Region III BTAG Criteria for Sediment

Parameter	Value: Flora	Value: Fauna
DDE	NG	0.0022
DDT	NG	0.00158
A-1254	0.0227	0.0227

Florida Department of Environmental Protection
Quality Assessment Guidelines for Sediment

Parameter	Value: TEL	Value: PEL
DDE	0.00207	0.00374
DDT	0.00119	0.00477
a-Chlor	0.00226	0.00479

FIGURE 5-6
ORGANIC COMPOUNDS IN SURFACE WATER AND SEDIMENT

TECHNICAL MEMORANDUM FOR NO FURTHER ACTION, POTENTIAL SOURCE OF CONTAMINATION 19

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

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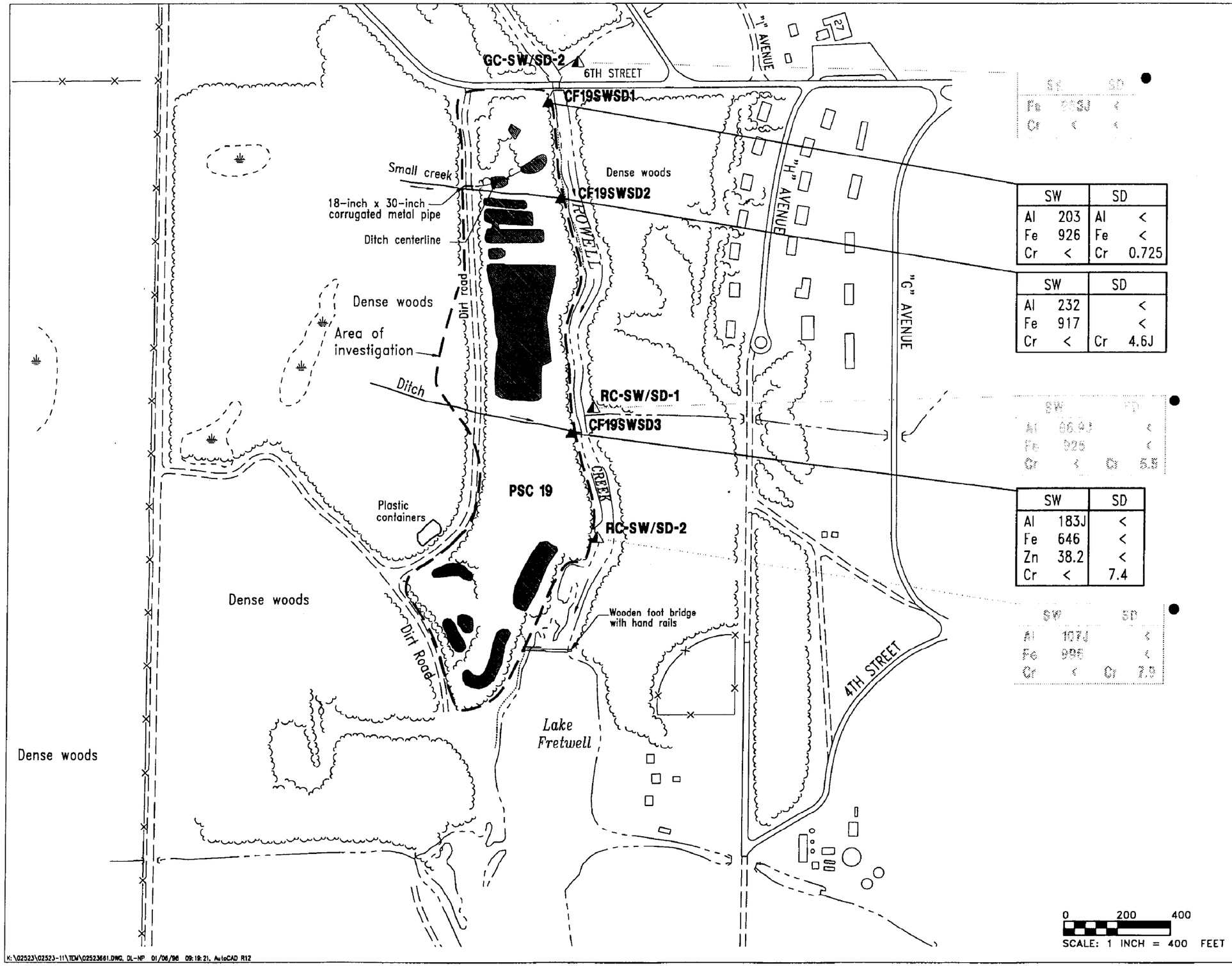

SW		SD	
Al	203	Al	<
Fe	926	Fe	<
Cr	<	Cr	0.725

SW		SD	
Al	232		<
Fe	917		<
Cr	<	Cr	4.6J

SW		SD	
Al	183J		<
Fe	646		<
Zn	38.2		<
Cr	<		7.4

LEGEND

CF19SWSD1 ▲	Surface water and sediment sample location and designation
	Approximate locations of observed debris
PSC	Potential source of contamination
Al	Aluminum
Cr	Chromium
Fe	Iron
Zn	Zinc
BTAG	Biological technical assistance group
SW	Surface water
SD	Sediment
I	Invertebrate
H	Value is dependent on hardness
J	Estimated value
<	Value is less than BTAG criteria

NOTES:

Values presented are those equal to or greater than surface water or sediment BTAG criteria.

Values for surface water are reported in micrograms per kilogram.

Values for sediment are reported in milligrams per kilogram.

● = 1993 values

U.S. Environmental Protection Agency
Region III BTAG Criteria

Parameter	Sample Type	Value Flora	Value Fauna
Al	SW	460	25
Cr	SD	0.005	260
Fe	SW	NG	320 I
Zn	SW	30 H	110 H

FIGURE 5-7
INORGANIC COMPOUNDS IN SURFACE WATER AND SEDIMENT

TECHNICAL MEMORANDUM FOR NO FURTHER ACTION, POTENTIAL SOURCE OF CONTAMINATION 19

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

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Table 5-7
Inorganics in Surface Water

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analytical Parameter	Frequency of Detection[1]	Range of Reporting Limits	Range of Detected Concentrations	NAS Cecil Field Screening Criteria	FWQS[2] Guidelines Class III Freshwater	BTAG Criteria[3] Freshwater Flora/Fauna
Surface Water						
Inorganic Analytes (μg/ℓ)						
Aluminum	3/3	200	183J to [4]232	1,040	NG	460pH/25pH
Arsenic	1/3	10	2.2J	5.45	50	NG/874
Barium	3/3	200	23.2J to 27.4J	43.7	NG	10,000/10,000
Calcium	3/3	5,000	[4]8,935 to 11,700	43,000	NG	NG/NG
Copper	1/3	25	1.1J	9.35	41.9	NG/6.5
Iron	3/3	100	646 to 926	3,030	1,000	NG/320 I
Lead	2/3	3	1.1J to 1.5J	5.35	21	NG/3.2pH-H
Magnesium	3/3	5,000	1,860 to 2,210J	5,580	NG	NG/NG
Manganese	3/3	15	9J to [4]11J	49.3	NG	NG/14,500pH-H
Potassium	3/3	5,000	626J to 824J	2,060	NG	NG/NG
Selenium	1/3	5	4.6J	7.60	5	522/5
Sodium	3/3	5,000	[4]6,570 to 6,640	12,200	NG	NG/NG
Thallium	2/3	10	3.4J to [4]5.4J	10.1	6.3	NG/40
Vanadium	1/3	50	1J	4.50	NG	NG/10,000
Zinc	3/3	20	[4]6.8J to 38.2	51.4	371.9	30H/110H

[1] Frequency of detection is the number of samples in which the analyte was detected over the total number of samples analyzed (CF19SW1, CF19SW2, and CF19SW3; including a duplicate at CF19SW2).
[2] "Florida Surface Water Standards and Drinking Water Standards,"(Florida Administrative Code 17-302.530), amended April 25, 1993.
[3] U.S. Environmental Protection Agency Region III BTAG Screening Levels, August 1995.
[4] Average of sample and duplicate.

Notes: **Bold** indicates at least one sample exceeds the criterion.

FWQS = Florida Water Quality Standards.
BTAG = biological technical assistance group.
μg/ℓ = micrograms per liter.
J = estimated value.
NG = none given.
pH = value is dependent on pH.
I = invertebrate.
H = value is dependent on hardness.

Table 5-8
Organics in Sediment

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analytical Parameter	Frequency of Detection[1]	Range of Reporting Limits	Range of Detected Concentrations	FQAG[2] Guidelines TEL/PEL	BTAG Criteria[3] Flora/Fauna
Sediment					
Semivolatile Organic Compounds (mg/kg)					
Benzo(b)fluoranthene	1/3	0.47	0.066J	NG/NG	3.2/3.2
Pesticides and PCBs (mg/kg)					
Aldrin	3/3	0.002 to 0.009	0.0016J to 0.0023J	NG/NG	NG/NG
DDE	2/3	0.0045 to 0.018	0.0012J to [4]0.0023J	0.00207/0.00374	NG/0.0022
DDT	1/3	0.018	[4]0.0019J	0.00119/0.00477	NG/0.00158
alpha-Chlordane	2/3	0.002 to 0.009	[4]0.0018J to 0.0023J	0.00226/0.00479	NG/NG
gamma-Chlordane	2/3	0.005 to 0.009	0.001J to [4]0.0011J	0.00226/0.00479	NG/NG
Aroclor-1254	1/3	0.1	0.088J	0.0216/0.189	0.0227/0.0227

[1] Frequency of detection is the number of samples in which the analyte was detected over the total number of samples analyzed (CF19SD1, CF19SD2, and CF19SD3 including a duplicate at CF19SD2).
[2] Florida Department of Environmental Protection "Development of an Approach to the Assessment of Sediment Quality in Florida Coastal Waters," November 1994.
[3] U.S. Environmental Protection Agency Region III BTAG Screening Levels, August 1995.
[4] Average of sample and duplicate.

Notes: **Bold** indicates at least one sample exceeds the criterion.

FQAG = Florida Quality Assessment Guidelines.
TEL = threshold effect level.
PEL = probable effect level.
BTAG = biological technical assistance group.
mg/kg = milligrams per kilogram.
J = estimated value.
NG = none given.
PCB = polychlorinated biphenyl.
DDE = 4,4'-dichlorodiphenyldichloroethene.
DDT = 4,4'-dichlorodiphenyltrichloroethane.

Table 5-9
Inorganics in Sediment

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analytical Parameter	Frequency of Detection[1]	Range of Reporting Limits	Range of Detected Concentrations	NAS Cecil Field Screening Criteria	FQAG[2] Guidelines TEL/PEL	BTAG Criteria[3] Flora/Fauna
Sediment						
Inorganic Analytes (mg/kg)						
Aluminum	3/3	40	238 to 5,250	10,200	NG/NG	NG/NG
Arsenic	1/3	2	1.5J	2.62	7.24/41.6	NG/8.2
Barium	3/3	40	1.3J to 26.2J	36.1	NG/NG	NG/NG
Calcium	3/3	1,000	105J to 1,870J	5,920	NG/NG	NG/NG
Chromium	3/3	2	0.72J to 7.4J	16	52.3/160	0.005/260
Cobalt	2/3	10	0.78J to [4]0.88J	3	NG/NG	NG/NG
Copper	2/3	5	[4]5.4J to 11.7J	12.5	18.7/108	NG/34
Iron	3/3	20	79.8 to 2,170	3,330	NG/NG	NG/NG
Lead	3/3	0.6	1.3 to 22.8	44.6	30.2/112	NG/46.7
Magnesium	3/3	1,000	14.4J to 234J	379	NG/NG	NG/NG
Manganese	3/3	3	1.6J to [4]11.4J	17	NG/NG	NG/NG
Nickel	1/3	8	2.3J	7	15.9/42.8	20.9/20.9
Potassium	2/3	1,000	[4]65.2J to 134J	289	NG/NG	NG/NG
Sodium	1/3	1,000	138J	388	NG/NG	NG/NG
Vanadium	3/3	10	0.76J to 7.5J	15	NG/NG	NG/NG
Zinc	3/3	4	2.5J to 23.1	92.1	124/271	NG/150

[1] Frequency of detection is the number of samples in which the analyte was detected over the total number of samples analyzed (CF19SD1, CF19SD2, and CF19SD3 including a duplicate at CF19SD2).
[2] Florida Department of Environmental Protection "Development of an Approach to the Assessment of Sediment Quality in Florida Coastal Waters," November 1994.
[3] U.S. Environmental Protection Agency Region III BTAG Screening Levels, August 1995.
[4] Average of sample and duplicate.

Notes: FQAG = Florida Quality Assessment Guidelines.
TEL = threshold effects level.
PEL = probable effects level.
BTAG = biological technical assistance group.
mg/kg = milligram per kilogram.
NG = none given.
J = estimated value.

Inorganics in Surface Water. Fifteen inorganics were detected in the 3 unfiltered surface water samples collected at PSC 19. The confirmatory inorganic analytical results for surface water are summarized in Table 5-7.

Aluminum, iron, and zinc were the only inorganics detected in the unfiltered surface water samples at concentrations above BTAG freshwater flora and/or fauna criteria. Aluminum was detected in all three of the samples at concentrations ranging from 183 J to 232 $\mu g/\ell$ (average of sample and duplicate). These values are above the BTAG freshwater fauna criterion for aluminum of 25 $\mu g/\ell$. Iron was detected in all three of the samples at concentrations ranging from 646 to 926 $\mu g/\ell$. These values are above BTAG freshwater flora and/or fauna criteria for iron of 320 and 900 $\mu g/\ell$, respectively. Zinc was detected in all three of the samples at concentrations ranging from 6.8 J $\mu g/\ell$ (average of sample and duplicate) at CF19SW2 to 38.2 $\mu g/\ell$ at CF19SW3. The concentration at CF19SW3 (38.2 $\mu g/\ell$) is above the BTAG fresh water flora criterion for zinc of 30 $\mu g/\ell$. The distribution of aluminum, iron, and zinc in unfiltered surface water samples greater than BTAG criteria is presented on Figure 5-7.

Aluminum, iron, and lead were detected in the surface water samples collected during the 1993 Rowell Creek sampling event at concentrations above BTAG fresh water flora and/or fauna criteria (Figure 3-2). Aluminum was detected in two of the Rowell Creek samples, RCSW1 and RCSW2, at concentrations of 86.9 J and 107 J $\mu g/\ell$, respectively. These concentrations are above the BTAG fauna criterion for aluminum of 25 $\mu g/\ell$ and slightly below the aluminum concentrations detected in the PSC 19 surface water samples. Iron was detected in all three of the samples (RCSW1, RCSW2, and GCSW2) collected during 1993 above the BTAG fauna criterion for iron of 320 $\mu g/\ell$. Concentrations ranged from 925 $\mu g/\ell$ to 996 $\mu g/\ell$. These concentrations are comparable to those collected at PSC 19. Lead was detected in only one sample, RCSW1 at 3.4 $\mu g/\ell$, collected during the 1993 sampling event. This concentration is slightly above the BTAG fauna criterion of 3.2 $\mu g/\ell$. Lead was not detected in concentrations exceeding BTAG criterion in PSC 19 surface water samples.

Organics in Sediment. No VOCs were detected in the three sediment samples collected at PSC 19. Acetone was detected in two sediment samples (RCSD1 and RCSD2) collected during the 1993 Rowell Creek sampling event at concentrations of 0.021 J and 0.044 mg/kg, respectively. Acetone is a common laboratory contaminant.

One SVOC, benzo(b)fluoranthene, was detected in only one sediment sample, CF19SD2, at a concentration of 0.066 J mg/kg; however, it was not detected in the duplicate sample. Benzo(b)fluoranthene was not detected in any the three sediment samples (RCSD1, RCSD2, and GCSD2) collected from Rowell Creek in 1993. However, four SVOCs were detected in Rowell Creek sediments collected in 1993: di-*n*-butylphthalate, fluoranthene, bis(2-ethylhexyl)phthalate, and pyrene. Di-*n*-butylphthalate was detected in sample GCSD2 at a concentration of 0.31 J mg/kg. Fluoranthene was detected in samples RCSD1 and RCSD2 at concentrations of 0.092 J and 0.19 J mg/kg, respectively. Bis(2-ethylhexyl)phthalate was also detected in samples RCSD1 and RCSD2 at concentrations of 0.24 J and 0.3 J mg/kg, respectively. Pyrene was detected in RCSD2 at a concentration of 0.15 J mg/kg. All these concentrations are below BTAG flora and/or fauna criteria.

Five pesticides (aldrin, DDE, DDT, alpha-chlordane, and gamma-chlordane) and one PCB (Aroclor-1254) were detected in the sediment samples collected at PSC 19.

DDE, alpha-chlordane, gamma-chlordane, and Aroclor-1254 were also detected in the sediment samples collected from Rowell Creek in 1993. Aroclor-1260 was detected in the Rowell Creek sediment samples, but was not detected in the sediment samples at PSC 19.

Aldrin was detected in all three samples at concentrations ranging from 0.00016 J to 0.0017 J mg/kg (average of sample and duplicate). Aldrin was not detected in the Rowell Creek samples collected in 1993. No State of Florida guidance or BTAG criteria are available for aldrin found in sediment.

DDE was detected in two of the three samples at concentrations ranging from 0.0012 J to 0.0023 J mg/kg (average of sample and duplicate). Only one sample, CF19SD2, at a concentration of 0.0023 J mg/kg, was detected slightly above the BTAG fauna criterion for DDE of 0.0022 mg/kg. DDE was detected in two samples (RCSD2 and GCSD2) collected from Rowell Creek at concentrations of 0.0075 J and 0.0064 mg/kg, respectively. These concentrations are higher than the concentrations detected in the PSC 19 samples.

DDT was detected in only one sample, CF19SD2, at a concentration of 0.0019 J mg/kg (average of sample and duplicate). This value is above the State of Florida threshold effect level (TEL) for DDT of 0.0119 mg/kg and the BTAG fauna criterion for DDT of 0.00158 mg/kg. DDT was not detected in the Rowell Creek sediment samples collected in 1993.

Alpha-chlordane was detected in two samples at concentrations ranging from 0.0018 J (average of sample and duplicate) to 0.0023 J mg/kg. The concentration of 0.0023 J mg/kg detected at CF19SD3 is only slightly above the State of Florida TEL for alpha-chlordane of 0.00226 mg/kg. Alpha-chlordane was detected in two samples (RCSD1 and RCSD2) collected from Rowell Creek in 1993 at concentrations of 0.004 J and 0.008 J mg/kg, respectively. These concentrations are higher than the concentrations detected in the PSC 19 samples.

Gamma-chlordane was detected in two samples, both at a concentration of 0.001 J mg/kg. This value is below State of Florida guidance. No BTAG criterion is given for gamma-chlordane found in sediment. Gamma-chlordane was detected in all three samples (RCSD1, RCSD2, and GCSD2) collected from Rowell Creek in 1993 at concentrations of 0.003 J, 0.0066, and 0.011 mg/kg, respectively. These concentrations are higher than the concentrations detected in the PSC 19 samples.

Aroclor-1254 was detected in only one sample, CF19SD3, at a concentration of 0.088 J mg/kg. This value is above the BTAG flora and fauna criterion for Aroclor-1254 of 0.0227 mg/kg. Aroclor-1254 was also detected in all three samples (RCSD1, RCSD2, and GCSD2) collected from Rowell Creek in 1993 at concentrations of 0.2, 0.27, and 0.18 mg/kg, respectively. These values are considerably higher than the concentration detected in the PSC 19 sediment sample.

Aroclor-1260 was detected in all three sediment samples (RCSD1, RCSD2, and GCSD2) collected from Rowell Creek in 1993 at concentrations of 0.09 J, 0.15, and 0.097 mg/kg, respectively. Aroclor-1260 was not detected in the PSC 19 sediment samples.

The distribution of organics detected in the sediment samples is presented on Figure 5-6. Organics detected in the 1993 Rowell Creek sediment samples that are above BTAG and/or FQAG criteria are presented on Figure 3-1. In general,

concentrations do not increase significantly from the upgradient sample location CF19SD1 to the downgradient locations CF19SD2 and CF19SD3. The additional compounds detected at CF19SD2 and CF19SD3 do not suggest PSC 19 acts as a significant source of contaminants, but may be representative of the typical heterogeneity of sediment samples.

Inorganics in Sediment. Sixteen inorganic analytical parameters (aluminum, arsenic, barium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, sodium, vanadium, and zinc) were detected in the sediment samples collected at PSC 19. None of these inorganic concentrations exceeded State of Florida guidelines. Except for chromium, none of these inorganics exceeded BTAG flora or fauna criteria. Chromium was detected in all three sediment samples at concentrations ranging from 0.72 J to 7.4 J mg/kg. These concentrations are above the BTAG flora criterion for chromium of 0.005 mg/kg. Except for arsenic, cobalt, nickel, potassium, and sodium, the same inorganics were detected in the 1993 Rowell Creek sediment samples. Chromium was the only inorganic detected above BTAG flora criterion. The PSC 19 inorganic analytical results are presented on Figure 5-8 and summarized in Table 5-9. The 1993 Rowell Creek distribution of inorganics detected above BTAG criteria is presented on Figure 3-2.

5.5 TEST PIT SOIL. One soil sample, 19B00101, was collected in test pit TP-3. A summary of the confirmatory analytical results is presented in Table 5-10 and Appendix D. The soil sample analytical results were compared to the following criteria: (1) industrial land-use soil cleanup goals for Florida, as listed in a memorandum dated September 29, 1995 (FDEP, 1995); (2) soil leaching values for Florida, as listed in a memorandum dated September 29, 1995 (FDEP, 1995); and (3) background concentrations in soil or detection limits soil criteria for evaluating the severity of contamination under the Dutch Soil Cleanup (Interim) Act (Richardson, 1987).

Organics in Test Pit Soil. Four VOCs were detected in soil sample 19B00101: toluene, tetrachloroethene, naphthalene, and 1,2,3-trichloropropane. None of these organic concentrations were greater than FDEP industrial land-use soil cleanup goals, leaching soil cleanup goals, or Dutch screening criteria; therefore, these detected organics are not shown on a figure.

Table 5-10
Organics in Test Pit Subsurface Soil

Potential Source of Contamination - Site 19
NAS Cecil Field
Jacksonville, Florida

Analytical Parameter	Frequency of Detection[1]	Range of Detected Concentrations	Range of Reporting Limits	FDEP Soil Cleanup Goals[2]	FDEP Soil Cleanup Goals[3]	Dutch Numbers[4]
Volatile Organic Compounds (mg/kg)						
Toluene	1/1	0.0026	0.001	3,500	0.2	0.005
Tetrachloroethene	1/1	0.007 J	0.001	28	0.003	0.1
1,2,3-Trichloropropane	1/1	0.0017 J	0.001	NG	NG	0.1
Semivolatile Organic Compounds (mg/kg)						
Naphthalene	1/1	0.0014	0.001	12,000	0.1	0.1

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (19B00101).
[2] FDEP memorandum dated September 29, 1995. Values presented are based on industrial land-use scenario (FDEP, 1995)
[3] FDEP memorandum dated September 29. 1995. Values presented are based on soil leaching (FDEP, 1995).
[4] Dutch Soil Cleanup (Interim) Act from Richardson, G.M., 1987. Values presented are the lesser of the cleanup goals based on background concentrations in Dutch soil or detection limits using contract laboratory program methods.

Notes: FDEP = Florida Department of Environmental Protection. J = estimated value.
mg/kg = milligram per kilogram. NG = none given.

background concentrations in soil or detection limits soil criteria for evaluating the severity of contamination under the Dutch Soil Cleanup (Interim) Act (Richardson, 1987).

Organics in Test Pit Soil. Four VOCs were detected in soil sample 19B00101: toluene, tetrachloroethene, naphthalene, and 1,2,3-trichloropropane. None of these organic concentrations were greater than FDEP industrial land-use soil cleanup goals, leaching soil cleanup goals, or Dutch screening criteria; therefore, these detected organics are not shown on a figure.

6.0 PRELIMINARY RISK EVALUATION

A PRE was performed to evaluate the potential risks to human health and the environment posed by chemicals detected at PSC 19. This evaluation is not as rigorous or comprehensive as a risk assessment due to the limited amount of information available on the physiographic characteristics and nature and extent of the chemicals present in soil and groundwater at PSC 19. To compensate for the limited amount of information, stringent criteria (both regulatory and guidance) are used in a PRE to identify whether or not site conditions can be expected to pose sufficient risk to warrant more detailed investigation and assessment.

6.1 PUBLIC HEALTH PRE. A human health PRE was conducted to evaluate the potential risks to human health receptors at PSC 19. The PRE assumed residential exposures to surface soil and an industrial exposure to the subsurface soil at PSC 19. The human health PRE methodology is described in Appendix E. Both surface and subsurface soil sample analytical (organic and inorganic) results were compared to FDEP Soil Cleanup Goals (FDEP, 1995). Groundwater sample analytical (organic and inorganic) results were compared to either State or Federal drinking water standards. Surface water sample analytical (organic and inorganic) results were compared to the FWQS, "Florida Surface Water Standards and Drinking Water Standards," April 1993, and to BTAG fresh water flora and fauna criteria. Sediment sample analytical (organic and inorganic) results were compared to the FQAG, FDEP's "Development of an Approach to the Assessment of Sediment Quality in Florida Coastal Waters," November 1994, and to BTAG sediment flora and fauna criteria.

6.1.2 Human Health PRE Conclusions Comparisons of sample analytical results to these criteria (Tables 5-1 through 5-9) indicate no adverse health effects would be expected in human receptors who come in contact with either the surface soil, subsurface soil, groundwater, surface water, or sediment at PSC 19.

6.2 ECOLOGICAL PRE. An ecological PRE was conducted to evaluate potential risks to ecological receptors at PSC 19 following the methodology presented in Appendix E. Ecological habitats and receptors and exposure pathways were characterized during site walkovers conducted by HLA ecological risk assessors in September 1995 and October 1997. Criteria used to evaluate ecological risks included the most conservative (background concentrations in soil or detection limits) soil criteria for evaluating the severity of contamination under the Dutch Soil Cleanup (Interim) Act (Richardson, 1987), and USEPA Region III BTAG Screening Levels (August 1995). Sediment analytical results were compared to the FQAG, FDEP's "Development of an Approach to the Assessment of Sediment Quality in Florida Coastal Waters," November 1994, and to BTAG sediment flora and fauna criteria.

Comparisons of sample analytical results to the above-mentioned screening criteria (Tables 5-1 through 5-10) indicated that three pesticides (DDE, DDT, and alpha-chlordane) and one PCB (Aroclor-1254) were detected in sediment samples above FQAG guidelines and/or BTAG criteria. Only one sediment sample (CF19SD2) had pesticide concentrations above FQAG guidelines and/or BTAG criteria. DDE was detected in CF19SD2 at 0.0023 J mg/kg, which is slightly above the TEL FQAG guidance value and BTAG fauna criteria of 0.00207 mg/kg and 0.0022 mg/kg, respectively. DDT was

detected at 0.0019 J mg/kg, which is slightly above the TEL FQAG guidance value of 0.00119 mg/kg. Alpha-chlordane was detected at 0.0023 J mg/kg, which is slightly above the TEL FQAG guidance value of 0.00226 mg/kg. CF19SD2 is located in Rowell Creek at the northern end and upgradient of most of the site, and although these detections are slightly above TEL FQAG guidelines and/or BTAG criteria, they are probably not associated with PSC 19, but have emanated from upstream sources such as the golf course and Site 11.

One PCB (Aroclor-1254) was detected in only one sample, CF19SD3, at a concentration of 0.088 J mg/kg, which was above the BTAG flora and fauna criterion of 0.0227 mg/kg. Aroclor-1254 has been previously detected in sample locations collected in Rowell Creek upgradient of PSC 19 and at higher concentrations; therefore, it is unlikely that the CF19SD3 detection is associated with PSC 19.

The distribution of these pesticides and PCBs also detected during the 1993 sediment sampling is shown on Figure 3-1.

6.2.1 Ecological PRE Conclusions This PRE analysis indicates that no adverse effects would be expected in ecological receptors that come in contact with either surface soil, subsurface soil, groundwater, surface water, or sediment at PSC 19.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 CONCLUSIONS. The period of dumping activities conducted at PSC 19, Rowell Creek Rubble Disposal Area, is unknown. PSC 19 is approximately 2,600 feet long and 400 to 800 feet wide or approximately 35 acres.

Conclusions pertaining to PSC 19 are listed below.

- Surface and near surface (1 to 2 ft bls) soil is relatively permeable, fine-grained sand, with some silt and clay.
- Based on field measurements, horizontal groundwater flow in the surficial aquifer is interpreted to be east-southeasterly toward Rowell Creek and Lake Fretwell.
- No VOCs, SVOCs, pesticides, and PCBs were detected in surface and subsurface soils above FDEP cleanup goals.
- No VOCs, SVOCs, pesticides, and PCBs were detected in surface soil above BTAG soil screening criteria.
- Ten inorganics in surface soil exceeded BTAG criteria. They were aluminum, cadmium, chromium, copper, iron, lead, mercury, thallium, vanadium, and zinc.
- Only one inorganic, cadmium, slightly exceeded the Dutch surface soil screening criterion of 1 mg/kg.
- No VOCs, SVOCs, pesticides, or PCBs were detected in groundwater samples above State and Federal drinking water standards.
- Aluminum and iron were detected in groundwater above State secondary drinking water standards of 200 $\mu g/\ell$ and 300 $\mu g/\ell$, respectively.
- No VOCs, SVOCs, pesticides, or PCBs were detected in surface water samples.
- Three inorganics in surface water exceeded BTAG criteria. They were aluminum, iron, and zinc.
- No VOCs or SVOCs were detected in sediment samples.
- Three pesticides (DDE, DDT, and alpha-chlordane) were detected in one sediment sample (CF19SD2) above FQAG and/or BTAG criteria. DDE was detected in CF19SD2 at 0.0023 J mg/kg, which is slightly above the TEL FQAG guidance value and BTAG fauna criteria of 0.00207 mg/kg and 0.0022 mg/kg, respectively. DDT was detected at 0.0019 J mg/kg, which is slightly above the TEL FQAG guidance value of 0.00119 mg/kg. Alpha-chlordane was detected in sample CF19SD3 at 0.0023 J mg/kg, which is slightly above the TEL FQAG guidance value of 0.00226 mg/kg.

- One PCB (Aroclor-1254) was detected in only one sample, CF19SD3, at a concentration of 0.088 J mg/kg, which is above the BTAG flora and fauna criterion of 0.0227 mg/kg.

- No compounds were detected above the regulatory screening criteria in the subsurface soil sample collected from test pit TP-3.

- No adverse human health or ecological effects are expected in human or ecological receptors that come in contact with surface soil, subsurface soil, sediment, surface water, or groundwater at PSC 19.

7.2 RECOMMENDATIONS. In accordance with the PRE methodology in Appendix E, evaluation of the data gathered during the field investigation at PSC 19 indicates that ecological and human health risks are not expected at the site; therefore, no further action is warranted.

REFERENCES

ABB Environmental Services, Inc. (ABB-ES). 1995. *Field Investigation Plan for Potential Sources of Contamination 4, 6, 9, 12, 18, and 19, Naval Air Station Cecil Field, Jacksonville, Florida; Tallahassee, Florida.* Prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), North Charleston, South Carolina (March).

Florida Administrative Code. 1993. "Florida Surface Water Standards and Drinking Water Standards." Chapter 17-302.530, amended April 25, 1993. Tallahassee, Florida.

Florida Department of Environmental Protection (FDEP). 1994. " Development of an Approach to the Assessment of Sediment Quality in Florida coastal Waters." Tallahassee, Florida (November).

FDEP. 1995. Memorandum from John Ruddell, Director, Waste Management Division. Subject: Soil Cleanup Goals for Florida. Tallahassee, Florida (September 29).

Harding Lawson Associates. 1988. *Draft Final RCRA Facility Investigation Report, Naval Air Station, Cecil Field, Jacksonville, Florida.* Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina (March).

Harding Lawson Associates. 1998. *General Information Report, Naval Air Station, Cecil Field.* Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina.

Hoaglin, D.C., F. Mosteller, and J.W. Tukey. 1983. *Understanding Robust and Exploratory Data Analysis*. New York: John Wiley and Sons, Inc.

Richardson, G.M. 1987. Inventory of Cleanup Criteria and Methods to Select Criteria. Unpublished Manuscript.

U.S. Environmental Protection Agency. 1995. *BTAG Screening Levels, Region III.* Philadelphia, Pennsylvania (August).

U.S. Geological Survey. 1996. "Groundwater Flow in the Surficial Aquifer System and Potential Movement of contaminants from Selected Waste-Disposal Sites at Cecil Field Naval Air Station, Jacksonville, Florida." Administrative Release.

APPENDIX A

ANALYTICAL DATA FROM PREVIOUS INVESTIGATIONS

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SEDIMENT -- ALL FRACTIONS "HITS" REPORT NO. 9537

Lab Sample Number:	90054010			90054011			90054013			90054012		
Site	CECIL			CECIL			CECIL			CECIL		
Locator	RCSD1			RCSD1			RCSD2			RCSD2		
Collect Date:	23-JUN-93			25-JUN-93			25-JUN-93			25-JUN-93		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP VOLATILES 90-SOW												
Acetone	21 J	ug/kg	21	-			-			44	ug/kg	24
CLP SEMIVOLATILES 90-SOW												
Di-n-butylphthalate	-			- U	ug/kg	660	- U	ug/kg	850	-		
Fluoranthene	-			92 J	ug/kg	660	190 J	ug/kg	850	-		
Pyrene	-			- U	ug/kg	660	150 J	ug/kg	850	-		
bis(2-Ethylhexyl) phthalate	-			240 J	ug/kg	660	300 J	ug/kg	850	-		
Benzo (b) fluoranthene	-			- U	ug/kg	660	- U	ug/kg	850	-		
CLP PESTICIDES/PCBS 90-SOW												
Aldrin	-			- U	ug/kg	3.2	- U	ug/kg	4.4	-		
4,4-DDE	-			- U	ug/kg	6.2	7.5 J	ug/kg	8	-		
4,4-DDT	-			- U	ug/kg	6.2	- U	ug/kg	8.5	-		
alpha-Chlordane	-			4 J	ug/kg	3	8 J	ug/kg	4	-		
gamma-Chlordane	-			3 J	ug/kg	3	6.6	ug/kg	4	-		
Aroclor-1254	-			200	ug/kg	62	270	ug/kg	85	-		
Aroclor-1260	-			90 J	ug/kg	62	150	ug/kg	85	-		
CLP METALS AND CYANIDE												
Aluminum	-			4560	mg/kg	40	5660	mg/kg	40	-		
Arsenic	-			- U	mg/kg	2	- U	mg/kg	20	-		
Barium	-			23.9 J	mg/kg	40	35.8 J	mg/kg	40	-		
Cadmium	-			- U	mg/kg	1	- U	mg/kg	1	-		
Calcium	-			1880 J	mg/kg	1000	2790	mg/kg	1000	-		
Chromium	-			5.5	mg/kg	2	7.9	mg/kg	2	-		
Cobalt	-			- U	mg/kg	10	- U	mg/kg	2.3	-		
Copper	-			31.1	mg/kg	5	21.5	mg/kg	5	-		
Iron	-			1860	mg/kg	20	3700	mg/kg	20	-		
Lead	-			17.1	mg/kg	1	32.7	mg/kg	.1	-		
Magnesium	-			349 J	mg/kg	1000	243 J	mg/kg	1000	-		
Manganese	-			5.6 J	mg/kg	3	12.8	mg/kg	3	-		
Nickel	-			- U	mg/kg	8	- U	mg/kg	8	-		
Potassium	-			- U	mg/kg	1000	- U	mg/kg	1000	-		
Sodium	-			- U	mg/kg	1000	- U	mg/kg	1000	-		
Vanadium	-			5.7 J	mg/kg	10	10.3 J	mg/kg	10	-		
Zinc	-			42.2	mg/kg	4	75	mg/kg	4	-		

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SEDIMENT -- ALL FRACTIONS "HITS" REPORT NO. 9537

Lab Sample Number:	90055011				90055012				C851W				C84D0			
Site	CECIL				CECIL				PSC19				PSC19			
Locator	GC-SD2				GC-SD2				CF19SD1				CF19SD2			
Collect Date:	26-JUN-93				26-JUN-93				12-FEB-97				12-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW																
Acetone	-	U	ug/kg	72	-				-	U	ug/kg	14	-	U	ug/kg	14
CLP SEMIVOLATILES 90-SOW																
Di-n-butylphthalate	-				310	J	ug/kg	580	-	U	ug/kg	450	-	U	ug/kg	470
Fluoranthene	-				-	U	ug/kg	580	-	U	ug/kg	450	-	U	ug/kg	470
Pyrene	-				-	U	ug/kg	580	-	U	ug/kg	450	-	U	ug/kg	470
bis(2-Ethylhexyl) phthalate	-				-	U	ug/kg	580	-	U	ug/kg	450	-	U	ug/kg	470
Benzo (b) fluoranthene	-				-	U	ug/kg	580	-	U	ug/kg	450	66	J	ug/kg	470
CLP PESTICIDES/PCBS 90-SOW																
Aldrin	-				-	U	ug/kg	2.9	.16	J	ug/kg	2	.87	J	ug/kg	2
4,4-DDE	-				6.4		ug/kg	6	-	U	ug/kg	4.5	-	U	ug/kg	4.7
4,4-DDT	-				-	U	ug/kg	5.6	-	U	ug/kg	4.5	-	U	ug/kg	4.7
alpha-Chlordane	-				-	U	ug/kg	20	-	U	ug/kg	2.3	.9	J	ug/kg	2
gamma-Chlordane	-				11		ug/kg	3	-	U	ug/kg	2.3	-	U	ug/kg	2.4
Aroclor-1254	-				180		ug/kg	56	-	U	ug/kg	45	-	U	ug/kg	47
Aroclor-1260	-				97		ug/kg	56	-	U	ug/kg	45	-	U	ug/kg	47
CLP METALS AND CYANIDE																
Aluminum	-				2670		mg/kg	40	238		mg/kg	40	1100		mg/kg	40
Arsenic	-				-	U	mg/kg	2	-	U	mg/kg	2	-	U	mg/kg	2
Barium	-				16.7	J	mg/kg	40	1.3	J	mg/kg	40	5	J	mg/kg	40
Cadmium	-				1.1	J	mg/kg	1	-	U	mg/kg	1	-	U	mg/kg	1
Calcium	-				1680	J	mg/kg	1000	105	J	mg/kg	1000	430	J	mg/kg	1000
Chromium	-				-	U	mg/kg	2	.72	J	mg/kg	2	1.7	J	mg/kg	2
Cobalt	-				-	U	mg/kg	10	-	U	mg/kg	10	.36	J	mg/kg	10
Copper	-				14.9		mg/kg	5	-	U	mg/kg	5	2	J	mg/kg	5
Iron	-				1320		mg/kg	20	79.8		mg/kg	20	449		mg/kg	20
Lead	-				16.9		mg/kg	1	1.3		mg/kg	.6	4.9		mg/kg	.6
Magnesium	-				237	J	mg/kg	1000	14.4	J	mg/kg	1000	54.2	J	mg/kg	1000
Manganese	-				6.1		mg/kg	3	1.6	J	mg/kg	3	3.9	J	mg/kg	3
Nickel	-				-	U	mg/kg	8	-	U	mg/kg	8	-	U	mg/kg	8
Potassium	-				-	U	mg/kg	1000	-	U	mg/kg	1000	20.4	J	mg/kg	1000
Sodium	-				-	U	mg/kg	1000	-	U	mg/kg	1000	-	U	mg/kg	1000
Vanadium	-				4.8	J	mg/kg	10	.76	J	mg/kg	10	2.5	J	mg/kg	10
Zinc	-				44.7		mg/kg	4	2.5	J	mg/kg	4	6.9		mg/kg	4

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SEDIMENT -- ALL FRACTIONS "HITS" REPORT NO. 9537

Lab Sample Number:	C84D1				C852C			
Site	PSC19				PSC19			
Locator	CF19SD2D				CF19SD3			
Collect Date:	12-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW								
Acetone	-	U	ug/kg	59	-	U	ug/kg	31
CLP SEMIVOLATILES 90-SOW								
Di-n-butylphthalate	-	U	ug/kg	1900	-	U	ug/kg	1000
Fluoranthene	-	U	ug/kg	1900	-	U	ug/kg	1000
Pyrene	-	U	ug/kg	1900	-	U	ug/kg	1000
bis(2-Ethylhexyl) phthalate	-	U	ug/kg	1900	-	U	ug/kg	1000
Benzo (b) fluoranthene	-	U	ug/kg	1900	-	U	ug/kg	1000
CLP PESTICIDES/PCBS 90-SOW								
Aldrin	2.5	J	ug/kg	9	.47	J	ug/kg	5
4,4-DDE	2.3	J	ug/kg	18	1.2	J	ug/kg	10
4,4-DDT	1.4	J	ug/kg	18	-	U	ug/kg	10
alpha-Chlordane	2.6	J	ug/kg	9	2.3	J	ug/kg	5
gamma-Chlordane	1	J	ug/kg	9	1	J	ug/kg	5
Aroclor-1254	-	U	ug/kg	190	88	J	ug/kg	100
Aroclor-1260	-	U	ug/kg	190	-	U	ug/kg	100
CLP METALS AND CYANIDE								
Aluminum	5160		mg/kg	40	5250		mg/kg	40
Arsenic	-	U	mg/kg	2	1.5	J	mg/kg	2
Barium	21.1	J	mg/kg	40	26.2	J	mg/kg	40
Cadmium	-	U	mg/kg	1	-	U	mg/kg	1
Calcium	1980	J	mg/kg	1000	1870	J	mg/kg	1000
Chromium	7.6	J	mg/kg	2	7.4		mg/kg	2
Cobalt	1.4	J	mg/kg	10	.78	J	mg/kg	10
Copper	8.8	J	mg/kg	5	11.7	J	mg/kg	5
Iron	1880		mg/kg	20	2170		mg/kg	20
Lead	20.5		mg/kg	.6	22.8		mg/kg	.6
Magnesium	267	J	mg/kg	1000	234	J	mg/kg	1000
Manganese	18.8		mg/kg	3	8.1	J	mg/kg	3
Nickel	-	U	mg/kg	8	2.3	J	mg/kg	8
Potassium	110	J	mg/kg	1000	134	J	mg/kg	1000
Sodium	-	U	mg/kg	1000	138	J	mg/kg	1000
Vanadium	11.5	J	mg/kg	10	7.5	J	mg/kg	10
Zinc	28.9		mg/kg	4	23.1		mg/kg	4

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SURFACE WATER -- ALL FRACTIONS "HITS" -- REPORT NO. 9538

Lab Sample Number:	90054001				90054002				90055002				C84CT			
Site	CECIL				CECIL				CECIL				PSC19			
Locator	RCSW1				RCSW2				GC-SW2				CF19SW1			
Collect Date:	25-JUN-93				25-JUN-93				26-JUN-93				12-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
LP VOLATILES 90-SOW																
Methylene chloride	1	J	ug/l	10	-	U	ug/l	10	-	U	ug/l	10	-	U	ug/l	10
Acetone	12		ug/l	10	-	U	ug/l	10	-	U	ug/l	10	-	U	ug/l	10
LP METALS AND CYANIDE																
Aluminum	86.9	J	ug/l	200	107	J	ug/l	200	-	U	ug/l	200	203		ug/l	200
Arsenic	-	U	ug/l	10	-	U	ug/l	10	-	U	ug/l	10	-	U	ug/l	10
Barium	25	J	ug/l	200	25.7	J	ug/l	200	23.4	J	ug/l	200	27.4	J	ug/l	200
Cadmium	.26	J	ug/l	5	-	U	ug/l	5	-	UJ	ug/l	5	-	U	ug/l	5
Calcium	14400		ug/l	5000	14700		ug/l	5000	13900		ug/l	5000	11700		ug/l	5000
Copper	-	U	ug/l	25	-	U	ug/l	25	-	U	ug/l	25	-	U	ug/l	25
Iron	925		ug/l	100	996		ug/l	100	953	J	ug/l	100	926		ug/l	100
Lead	3.4		ug/l	5	-	U	ug/l	5	-	U	ug/l	5	1.5	J	ug/l	3
Magnesium	2920	J	ug/l	5000	2990	J	ug/l	5000	2810	J	ug/l	5000	2210	J	ug/l	5000
Manganese	-	U	ug/l	15	7.8	J	ug/l	15	-	U	ug/l	15	12.8	J	ug/l	15
Potassium	-	U	ug/l	5000	-	U	ug/l	5000	866	J	ug/l	5000	824	J	ug/l	5000
Selenium	-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	5
Sodium	7020		ug/l	5000	7240		ug/l	5000	6680		ug/l	5000	6630		ug/l	5000
Thallium	-	U	ug/l	10	-	U	ug/l	10	-	U	ug/l	10	3.4	J	ug/l	10
Vanadium	3	J	ug/l	50	-	U	ug/l	50	-	U	ug/l	50	-	U	ug/l	50
Zinc	-	U	ug/l	20	-	U	ug/l	20	-	U	ug/l	20	10.3	J	ug/l	20

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SURFACE WATER -- ALL FRACTIONS "HITS" -- REPORT NO. 9538

Lab Sample Number:	C84CV				C84CW				C8526			
Site	PSC19				PSC19				PSC19			
Locator	CF19SW2				CF19SW2D				CF19SW3			
Collect Date:	12-FEB-97				12-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
LP VOLATILES 90-SOW												
Methylene chloride	-	U	ug/l	10	-	U	ug/l	10	-	U	ug/l	10
Acetone	-	U	ug/l	10	-	U	ug/l	10	-	U	ug/l	10
LP METALS AND CYANIDE												
Aluminum	215		ug/l	200	249		ug/l	200	183	J	ug/l	200
Arsenic	-	U	ug/l	10	-	U	ug/l	10	2.2	J	ug/l	10
Barium	24.9	J	ug/l	200	25.2	J	ug/l	200	23.2	J	ug/l	200
Cadmium	-	U	ug/l	5	-	U	ug/l	5	-	U	ug/l	5
Calcium	8930		ug/l	5000	8940		ug/l	5000	9230		ug/l	5000
Copper	-	U	ug/l	25	-	U	ug/l	25	1.1	J	ug/l	25
Iron	908		ug/l	100	926		ug/l	100	646		ug/l	100
Lead	-	U	ug/l	3	1.1	J	ug/l	3	-	U	ug/l	3
Magnesium	2000	J	ug/l	5000	1990	J	ug/l	5000	1860	J	ug/l	5000
Manganese	10.8	J	ug/l	15	11.2	J	ug/l	15	9	J	ug/l	15
Potassium	645	J	ug/l	5000	646	J	ug/l	5000	626	J	ug/l	5000
Selenium	-	U	ug/l	5	4.6	J	ug/l	5	-	U	ug/l	5
Sodium	6520		ug/l	5000	6620		ug/l	5000	6640		ug/l	5000
Thallium	5.3	J	ug/l	10	5.4	J	ug/l	10	-	U	ug/l	10
Vanadium	-	U	ug/l	50	-	U	ug/l	50	1	J	ug/l	50
Zinc	5.8	J	ug/l	20	7.9	J	ug/l	20	38.2		ug/l	20

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = [illegible] 'LT IS REJECTED AND UNUSABLE

Table 7-1
Surface Water and Sediment Screening Results, PSC 19
June 1993

Field Investigation Plan
PSCs 4, 6, 9, 12, 18, and 19
NAS Cecil Field, Jacksonville, Florida

Compound	GC-SW/SD-2 Sediment		Units	GC-SW/SD2 Surface Water		Units
Inorganics						
Aluminum	2,670		mg/kg	ND		µg/l
Arsenic	1.5	J		ND		
Barium	16.7	J		23.4	J	
Beryllium	0.32	J		ND		
Cadmium	1.1	J		ND		
Calcium	1,680	J		13,900		
Chromium	5			ND		
Copper	14.9			ND		
Iron	1,320			953		
Lead	16.9			ND		
Magnesium	237	J		2,810	J	
Manganese	6.1			ND		
Mercury	0.08			ND		
Potassium	ND			866		
Sodium	17.8	J		6,680		
Vanadium	4.8	J		ND		
Zinc	44.7			ND		
Total Organic Carbon	22,600			NA		
Organics						
Aroclor-1254	180		µg/kg			
Aroclor-1260	97					
alpha-chlordane	14					
gamma-chlordane	11					
4,4'-DDD	6.9					
4,4'-DDE	6.4					
4,4'-DDE	6.4					
2-Pentanone, 4-hydroxy	140,000	J				
Phenanthrene, dimethyl	1,100	J				
Di-n-butylphthalate	310	J				

See notes at end of table.

Table 7-1 (Continued)
Surface Water and Sediment Screening Results, PSC 19, June 1993

Field Investigation Plan
PSCs 4, 6, 9, 12, 18, and 19
NAS Cecil Field, Jacksonville, Florida

Compound	RC-SW/SD-1 Sediment		Units	RC-SW/SD-1 Surface Water		Units
Inorganics						
Aluminum	ND		mg/kg	86.9		µg/ℓ
Barium	ND			25	J	
Cadmium	ND			0.26	J	
Calcium	ND			14,400		
Iron	ND			925		
Lead	ND			3.4		
Magnesium	ND			2,920	J	
Nitrate/Nitrite	ND			20		mg/ℓ
Total Keljdahl Nitrogen	ND			540		
Total Nitrogen	ND			540		
Total Phosphorous	ND			20		
Sodium	ND			7,020		µg/ℓ
Vanadium	ND			3		
Total Organic Carbon	25,200		mg/kg	NA		
Organics						
Acetone	21	J	µg/kg	12		µg/ℓ
Acid volatile sulfides	0.32		µmole/g			
Aroclor-1254	200	µg/kg				
Aroclor-1260	89					
alpha-Chlordane	3.8					
gamma-Chlordane	3	J				

See notes at end of table.

Table 7-1 (Continued)
Surface Water and Sediment Screening Results, PSC 19, June 1993

Field Investigation Plan
PSCs 4, 6, 9, 12, 18, and 19
NAS Cecil Field, Jacksonville, Florida

Compound	RC-SW/SD-2 Sediment	Units	RC/SW/SD-2 Surface Water		Units
Inorganics					
Aluminum	ND	mg/kg	107	J	µg/ℓ
Barium	ND		25.7	J	
Calcium	ND		14,700		
Iron	ND		996		
Magnesium	ND		2,990	J	
Manganese	ND		7.8	J	
Sodium	ND		7,240		
Total Organic Carbon	62,100	mg/kg	NA		
Organics					
Aroclor-1254	270	µg/kg			
Aroclor-1260	150				
alpha-Chlordane	7.9				
gamma-Chlordane	6.6				
4,4'-DDE	7.5				

See notes at end of table.

Table 7-1 (Continued)
Surface Water and Sediment Screening Results, PSC 19
June 1993

Field Investigation Plan
PSCs 4, 6, 9, 12, 18, and 19
NAS Cecil Field, Jacksonville, Florida

Compound	RC-SW/SD-2 Sediment		Units	RC/SW/SD-2 Surface Water		Units
Inorganics						
Aluminum	10,600		mg/kg	84.9		µg/ℓ
Arsenic	3.6	J		ND		
Barium	38.3	J		23	J	
Beryllium	0.39	J		0.29	J	
Calcium	2,670	J		13,900		
Chromium	11.3			ND		
Copper	27.6			ND		
Iron	3,270			862	J	
Lead	40.7			ND		
Magnesium	627	J		2,850	J	
Manganese	14.1			ND		
Mercury	0.16			ND		
Total Kjeldahl Nitrogen	ND			0.64		mg/ℓ
Total Nitrogen	ND			0.64		
Total Phosphorous	ND			0.03		
Sodium	54.4	J		6,850		
Vanadium	12.2	J		ND		
Zinc	85.2			ND		
Total Organic Carbon	69,700		mg/kg	NA		
Organics						
Aroclor-1254	250		µg/kg			
Aroclor-1260	160					
alpha-Chlordane	4.8					
gamma-Chlordane	4.0					
4,4'-DDE	8.4					
Di-n-butylphthalate	910	J				
2-Pentanone, 4-hydroxy-	190,000	J				

See notes at end of table.

Table 7-1 (Continued)
Surface Water and Sediment Screening Results, PSC 19, June 1993

Field Investigation Plan
PSCs 4, 6, 9, 12, 18, and 19
NAS Cecil Field, Jacksonville, Florida

Compound	RC-SW/SD-2 Sediment		Units	RC/SW/SD-2 Surface Water		Units
Inorganics						
Aluminum	5,940		mg/kg	112	J	µg/ℓ
Arsenic	1.2	J		ND		
Barium	27.8	J		23.4	J	
Beryllium	0.22	J		0.23	J	
Calcium	2,040	J		13,900		
Chromium	6.3			ND		
Copper	9.4			ND		
Iron	1,720			872		
Lead	0.1			ND		
Magnesium	188	J		ND		
Manganese	7.4			ND		
Sodium	45.2	J		6,940		
Vanadium	7.3	J		ND		
Zinc	22.9			ND		
Total Organic Carbon	52,500		mg/kg	NA		
Organics						
Aroclor-1254	91		µg/kg			
Aroclor-1260	62					
alpha-Chlordane	7.9					
gamma-Chlordane	6.6					
4,4'-DDD	4.1	J				
4,4'-DDE	18	J				
4,4'-DDT	2.2	J				
Benzo(b)fluoranthene	91				J	
Di-n-butylphthalate	660	J				
Pyrene	81	J				
Pentanone, hydroxyme-	37,000	J				
Pentanone,hydroxyme-I	160,000	J				
1-Phenanthrene-carboxyl	650	J				

Notes: SW = surface water sample.
SD = sediment sample.
mg/kg = milligrams per kilogram.
mg/ℓ = milligrams per liter.
µg/kg = micrograms per kilogram.
µg/ℓ = micrograms per liter.
µmole/g = micromole per gram.
NA = not analyzed.
ND = not detected.
J = estimated concentration.

APPENDIX B

BORING LOGS AND WATER-LEVEL MEASUREMENTS

TITLE: NAS Cecil Field	LOG of WELL: CEF-19-1S	BORING NO. CEF-19-1S
CLIENT: SOUTHDIVNAVFACENGCOM		PROJECT NO: 08544-78
CONTRACTOR: Alliance Environmental, Inc.	DATE STARTED: 4-4-97	COMPLTD: 4-4-97
METHOD: Auger	CASE SIZE: 2 in.	SCREEN INT.: 3 - 13 ft.	PROTECTION LEVEL: D
TOC ELEV.: FEET.	MONITOR INST.: PID	TOT DPTH: 14 FEET.	DPTH TO ∇ 3.22 FEET.
LOGGED BY: R. Holloway	WELL DEVELOPMENT DATE: 5-15-97	SITE: PSC 19

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				13	SILTY SAND (SM): 100% quartz, light to dark gray, fine- to very fine- grained, sub-angular to sub-rounded.		SM	posthole	
				0				posthole	∇
5				0				7,11,15,9	
10									
15									
20									

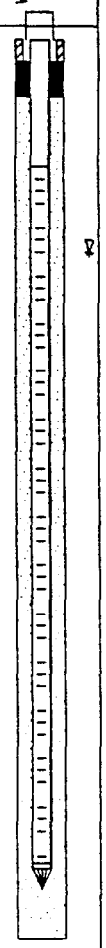

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Cecil Field		LOG of WELL: CEF-19-2S	BORING NO. CEF-19-2S
CLIENT: SOUTHDIVNAVFACENGCOM			PROJECT NO: 08544-78
CONTRACTOR: Alliance Environmental, Inc.		DATE STARTED: 4-8-97	COMPLTD: 4-8-97
METHOD: Auger	CASE SIZE: 2 in.	SCREEN INT.: 2 - 12 ft.	PROTECTION LEVEL: D
TOC ELEV.: FEET.	MONITOR INST.: PID	TOT DPTH: 13 FEET.	DPTH TO ∇ 1.62 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 6-3-97		SITE: PSC 19

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				104	SILTY SAND (SM): medium gray to dark gray, fine-grained.		SM	posthole	
				357	SAND (SP): light brown to medium gray, fine-grained.		SP	posthole	
5			1/2	110				2,2,4,3	
10									
15									
20									

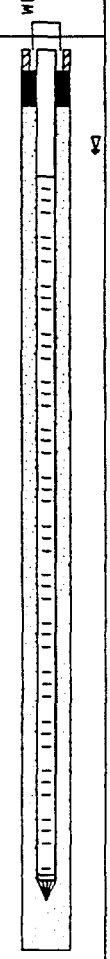

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Cecil Field	LOG of WELL: CEF-19-3S	BORING NO. CEF-19-3S
CLIENT: SOUTHDIVNAVFACENGCOM		PROJECT NO: 08544-78
CONTRACTOR: Alliance Environmental, Inc.	DATE STARTED: 4-16-97	COMPLTD: 4-16-97
METHOD: Auger	CASE SIZE: 2 in.	SCREEN INT.: 6 - 16 ft.
PROTECTION LEVEL: D		
TOC ELEV.: FEET.	MONITOR INST.: PID	TOT DPTH: 17 FEET.
DPTH TO ⊽ 4.22 FEET.		
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 5-14-97	SITE: PSC 19

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
				320	SILTY SAND (SM): light brown, fine-grained.		SM	posthole
				285				posthole
5			1.5/2	551	SANDY CLAY (CL): light brown to orange, low plasticity.		CL	
			1.5/2	0				8,11,12,8
			1.5/2	0	SAND (SP): light gray to orange, fine-grained.		SP	
10								
15								
20								

WELL DATA

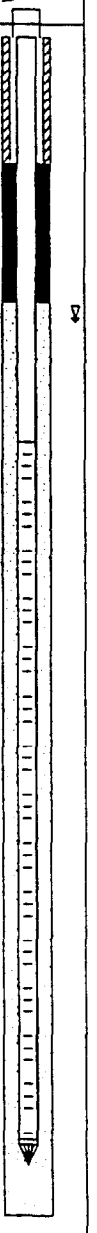

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Cecil Field	LOG of WELL: CEF-19-4S	BORING NO. CEF-19-4S
CLIENT: SOUTHDIVNAVFACENGCOM		PROJECT NO: 08544-78
CONTRACTOR: Alliance Environmental, Inc.	DATE STARTED: 4-9-97	COMPLTD: 4-9-97
METHOD: Auger	CASE SIZE: 2 in.	SCREEN INT.: 2 - 12 ft.	PROTECTION LEVEL: D
TOC ELEV.: FEET.	MONITOR INST.: PID	TOT DPTH: 13 FEET.	DPTH TO ⊽ 1.52 FEET.
LOGGED BY: R. Holloway	WELL DEVELOPMENT DATE: 6-4-97	SITE: PSC 19

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	SILTY SAND (SM): 100% quartz, dark gray, fine grained, sub-angular to sub-rounded.		SM	posthole	
				0				posthole	
5									
10									
15									
20									

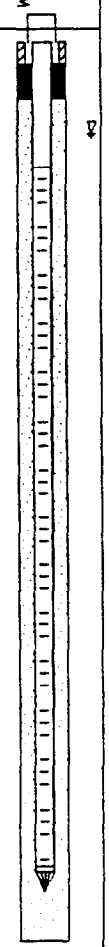

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Cecil Field	LOG of WELL: CEF-19-5S	BORING NO. CEF-19-5S
CLIENT: SOUTHDIVNAVFACENGCOM		PROJECT NO: 08544-78
CONTRACTOR: Alliance Environmental, Inc.	DATE STARTED: 4-9-97	COMPLTD: 4-9-97
METHOD: Auger	CASE SIZE: 2 in.	SCREEN INT.: 3 - 13 ft.	PROTECTION LEVEL: D
TOC ELEV.: FEET.	MONITOR INST.: PID	TOT DPTH: 14 FEET.	DPTH TO ∇ 2.99 FEET.
LOGGED BY: R. Holloway	WELL DEVELOPMENT DATE: 5-9-97	SITE: PSC 19

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	SILTY SAND (SM): 100% quartz, light to dark gray, fine- to very fine- grained, sub-rounded to sub-angular.		SM	posthole	
				0				posthole	
5				0				7,6,5,3	
10									
15									
20									

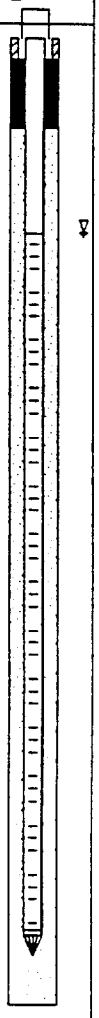

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Cecil Field		LOG of WELL: CEF-19-6S	BORING NO. CEF-19-6S
CLIENT: SOUTHDIVNAVFACENGCOM			PROJECT NO: 08544-78
CONTRACTOR: Alliance Environmental, Inc.		DATE STARTED: 4-16-97	COMPLTD: 4-16-97
METHOD: Auger	CASE SIZE: 2 in.	SCREEN INT.: 2 - 12 ft.	PROTECTION LEVEL: D
TOC ELEV.: FEET.	MONITOR INST.: PID	TOT DPTH: 13 FEET.	DPTH TO ▽ 0.23 FEET.
LOGGED BY: R. Holloway	WELL DEVELOPMENT DATE: 6-4-97		SITE: PSC 19

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	SILTY SAND (SM): 100% quartz, dark gray, very fine grained, sub- rounded to sub-angular.		SM	posthole	
				0				posthole	
5									
10									
15									
20									

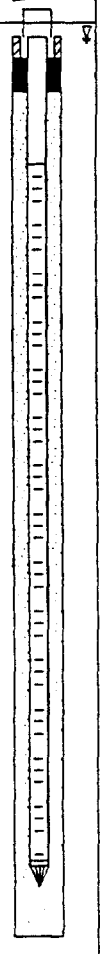

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Cecil Field	LOG of WELL: CEF-19-7S	BORING NO. CEF-19-7S
CLIENT: SOUTHDIVNAVFACENGCOM		PROJECT NO: 08544-78
CONTRACTOR: Alliance Environmental, Inc.	DATE STARTED: 4-7-97	COMPLTD: 4-7-97
METHOD: Auger	CASE SIZE: 2 in.	SCREEN INT.: 2 - 12 ft.	PROTECTION LEVEL: D
TOC ELEV.: FEET.	MONITOR INST.: PID	TOT DPTH: 13 FEET.	DPTH TO ∇ 2.12 FEET.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 5-20-97	SITE: PSC 19

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	SILTY SAND (SM): medium gray to dark gray, fine-grained, roots.		SM	posthole	
				0				posthole	
5			1/2	0				8,15,13,11	
10									
15									
20									

 ABB ENVIRONMENTAL SERVICES, INC.

Monitoring Well Water Levels
Potential Source of Contamination - Site 19
NAS Cecil Field
Jacksonville, Florida

Date	Time	PSC Monitoring Well	TOC Elevation (ft, msl)	Depth to Water ((ft, btoc)	Ground Water Elevation (ft, msl)	Total Depth (ft)
5/7/97	1340	CF19MW1S	70.86	5.61	65.25	16.06
	1415	CF19MW2S	66.84	6.45	60.39	14.96
	1350	CF19MW3S	75.32	6.74	68.58	19.23
	1410	CF19MW4S	66.78	2.44	64.34	15.06
	1355	CF19MW5S	72.47	5.75	66.72	15.98
	1405	CF19MW6S	66.44	2.99	63.45	15.19
	1400	CF19MW7S	69.58	4.72	64.86	15.19
6/26/97	1318	CF19MW1S	70.86	5.96	64.90	16.06
	1315	CF19MW2S	66.84	3.42	51.88	14.96
	1302	CF19MW3S	75.32	7.55	67.77	19.23
	1305	CF19MW4S	66.78	2.55	64.23	15.06
	1300	CF19MW5S	72.47	6.37	66.10	15.98
	1258	CF19MW6S	66.44	2.80	63.64	15.19
	1255	CF19MW7S	69.58	5.01	54.39	15.19
7/25/97	1003	CF19MW1S	70.86	4.99	65.87	16.06
	1010	CF19MW2S	66.84	4.50	62.34	14.96
	1018	CF19MW3S	75.32	7.11	68.21	19.23
	1022	CF19MW4S	66.78	2.09	64.69	15.06
	1025	CF19MW5S	72.47	5.78	66.69	15.98
	1033	CF19MW6S	66.44	2.81	63.63	15.19
	1030	CF19MW7S	69.58	4.67	64.91	15.19
8/21/97	0957	CF19MW1S	70.86	5.33	65.53	16.06
	1001	CF19MW2S	66.84	4.88	61.96	14.96
	1010	CF19MW3S	75.32	6.92	68.40	19.23
	1007	CF19MW4S	66.78	2.14	64.64	15.06
	1011	CF19MW5S	72.47	5.69	66.78	15.98
	1016	CF19MW6S	66.44	2.39	64.05	15.19
	1014	CF19MW7S	69.58	4.44	65.14	15.19
9/12/97	1155	CF19MW1S	70.86	7.20	63.66	16.06
	1200	CF19MW2S	66.84	7.23	59.61	14.96
	1218	CF19MW3S	75.32	8.30	67.02	19.23
	1215	CF19MW4S	66.78	3.28	63.50	15.06
	1217	CF19MW5S	72.47	7.18	65.29	15.98
	1223	CF19MW6S	66.44	3.88	62.56	15.19
	1220	CF19MW7S	69.58	6.22	63.36	15.19

Notes: TOC = top of casing.
ft = feet.
msl = mean sea level.
btoc = below top of casing.

APPENDIX C

CONFIRMATORY ANALYTICAL DATA

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SURFACE SOIL -- VOLATILES -- REPORT NO. 9342

Lab Sample Number:	C8527				C85M9				C85MG				C85MJ			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SS1				CF19SS2				CF19SS3				CF19SS3D			
Collect Date:	13-FEB-97				13-FEB-97				13-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW																
Chloromethane	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
Bromomethane	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
Vinyl chloride	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
Chloroethane	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
Methylene chloride	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
Acetone	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
Carbon disulfide	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
1,1-Dichloroethene	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
1,1-Dichloroethane	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
1,2-Dichloroethene (total)	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
Chloroform	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
1,2-Dichloroethane	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
2-Butanone	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
1,1,1-Trichloroethane	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
Carbon tetrachloride	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
Bromodichloromethane	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
1,2-Dichloropropane	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
cis-1,3-Dichloropropene	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
Trichloroethene	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
Dibromochloromethane	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
1,1,2-Trichloroethane	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
Benzene	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
trans-1,3-Dichloropropene	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
Bromoform	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
4-Methyl-2-pentanone	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
2-Hexanone	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
Tetrachloroethene	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
Toluene	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
1,1,2,2-Tetrachloroethane	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
Chlorobenzene	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
Ethylbenzene	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
Styrene	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14
Xylenes (total)	11	U	ug/kg	11	13	U	ug/kg	13	15	U	ug/kg	15	14	U	ug/kg	14

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SURFACE SOIL -- VOLATILES -- REPORT NO. 9342

Lab Sample Number:	C85MP			C85MW		
Site	PSC19			PSC19		
Locator	CF19SS4			CF19SS5		
Collect Date:	13-FEB-97			13-FEB-97		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP VOLATILES 90-SOW						
Chloromethane	14 U	ug/kg	14	14 U	ug/kg	14
Bromomethane	14 U	ug/kg	14	14 U	ug/kg	14
Vinyl chloride	14 U	ug/kg	14	14 U	ug/kg	14
Chloroethane	14 U	ug/kg	14	14 U	ug/kg	14
Methylene chloride	14 U	ug/kg	14	14 U	ug/kg	14
Acetone	14 U	ug/kg	14	14 U	ug/kg	14
Carbon disulfide	14 U	ug/kg	14	14 U	ug/kg	14
1,1-Dichloroethene	14 U	ug/kg	14	14 U	ug/kg	14
1,1-Dichloroethane	14 U	ug/kg	14	14 U	ug/kg	14
1,2-Dichloroethene (total)	14 U	ug/kg	14	14 U	ug/kg	14
Chloroform	14 U	ug/kg	14	14 U	ug/kg	14
1,2-Dichloroethane	14 U	ug/kg	14	14 U	ug/kg	14
2-Butanone	14 U	ug/kg	14	14 U	ug/kg	14
1,1,1-Trichloroethane	14 U	ug/kg	14	14 U	ug/kg	14
Carbon tetrachloride	14 U	ug/kg	14	14 U	ug/kg	14
Bromodichloromethane	14 U	ug/kg	14	14 U	ug/kg	14
1,2-Dichloropropane	14 U	ug/kg	14	14 U	ug/kg	14
cis-1,3-Dichloropropene	14 U	ug/kg	14	14 U	ug/kg	14
Trichloroethene	14 U	ug/kg	14	14 U	ug/kg	14
Dibromochloromethane	14 U	ug/kg	14	14 U	ug/kg	14
1,1,2-Trichloroethane	14 U	ug/kg	14	14 U	ug/kg	14
Benzene	14 U	ug/kg	14	14 U	ug/kg	14
trans-1,3-Dichloropropene	14 U	ug/kg	14	14 U	ug/kg	14
Bromoform	14 U	ug/kg	14	14 U	ug/kg	14
4-Methyl-2-pentanone	14 U	ug/kg	14	14 U	ug/kg	14
2-Hexanone	14 U	ug/kg	14	14 U	ug/kg	14
Tetrachloroethene	14 U	ug/kg	14	14 U	ug/kg	14
Toluene	14 U	ug/kg	14	14 U	ug/kg	14
1,1,2,2-Tetrachloroethane	14 U	ug/kg	14	14 U	ug/kg	14
Chlorobenzene	14 U	ug/kg	14	14 U	ug/kg	14
Ethylbenzene	14 U	ug/kg	14	14 U	ug/kg	14
Styrene	14 U	ug/kg	14	14 U	ug/kg	14
Xylenes (total)	14 U	ug/kg	14	14 U	ug/kg	14

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9343

Lab Sample Number:	C8527				C85M9				C85MG				C85MJ			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SS1				CF19SS2				CF19SS3				CF19SS3D			
Collect Date:	13-FEB-97				13-FEB-97				13-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW																
Phenol	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
bis(2-Chloroethyl) ether	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
2-Chlorophenol	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
1,3-Dichlorobenzene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
1,4-Dichlorobenzene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
1,2-Dichlorobenzene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
2-Methylphenol	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
2,2-oxybis(1-Chloropropane)	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
4-Methylphenol	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
N-Nitroso-di-n-propylamine	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Hexachloroethane	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Nitrobenzene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Isophorone	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
2-Nitrophenol	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
2,4-Dimethylphenol	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
bis(2-Chloroethoxy) methane	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
2,4-Dichlorophenol	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
1,2,4-Trichlorobenzene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Naphthalene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
4-Chloroaniline	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Hexachlorobutadiene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
4-Chloro-3-methylphenol	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
2-Methylnaphthalene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Hexachlorocyclopentadiene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
2,4,6-Trichlorophenol	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
2,4,5-Trichlorophenol	860	U	ug/kg	860	1000	U	ug/kg	1000	1200	U	ug/kg	1200	1100	U	ug/kg	1100
2-Chloronaphthalene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
2-Nitroaniline	860	U	ug/kg	860	1000	U	ug/kg	1000	1200	U	ug/kg	1200	1100	U	ug/kg	1100
Dimethylphthalate	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Acenaphthylene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
2,6-Dinitrotoluene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
3-Nitroaniline	860	U	ug/kg	860	1000	U	ug/kg	1000	1200	U	ug/kg	1200	1100	U	ug/kg	1100
Acenaphthene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
2,4-Dinitrophenol	860	U	ug/kg	860	1000	U	ug/kg	1000	1200	U	ug/kg	1200	1100	U	ug/kg	1100
4-Nitrophenol	860	U	ug/kg	860	1000	U	ug/kg	1000	1200	U	ug/kg	1200	1100	U	ug/kg	1100
Dibenzofuran	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
2,4-Dinitrotoluene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Diethylphthalate	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
4-Chlorophenyl-phenylether	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Fluorene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
4-Nitroaniline	860	U	ug/kg	860	1000	U	ug/kg	1000	1200	U	ug/kg	1200	1100	U	ug/kg	1100
4,6-Dinitro-2-methylphenol	860	U	ug/kg	860	1000	U	ug/kg	1000	1200	U	ug/kg	1200	1100	U	ug/kg	1100
N-Nitrosodiphenylamine	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
4-Bromophenyl-phenylether	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Hexachlorobenzene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Pentachlorophenol	860	U	ug/kg	860	1000	U	ug/kg	1000	1200	U	ug/kg	1200	1100	U	ug/kg	1100
Phenanthrene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Anthracene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Carbazole	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Di-n-butylphthalate	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9343

Lab Sample Number:	C8527				C85M9				C85MG				C85MJ			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SS1				CF19SS2				CF19SS3				CF19SS3D			
Collect Date:	13-FEB-97				13-FEB-97				13-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluoranthene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Pyrene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Butylbenzylphthalate	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
3,3-Dichlorobenzidine	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Benzo (a) anthracene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Chrysene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
bis(2-Ethylhexyl) phthalate	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Di-n-octylphthalate	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Benzo (b) fluoranthene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Benzo (k) fluoranthene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Benzo (a) pyrene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Indeno (1,2,3-cd) pyrene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Dibenzo (a,h) anthracene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450
Benzo (g,h,i) perylene	360	U	ug/kg	360	430	U	ug/kg	430	490	U	ug/kg	490	450	U	ug/kg	450

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9343

Lab Sample Number:	C85MP				C85MW			
Site	PSC19				PSC19			
Locator	CF19SS4				CF19SS5			
Collect Date:	13-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW								
Phenol	470	U	ug/kg	470	440	U	ug/kg	440
bis(2-Chloroethyl) ether	470	U	ug/kg	470	440	U	ug/kg	440
2-Chlorophenol	470	U	ug/kg	470	440	U	ug/kg	440
1,3-Dichlorobenzene	470	U	ug/kg	470	440	U	ug/kg	440
1,4-Dichlorobenzene	470	U	ug/kg	470	440	U	ug/kg	440
1,2-Dichlorobenzene	470	U	ug/kg	470	440	U	ug/kg	440
2-Methylphenol	470	U	ug/kg	470	440	U	ug/kg	440
2,2-oxybis(1-Chloropropane)	470	U	ug/kg	470	440	U	ug/kg	440
4-Methylphenol	470	U	ug/kg	470	440	U	ug/kg	440
N-Nitroso-di-n-propylamine	470	U	ug/kg	470	440	U	ug/kg	440
Hexachloroethane	470	U	ug/kg	470	440	U	ug/kg	440
Nitrobenzene	470	U	ug/kg	470	440	U	ug/kg	440
Isophorone	470	U	ug/kg	470	440	U	ug/kg	440
2-Nitrophenol	470	U	ug/kg	470	440	U	ug/kg	440
2,4-Dimethylphenol	470	U	ug/kg	470	440	U	ug/kg	440
bis(2-Chloroethoxy) methane	470	U	ug/kg	470	440	U	ug/kg	440
2,4-Dichlorophenol	470	U	ug/kg	470	440	U	ug/kg	440
1,2,4-Trichlorobenzene	470	U	ug/kg	470	440	U	ug/kg	440
Naphthalene	470	U	ug/kg	470	440	U	ug/kg	440
4-Chloroaniline	470	U	ug/kg	470	440	U	ug/kg	440
Hexachlorobutadiene	470	U	ug/kg	470	440	U	ug/kg	440
4-Chloro-3-methylphenol	470	U	ug/kg	470	440	U	ug/kg	440
2-Methylnaphthalene	470	U	ug/kg	470	440	U	ug/kg	440
Hexachlorocyclopentadiene	470	U	ug/kg	470	440	U	ug/kg	440
2,4,6-Trichlorophenol	470	U	ug/kg	470	440	U	ug/kg	440
2,4,5-Trichlorophenol	1100	U	ug/kg	1100	1100	U	ug/kg	1100
2-Chloronaphthalene	470	U	ug/kg	470	440	U	ug/kg	440
2-Nitroaniline	1100	U	ug/kg	1100	1100	U	ug/kg	1100
Dimethylphthalate	470	U	ug/kg	470	440	U	ug/kg	440
Acenaphthylene	470	U	ug/kg	470	440	U	ug/kg	440
2,6-Dinitrotoluene	470	U	ug/kg	470	440	U	ug/kg	440
3-Nitroaniline	1100	U	ug/kg	1100	1100	U	ug/kg	1100
Acenaphthene	470	U	ug/kg	470	440	U	ug/kg	440
2,4-Dinitrophenol	1100	U	ug/kg	1100	1100	U	ug/kg	1100
4-Nitrophenol	1100	U	ug/kg	1100	1100	U	ug/kg	1100
Dibenzofuran	470	U	ug/kg	470	440	U	ug/kg	440
2,4-Dinitrotoluene	470	U	ug/kg	470	440	U	ug/kg	440
Diethylphthalate	470	U	ug/kg	470	440	U	ug/kg	440
4-Chlorophenyl-phenylether	470	U	ug/kg	470	440	U	ug/kg	440
Fluorene	470	U	ug/kg	470	440	U	ug/kg	440

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9343

Lab Sample Number:	C85MP				C85MW			
Site	PSC19				PSC19			
Locator	CF19SS4				CF19SS5			
Collect Date:	13-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	1100	U	ug/kg	1100	1100	U	ug/kg	1100
4,6-Dinitro-2-methylphenol	1100	U	ug/kg	1100	1100	U	ug/kg	1100
N-Nitrosodiphenylamine	470	U	ug/kg	470	440	U	ug/kg	440
4-Bromophenyl-phenylether	470	U	ug/kg	470	440	U	ug/kg	440
Hexachlorobenzene	470	U	ug/kg	470	440	U	ug/kg	440
Pentachlorophenol	1100	U	ug/kg	1100	1100	U	ug/kg	1100
Phenanthrene	470	U	ug/kg	470	440	U	ug/kg	440
Anthracene	470	U	ug/kg	470	440	U	ug/kg	440
Carbazole	470	U	ug/kg	470	440	U	ug/kg	440
Di-n-butylphthalate	470	U	ug/kg	470	440	U	ug/kg	440
Fluoranthene	470	U	ug/kg	470	440	U	ug/kg	440
Pyrene	470	U	ug/kg	470	440	U	ug/kg	440
Butylbenzylphthalate	470	U	ug/kg	470	440	U	ug/kg	440
3,3-Dichlorobenzidine	470	U	ug/kg	470	440	U	ug/kg	440
Benzo (a) anthracene	470	U	ug/kg	470	440	U	ug/kg	440
Chrysene	470	U	ug/kg	470	440	U	ug/kg	440
bis(2-Ethylhexyl) phthalate	62	J	ug/kg	470	440	U	ug/kg	440
Di-n-octylphthalate	470	U	ug/kg	470	440	U	ug/kg	440
Benzo (b) fluoranthene	470	U	ug/kg	470	440	U	ug/kg	440
Benzo (k) fluoranthene	470	U	ug/kg	470	440	U	ug/kg	440
Benzo (a) pyrene	470	U	ug/kg	470	440	U	ug/kg	440
Indeno (1,2,3-cd) pyrene	470	U	ug/kg	470	440	U	ug/kg	440
Dibenzo (a,h) anthracene	470	U	ug/kg	470	440	U	ug/kg	440
Benzo (g,h,i) perylene	470	U	ug/kg	470	440	U	ug/kg	440

U = NOT DETECTED J = ESTIMATED VALUE
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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SURFACE SOIL -- PESTICIDES AND PCBs -- REPORT NO. 9344

Lab Sample Number:	C8527				C85M9				C85M9RE				C85MG			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SS1				CF19SS2				CF19SS2RE				CF19SS3			
Collect Date:	13-FEB-97				13-FEB-97				13-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	1.8	U	ug/kg	1.8	2.2	U	ug/kg	2.2	2.2	U	ug/kg	2.2	2.5	U	ug/kg	2.5
beta-BHC	1.8	U	ug/kg	1.8	2.2	U	ug/kg	2.2	2.2	U	ug/kg	2.2	2.5	U	ug/kg	2.5
delta-BHC	1.8	U	ug/kg	1.8	2.2	U	ug/kg	2.2	2.2	U	ug/kg	2.2	2.5	U	ug/kg	2.5
gamma-BHC (Lindane)	1.8	U	ug/kg	1.8	2.2	U	ug/kg	2.2	2.2	U	ug/kg	2.2	2.5	U	ug/kg	2.5
Heptachlor	1.8	U	ug/kg	1.8	2.2	U	ug/kg	2.2	2.2	U	ug/kg	2.2	2.5	U	ug/kg	2.5
Aldrin	.35	J	ug/kg	2	2.2	U	ug/kg	2.2	2.2	U	ug/kg	2.2	2.5	U	ug/kg	2.5
Heptachlor epoxide	1.8	U	ug/kg	1.8	2.2	U	ug/kg	2.2	2.2	U	ug/kg	2.2	2.5	U	ug/kg	2.5
Endosulfan I	1.8	U	ug/kg	1.8	2.2	U	ug/kg	2.2	2.2	U	ug/kg	2.2	2.5	U	ug/kg	2.5
Dieldrin	3.6	U	ug/kg	3.6	4.4	U	ug/kg	4.4	4.4	U	ug/kg	4.4	5	U	ug/kg	5
4,4-DDE	1	J	ug/kg	4	4.4	U	ug/kg	4.4	4.4	U	ug/kg	4.4	5	U	ug/kg	5
Endrin	3.6	U	ug/kg	3.6	4.4	U	ug/kg	4.4	4.4	U	ug/kg	4.4	5	U	ug/kg	5
Endosulfan II	3.6	U	ug/kg	3.6	4.4	U	ug/kg	4.4	4.4	U	ug/kg	4.4	5	U	ug/kg	5
4,4-DDD	3.6	U	ug/kg	3.6	4.4	U	ug/kg	4.4	4.4	U	ug/kg	4.4	5	U	ug/kg	5
Endosulfan sulfate	3.6	U	ug/kg	3.6	4.4	U	ug/kg	4.4	4.4	U	ug/kg	4.4	5	U	ug/kg	5
4,4-DDT	.8	J	ug/kg	4	4.4	U	ug/kg	4.4	4.4	U	ug/kg	4.4	5	U	ug/kg	5
Methoxychlor	18	U	ug/kg	18	22	U	ug/kg	22	22	U	ug/kg	22	25	U	ug/kg	25
Endrin ketone	3.6	U	ug/kg	3.6	.2	J	ug/kg	4.4	4.4	U	ug/kg	4.4	5	U	ug/kg	5
Endrin aldehyde	3.6	U	ug/kg	3.6	4.4	U	ug/kg	4.4	4.4	U	ug/kg	4.4	5	U	ug/kg	5
alpha-Chlordane	1.8	U	ug/kg	1.8	2.2	U	ug/kg	2.2	2.2	U	ug/kg	2.2	2.5	U	ug/kg	2.5
gamma-Chlordane	1.8	U	ug/kg	1.8	2.2	U	ug/kg	2.2	2.2	U	ug/kg	2.2	2.5	U	ug/kg	2.5
Toxaphene	180	U	ug/kg	180	220	U	ug/kg	220	220	U	ug/kg	220	250	U	ug/kg	250
Aroclor-1016	36	U	ug/kg	36	44	U	ug/kg	44	44	U	ug/kg	44	50	U	ug/kg	50
Aroclor-1221	72	U	ug/kg	72	87	U	ug/kg	87	87	U	ug/kg	87	99	U	ug/kg	99
Aroclor-1232	36	U	ug/kg	36	44	U	ug/kg	44	44	U	ug/kg	44	50	U	ug/kg	50
Aroclor-1242	36	U	ug/kg	36	44	U	ug/kg	44	44	U	ug/kg	44	50	U	ug/kg	50
Aroclor-1248	36	U	ug/kg	36	44	U	ug/kg	44	44	U	ug/kg	44	50	U	ug/kg	50
Aroclor-1254	36	U	ug/kg	36	44	U	ug/kg	44	44	U	ug/kg	44	50	U	ug/kg	50
Aroclor-1260	36	U	ug/kg	36	44	U	ug/kg	44	44	U	ug/kg	44	50	U	ug/kg	50

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SURFACE SOIL -- PESTICIDES AND PCBs -- REPORT NO. 9344

Lab Sample Number:	C85MJ			C85MJRE			C85MGRE			C85MP		
Site	PSC19			PSC19			PSC19			PSC19		
Locator	CF19SS3D			CF19SS3DRE			CF19SS3RE			CF19SS4		
Collect Date:	13-FEB-97			13-FEB-97			13-FEB-97			13-FEB-97		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW												
alpha-BHC	2.2 U	ug/kg	2.2	2.2 U	ug/kg	2.2	2.5 U	ug/kg	2.5	2.4 U	ug/kg	2.4
beta-BHC	2.2 U	ug/kg	2.2	2.2 U	ug/kg	2.2	2.5 U	ug/kg	2.5	2.4 U	ug/kg	2.4
delta-BHC	2.2 U	ug/kg	2.2	2.2 U	ug/kg	2.2	2.5 U	ug/kg	2.5	2.4 U	ug/kg	2.4
gamma-BHC (Lindane)	2.2 U	ug/kg	2.2	2.2 U	ug/kg	2.2	2.5 U	ug/kg	2.5	2.4 U	ug/kg	2.4
Heptachlor	2.2 U	ug/kg	2.2	2.2 U	ug/kg	2.2	2.5 U	ug/kg	2.5	2.4 U	ug/kg	2.4
Aldrin	2.2 U	ug/kg	2.2	2.2 U	ug/kg	2.2	2.5 U	ug/kg	2.5	.21 J	ug/kg	2
Heptachlor epoxide	2.2 U	ug/kg	2.2	2.2 U	ug/kg	2.2	2.5 U	ug/kg	2.5	.84 J	ug/kg	2
Endosulfan I	2.2 U	ug/kg	2.2	2.2 U	ug/kg	2.2	2.5 U	ug/kg	2.5	2.4 U	ug/kg	2.4
Dieldrin	4.5 U	ug/kg	4.5	4.5 U	ug/kg	4.5	5 U	ug/kg	5	1.8 J	ug/kg	5
4,4-DDE	4.5 U	ug/kg	4.5	4.5 U	ug/kg	4.5	5 U	ug/kg	5	9.8	ug/kg	5
Endrin	4.5 U	ug/kg	4.5	4.5 U	ug/kg	4.5	5 U	ug/kg	5	4.8 U	ug/kg	4.8
Endosulfan II	4.5 U	ug/kg	4.5	4.5 U	ug/kg	4.5	5 U	ug/kg	5	4.8 U	ug/kg	4.8
4,4-DDD	4.5 U	ug/kg	4.5	4.5 U	ug/kg	4.5	5 U	ug/kg	5	4.9	ug/kg	5
Endosulfan sulfate	4.5 U	ug/kg	4.5	4.5 U	ug/kg	4.5	5 U	ug/kg	5	4.8 U	ug/kg	4.8
4,4-DDT	4.5 U	ug/kg	4.5	.44 J	ug/kg	4	5 U	ug/kg	5	4 J	ug/kg	5
Methoxychlor	22 U	ug/kg	22	22 U	ug/kg	22	25 U	ug/kg	25	24 U	ug/kg	24
Endrin ketone	4.5 U	ug/kg	4.5	4.5 U	ug/kg	4.5	5 U	ug/kg	5	4.8 U	ug/kg	4.8
Endrin aldehyde	4.5 U	ug/kg	4.5	4.5 U	ug/kg	4.5	5 U	ug/kg	5	4.8 U	ug/kg	4.8
alpha-Chlordane	2.2 U	ug/kg	2.2	2.2 U	ug/kg	2.2	2.5 U	ug/kg	2.5	7.1	ug/kg	2
gamma-Chlordane	2.2 U	ug/kg	2.2	2.2 U	ug/kg	2.2	2.5 U	ug/kg	2.5	4	ug/kg	2
Toxaphene	220 U	ug/kg	220	220 U	ug/kg	220	250 U	ug/kg	250	240 U	ug/kg	240
Aroclor-1016	45 U	ug/kg	45	45 U	ug/kg	45	50 U	ug/kg	50	48 U	ug/kg	48
Aroclor-1221	90 U	ug/kg	90	90 U	ug/kg	90	99 U	ug/kg	99	96 U	ug/kg	96
Aroclor-1232	45 U	ug/kg	45	45 U	ug/kg	45	50 U	ug/kg	50	48 U	ug/kg	48
Aroclor-1242	45 U	ug/kg	45	45 U	ug/kg	45	50 U	ug/kg	50	48 U	ug/kg	48
Aroclor-1248	45 U	ug/kg	45	45 U	ug/kg	45	50 U	ug/kg	50	48 U	ug/kg	48
Aroclor-1254	45 U	ug/kg	45	45 U	ug/kg	45	50 U	ug/kg	50	48 U	ug/kg	48
Aroclor-1260	45 U	ug/kg	45	45 U	ug/kg	45	50 U	ug/kg	50	48 U	ug/kg	48

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SURFACE SOIL -- PESTICIDES AND PCBs -- REPORT NO. 9344

Lab Sample Number:	C85MPRE				C85MW				C85MWRE			
Site	PSC19				PSC19				PSC19			
Locator	CF19SS4RE				CF19SS5				CF19SS5RE			
Collect Date:	13-FEB-97				13-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW												
alpha-BHC	2.4	U	ug/kg	2.4	2.2	U	ug/kg	2.2	2.2	U	ug/kg	2.2
beta-BHC	2.4	U	ug/kg	2.4	2.2	U	ug/kg	2.2	2.2	U	ug/kg	2.2
delta-BHC	2.4	U	ug/kg	2.4	2.2	U	ug/kg	2.2	2.2	U	ug/kg	2.2
gamma-BHC (Lindane)	2.4	U	ug/kg	2.4	2.2	U	ug/kg	2.2	2.2	U	ug/kg	2.2
Heptachlor	2.4	U	ug/kg	2.4	2.2	U	ug/kg	2.2	2.2	U	ug/kg	2.2
Aldrin	.54	J	ug/kg	2	2.2	U	ug/kg	2.2	2.2	U	ug/kg	2.2
Heptachlor epoxide	1.8	J	ug/kg	2	2.2	U	ug/kg	2.2	2.2	U	ug/kg	2.2
Endosulfan I	2.4	U	ug/kg	2.4	2.2	U	ug/kg	2.2	2.2	U	ug/kg	2.2
Dieldrin	2.8	J	ug/kg	5	4.5	U	ug/kg	4.5	4.5	U	ug/kg	4.5
4,4-DDE	16		ug/kg	5	4.5	U	ug/kg	4.5	4.5	U	ug/kg	4.5
Endrin	4.7	U	ug/kg	4.7	4.5	U	ug/kg	4.5	.35	J	ug/kg	4
Endosulfan II	4.7	U	ug/kg	4.7	4.5	U	ug/kg	4.5	4.5	U	ug/kg	4.5
4,4-DDD	7.1		ug/kg	5	4.5	U	ug/kg	4.5	4.5	U	ug/kg	4.5
Endosulfan sulfate	4.7	U	ug/kg	4.7	4.5	U	ug/kg	4.5	4.5	U	ug/kg	4.5
4,4-DDT	3.9	J	ug/kg	5	4.5	U	ug/kg	4.5	4.5	U	ug/kg	4.5
Methoxychlor	24	U	ug/kg	24	22	U	ug/kg	22	7.8	J	ug/kg	23
Endrin ketone	4.7	U	ug/kg	4.7	4.5	U	ug/kg	4.5	.44	J	ug/kg	4
Endrin aldehyde	4.7	U	ug/kg	4.7	4.5	U	ug/kg	4.5	4.5	U	ug/kg	4.5
alpha-Chlordane	11		ug/kg	2	2.2	U	ug/kg	2.2	2.2	U	ug/kg	2.2
gamma-Chlordane	5.9		ug/kg	2	2.2	U	ug/kg	2.2	2.2	U	ug/kg	2.2
Toxaphene	240	U	ug/kg	240	220	U	ug/kg	220	220	U	ug/kg	220
Aroclor-1016	47	U	ug/kg	47	45	U	ug/kg	45	45	U	ug/kg	45
Aroclor-1221	95	U	ug/kg	95	89	U	ug/kg	89	90	U	ug/kg	90
Aroclor-1232	47	U	ug/kg	47	45	U	ug/kg	45	45	U	ug/kg	45
Aroclor-1242	47	U	ug/kg	47	45	U	ug/kg	45	45	U	ug/kg	45
Aroclor-1248	47	U	ug/kg	47	45	U	ug/kg	45	45	U	ug/kg	45
Aroclor-1254	47	U	ug/kg	47	45	U	ug/kg	45	45	U	ug/kg	45
Aroclor-1260	47	U	ug/kg	47	45	U	ug/kg	45	45	U	ug/kg	45

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SURFACE SOIL -- METALS -- REPORT NO. 9345

Lab Sample Number:	C8527			C85M9			C85MG			C85MJ		
Site	PSC19			PSC19			PSC19			PSC19		
Locator	CF19SS1			CF19SS2			CF19SS3			CF19SS3D		
Collect Date:	13-FEB-97			13-FEB-97			13-FEB-97			13-FEB-97		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP METALS AND CYANIDE												
Aluminum	360	mg/kg	40	190	mg/kg	40	265	mg/kg	40	403	mg/kg	40
Antimony	.65 U	mg/kg	12	.78 U	mg/kg	12	.89 U	mg/kg	12	.81 U	mg/kg	12
Arsenic	.43 U	mg/kg	2	.52 U	mg/kg	2	.6 U	mg/kg	2	.54 U	mg/kg	2
Barium	2.4 J	mg/kg	40	2.8 J	mg/kg	40	7 J	mg/kg	40	12.7 J	mg/kg	40
Beryllium	.22 U	mg/kg	1	.26 U	mg/kg	1	.3 U	mg/kg	1	.27 U	mg/kg	1
Cadmium	.22 U	mg/kg	1	.26 U	mg/kg	1	.3 U	mg/kg	1	.27 U	mg/kg	1
Calcium	4660	mg/kg	1000	1290 J	mg/kg	1000	2670	mg/kg	1000	5040	mg/kg	1000
Chromium	.99 J	mg/kg	2	.74 J	mg/kg	2	.65 J	mg/kg	2	.94 J	mg/kg	2
Cobalt	.22 U	mg/kg	10	.29 J	mg/kg	10	.3 U	mg/kg	10	.27 U	mg/kg	10
Copper	.4 J	mg/kg	5	1.6 U	mg/kg	5	1.8 U	mg/kg	5	1.6 U	mg/kg	5
Iron	133	mg/kg	20	300 J	mg/kg	20	399 J	mg/kg	20	654 J	mg/kg	20
Lead	3.5	mg/kg	.6	3.2	mg/kg	.6	2.9	mg/kg	.6	5.1	mg/kg	.6
Magnesium	47.5 J	mg/kg	1000	30.4 J	mg/kg	1000	41.9 J	mg/kg	1000	57 J	mg/kg	1000
Manganese	4.1	mg/kg	3	4.2	mg/kg	3	4 J	mg/kg	3	7.9	mg/kg	3
Mercury	.05 U	mg/kg	.1	.07 U	mg/kg	.1	.07 U	mg/kg	.1	.07 U	mg/kg	.1
Nickel	.43 U	mg/kg	8	.52 U	mg/kg	8	.6 U	mg/kg	8	.62 J	mg/kg	8
Potassium	10.2 U	mg/kg	1000	12.3 U	mg/kg	1000	14 U	mg/kg	1000	12.7 U	mg/kg	1000
Selenium	.87 U	mg/kg	1	1 U	mg/kg	1	1.2 U	mg/kg	1	1.1 U	mg/kg	1
Silver	.22 U	mg/kg	2	.26 U	mg/kg	2	.3 U	mg/kg	2	.27 U	mg/kg	2
Sodium	24 U	mg/kg	1000	29 U	mg/kg	1000	33 U	mg/kg	1000	30.1 U	mg/kg	1000
Thallium	.65 U	mg/kg	2	.78 U	mg/kg	2	.89 U	mg/kg	2	.81 U	mg/kg	2
Vanadium	.75 J	mg/kg	10	1.3 J	mg/kg	10	.95 J	mg/kg	10	1.3 J	mg/kg	10
Zinc	2.7 J	mg/kg	4	2.9 J	mg/kg	4	10.6	mg/kg	4	2.1 J	mg/kg	4
Cyanide	.06 U	mg/kg	.5	.07 U	mg/kg	.5	.09 U	mg/kg	.5	.07 U	mg/kg	.5

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SURFACE SOIL -- METALS -- REPORT NO. 9345

Lab Sample Number:	C85MP				C85MW			
Site	PSC19				PSC19			
Locator	CF19SS4				CF19SS5			
Collect Date:	13-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE								
Aluminum	2330		mg/kg	40	2510		mg/kg	40
Antimony	.86	U	mg/kg	12	.81	U	mg/kg	12
Arsenic	.57	U	mg/kg	2	.54	U	mg/kg	2
Barium	6.3	J	mg/kg	40	8.5	J	mg/kg	40
Beryllium	.29	U	mg/kg	1	.27	U	mg/kg	1
Cadmium	.32	J	mg/kg	1	1.1	J	mg/kg	1
Calcium	2090		mg/kg	1000	153	J	mg/kg	1000
Chromium	6.3		mg/kg	2	2.4	J	mg/kg	2
Cobalt	.51	J	mg/kg	10	.55	J	mg/kg	10
Copper	3.8	J	mg/kg	5	55.2		mg/kg	5
Iron	755	J	mg/kg	20	476	J	mg/kg	20
Lead	10.2		mg/kg	.6	6.2		mg/kg	.6
Magnesium	131	J	mg/kg	1000	63.4	J	mg/kg	1000
Manganese	16.7		mg/kg	3	10.3		mg/kg	3
Mercury	.17		mg/kg	.1	.07	U	mg/kg	.1
Nickel	1.4	J	mg/kg	8	1	J	mg/kg	8
Potassium	13.4	U	mg/kg	1000	12.6	U	mg/kg	1000
Selenium	1.1	U	mg/kg	1	1.1	U	mg/kg	1
Silver	.29	U	mg/kg	2	.27	U	mg/kg	2
Sodium	31.7	U	mg/kg	1000	29.8	U	mg/kg	1000
Thallium	.86	U	mg/kg	2	.89	J	mg/kg	2
Vanadium	3.1	J	mg/kg	10	2.6	J	mg/kg	10
Zinc	10.8		mg/kg	4	15.5		mg/kg	4
Cyanide	.08	U	mg/kg	.5	.08	U	mg/kg	.5

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SUBSURFACE SOIL -- VOLATILES -- REPORT NO. 9346

Lab Sample Number:	C8529				C852A				C85ME				C85MK			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SB1				CF19SB2				CF19SB3				CF19SB4			
Collect Date:	13-FEB-97				13-FEB-97				13-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW																
Chloromethane	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
Bromomethane	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
Vinyl chloride	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
Chloroethane	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
Methylene chloride	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
Acetone	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
Carbon disulfide	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
1,1-Dichloroethene	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
1,1-Dichloroethane	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
1,2-Dichloroethene (total)	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
Chloroform	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
1,2-Dichloroethane	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
2-Butanone	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
1,1,1-Trichloroethane	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
Carbon tetrachloride	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
Bromodichloromethane	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
1,2-Dichloropropane	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
cis-1,3-Dichloropropene	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
Trichloroethene	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
Dibromochloromethane	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
1,1,2-Trichloroethane	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
Benzene	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
trans-1,3-Dichloropropene	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
Bromoform	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
4-Methyl-2-pentanone	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
2-Hexanone	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
Tetrachloroethene	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
Toluene	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
1,1,2,2-Tetrachloroethane	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
Chlorobenzene	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
Ethylbenzene	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
Styrene	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14
Xylenes (total)	13	U	ug/kg	13	17	U	ug/kg	17	13	U	ug/kg	13	14	U	ug/kg	14

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SUBSURFACE SOIL -- VOLATILES -- REPORT NO. 9346

Lab Sample Number:	C85MM				C8600				C85MQ				C85MT			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SB4D				CF19SB5				CF19SB6				CF19SB7			
Collect Date:	13-FEB-97				14-FEB-97				13-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW																
Chloromethane	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
Bromomethane	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
Vinyl chloride	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
Chloroethane	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
Methylene chloride	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
Acetone	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
Carbon disulfide	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
1,1-Dichloroethene	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
1,1-Dichloroethane	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
1,2-Dichloroethene (total)	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
Chloroform	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
1,2-Dichloroethane	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
2-Butanone	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
1,1,1-Trichloroethane	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
Carbon tetrachloride	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
Bromodichloromethane	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
1,2-Dichloropropane	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
cis-1,3-Dichloropropene	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
Trichloroethene	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
Dibromochloromethane	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
1,1,2-Trichloroethane	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
Benzene	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
trans-1,3-Dichloropropene	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
Bromoform	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
4-Methyl-2-pentanone	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
2-Hexanone	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
Tetrachloroethene	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
Toluene	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
1,1,2,2-Tetrachloroethane	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
Chlorobenzene	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
Ethylbenzene	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
Styrene	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	13	U	ug/kg	13
Xylenes (total)	14	U	ug/kg	14	15	U	ug/kg	15	12	U	ug/kg	12	3	J	ug/kg	13

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SUBSURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9347

Lab Sample Number:	C8529				C852A				C85ME				C85MK			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SB1				CF19SB2				CF19SB3				CF19SB4			
Collect Date:	13-FEB-97				13-FEB-97				13-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW																
Phenol	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
bis(2-Chloroethyl) ether	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
2-Chlorophenol	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
1,3-Dichlorobenzene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
1,4-Dichlorobenzene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
1,2-Dichlorobenzene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
2-Methylphenol	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
2,2-oxybis(1-Chloropropane)	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
4-Methylphenol	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
N-Nitroso-di-n-propylamine	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Hexachloroethane	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Nitrobenzene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Isophorone	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
2-Nitrophenol	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
2,4-Dimethylphenol	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
bis(2-Chloroethoxy) methane	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
2,4-Dichlorophenol	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
1,2,4-Trichlorobenzene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Naphthalene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
4-Chloroaniline	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Hexachlorobutadiene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
4-Chloro-3-methylphenol	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
2-Methylnaphthalene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Hexachlorocyclopentadiene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
2,4,6-Trichlorophenol	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
2,4,5-Trichlorophenol	1000	U	ug/kg	1000	1400	U	ug/kg	1400	1000	U	ug/kg	1000	1100	U	ug/kg	1100
2-Chloronaphthalene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
2-Nitroaniline	1000	U	ug/kg	1000	1400	U	ug/kg	1400	1000	U	ug/kg	1000	1100	U	ug/kg	1100
Dimethylphthalate	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Acenaphthylene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
2,6-Dinitrotoluene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
3-Nitroaniline	1000	U	ug/kg	1000	1400	U	ug/kg	1400	1000	U	ug/kg	1000	1100	U	ug/kg	1100
Acenaphthene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
2,4-Dinitrophenol	1000	U	ug/kg	1000	1400	U	ug/kg	1400	1000	U	ug/kg	1000	1100	U	ug/kg	1100
4-Nitrophenol	1000	U	ug/kg	1000	1400	U	ug/kg	1400	1000	U	ug/kg	1000	1100	U	ug/kg	1100
Dibenzofuran	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
2,4-Dinitrotoluene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Diethylphthalate	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
4-Chlorophenyl-phenylether	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Fluorene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
4-Nitroaniline	1000	U	ug/kg	1000	1400	U	ug/kg	1400	1000	U	ug/kg	1000	1100	U	ug/kg	1100
4,6-Dinitro-2-methylphenol	1000	U	ug/kg	1000	1400	U	ug/kg	1400	1000	U	ug/kg	1000	1100	U	ug/kg	1100
N-Nitrosodiphenylamine	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
4-Bromophenyl-phenylether	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Hexachlorobenzene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Pentachlorophenol	1000	U	ug/kg	1000	1400	U	ug/kg	1400	1000	U	ug/kg	1000	1100	U	ug/kg	1100
Phenanthrene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Anthracene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Carbazole	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Di-n-butylphthalate	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SUBSURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9347

Lab Sample Number:	C8529				C852A				C85ME				C85MK			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SB1				CF19SB2				CF19SB3				CF19SB4			
Collect Date:	13-FEB-97				13-FEB-97				13-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluoranthene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Pyrene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Butylbenzylphthalate	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
3,3-Dichlorobenzidine	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Benzo (a) anthracene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Chrysene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
bis(2-Ethylhexyl) phthalate	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Di-n-octylphthalate	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Benzo (b) fluoranthene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Benzo (k) fluoranthene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Benzo (a) pyrene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Indeno (1,2,3-cd) pyrene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Dibenzo (a,h) anthracene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460
Benzo (g,h,i) perylene	420	U	ug/kg	420	560	U	ug/kg	560	420	U	ug/kg	420	460	U	ug/kg	460

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R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SUBSURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9347

Lab Sample Number:	C85MM				C8600				C85MQ				C85MT			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SB4D				CF19SB5				CF19SB6				CF19SB7			
Collect Date:	13-FEB-97				14-FEB-97				13-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW																
Phenol	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
bis(2-Chloroethyl) ether	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
2-Chlorophenol	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
1,3-Dichlorobenzene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
1,4-Dichlorobenzene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
1,2-Dichlorobenzene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
2-Methylphenol	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
2,2-oxybis(1-Chloropropane)	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
4-Methylphenol	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
N-Nitroso-di-n-propylamine	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Hexachloroethane	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Nitrobenzene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Isophorone	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
2-Nitrophenol	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
2,4-Dimethylphenol	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
bis(2-Chloroethoxy) methane	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
2,4-Dichlorophenol	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
1,2,4-Trichlorobenzene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Naphthalene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
4-Chloroaniline	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Hexachlorobutadiene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
4-Chloro-3-methylphenol	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
2-Methylnaphthalene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Hexachlorocyclopentadiene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
2,4,6-Trichlorophenol	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
2,4,5-Trichlorophenol	1100	U	ug/kg	1100	1200	U	ug/kg	1200	960	U	ug/kg	960	1100	U	ug/kg	1100
2-Chloronaphthalene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
2-Nitroaniline	1100	U	ug/kg	1100	1200	U	ug/kg	1200	960	U	ug/kg	960	1100	U	ug/kg	1100
Dimethylphthalate	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Acenaphthylene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
2,6-Dinitrotoluene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
3-Nitroaniline	1100	U	ug/kg	1100	1200	U	ug/kg	1200	960	U	ug/kg	960	1100	U	ug/kg	1100
Acenaphthene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
2,4-Dinitrophenol	1100	U	ug/kg	1100	1200	U	ug/kg	1200	960	U	ug/kg	960	1100	U	ug/kg	1100
4-Nitrophenol	1100	U	ug/kg	1100	1200	U	ug/kg	1200	960	U	ug/kg	960	1100	U	ug/kg	1100
Dibenzofuran	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
2,4-Dinitrotoluene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Diethylphthalate	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
4-Chlorophenyl-phenylether	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Fluorene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SUBSURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9347

Lab Sample Number:	C85MM				C8600				C85MQ				C85MT			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SB4D				CF19SB5				CF19SB6				CF19SB7			
Collect Date:	13-FEB-97				14-FEB-97				13-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	1100	U	ug/kg	1100	1200	U	ug/kg	1200	960	U	ug/kg	960	1100	U	ug/kg	1100
4,6-Dinitro-2-methylphenol	1100	U	ug/kg	1100	1200	U	ug/kg	1200	960	U	ug/kg	960	1100	U	ug/kg	1100
N-Nitrosodiphenylamine	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
4-Bromophenyl-phenylether	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Hexachlorobenzene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Pentachlorophenol	1100	U	ug/kg	1100	1200	U	ug/kg	1200	960	U	ug/kg	960	1100	U	ug/kg	1100
Phenanthrene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Anthracene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Carbazole	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Di-n-butylphthalate	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Fluoranthene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Pyrene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Butylbenzylphthalate	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
3,3-Dichlorobenzidine	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Benzo (a) anthracene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Chrysene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
bis(2-Ethylhexyl) phthalate	460	U	ug/kg	460	490	U	ug/kg	490	64	J	ug/kg	400	440	U	ug/kg	440
Di-n-octylphthalate	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Benzo (b) fluoranthene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Benzo (k) fluoranthene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Benzo (a) pyrene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Indeno (1,2,3-cd) pyrene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Dibenzo (a,h) anthracene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440
Benzo (g,h,i) perylene	460	U	ug/kg	460	490	U	ug/kg	490	400	U	ug/kg	400	440	U	ug/kg	440

U = NOT DETECTED J = ESTIMATED VALUE
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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SUBSURFACE SOIL -- PESTICIDES AND PCBs -- REPORT NO. 9348

Lab Sample Number:	C8529				C852A				C85ME				C85MERE			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SB1				CF19SB2				CF19SB3				CF19SB3RE			
Collect Date:	13-FEB-97				13-FEB-97				13-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	2.1	U	ug/kg	2.1	2.8	U	ug/kg	2.8	2.2	U	ug/kg	2.2	2.1	U	ug/kg	2.1
beta-BHC	2.1	U	ug/kg	2.1	2.8	U	ug/kg	2.8	2.2	U	ug/kg	2.2	2.1	U	ug/kg	2.1
delta-BHC	2.1	U	ug/kg	2.1	2.8	U	ug/kg	2.8	2.2	U	ug/kg	2.2	2.1	U	ug/kg	2.1
gamma-BHC (Lindane)	2.1	U	ug/kg	2.1	2.8	U	ug/kg	2.8	2.2	U	ug/kg	2.2	2.1	U	ug/kg	2.1
Heptachlor	2.1	U	ug/kg	2.1	2.8	U	ug/kg	2.8	2.2	U	ug/kg	2.2	2.1	U	ug/kg	2.1
Aldrin	2.1	U	ug/kg	2.1	2.8	U	ug/kg	2.8	2.2	U	ug/kg	2.2	2.1	U	ug/kg	2.1
Heptachlor epoxide	2.1	U	ug/kg	2.1	2.8	U	ug/kg	2.8	2.2	U	ug/kg	2.2	2.1	U	ug/kg	2.1
Endosulfan I	2.1	U	ug/kg	2.1	2.8	U	ug/kg	2.8	2.2	U	ug/kg	2.2	2.1	U	ug/kg	2.1
Dieldrin	4.2	U	ug/kg	4.2	5.7	U	ug/kg	5.7	4.3	U	ug/kg	4.3	4.3	U	ug/kg	4.3
4,4-DDE	4.2	U	ug/kg	4.2	.85	J	ug/kg	6	4.3	U	ug/kg	4.3	4.3	U	ug/kg	4.3
Endrin	4.2	U	ug/kg	4.2	5.7	U	ug/kg	5.7	4.3	U	ug/kg	4.3	4.3	U	ug/kg	4.3
Endosulfan II	4.2	U	ug/kg	4.2	5.7	U	ug/kg	5.7	4.3	U	ug/kg	4.3	4.3	U	ug/kg	4.3
4,4-DDD	4.2	U	ug/kg	4.2	5.7	U	ug/kg	5.7	4.3	U	ug/kg	4.3	4.3	U	ug/kg	4.3
Endosulfan sulfate	4.2	U	ug/kg	4.2	5.7	U	ug/kg	5.7	4.3	U	ug/kg	4.3	4.3	U	ug/kg	4.3
4,4-DDT	4.2	U	ug/kg	4.2	5.7	U	ug/kg	5.7	4.3	U	ug/kg	4.3	4.3	U	ug/kg	4.3
Methoxychlor	21	U	ug/kg	21	28	U	ug/kg	28	22	U	ug/kg	22	21	U	ug/kg	21
Endrin ketone	4.2	U	ug/kg	4.2	5.7	U	ug/kg	5.7	4.3	U	ug/kg	4.3	4.3	U	ug/kg	4.3
Endrin aldehyde	4.2	U	ug/kg	4.2	5.7	U	ug/kg	5.7	4.3	U	ug/kg	4.3	4.3	U	ug/kg	4.3
alpha-Chlordane	2.1	U	ug/kg	2.1	2.8	U	ug/kg	2.8	2.2	U	ug/kg	2.2	2.1	U	ug/kg	2.1
gamma-Chlordane	2.1	U	ug/kg	2.1	2.8	U	ug/kg	2.8	2.2	U	ug/kg	2.2	2.1	U	ug/kg	2.1
Toxaphene	210	U	ug/kg	210	280	U	ug/kg	280	220	U	ug/kg	220	210	U	ug/kg	210
Aroclor-1016	42	U	ug/kg	42	57	U	ug/kg	57	43	U	ug/kg	43	43	U	ug/kg	43
Aroclor-1221	84	U	ug/kg	84	110	U	ug/kg	110	86	U	ug/kg	86	86	U	ug/kg	86
Aroclor-1232	42	U	ug/kg	42	57	U	ug/kg	57	43	U	ug/kg	43	43	U	ug/kg	43
Aroclor-1242	42	U	ug/kg	42	57	U	ug/kg	57	43	U	ug/kg	43	43	U	ug/kg	43
Aroclor-1248	42	U	ug/kg	42	57	U	ug/kg	57	43	U	ug/kg	43	43	U	ug/kg	43
Aroclor-1254	42	U	ug/kg	42	57	U	ug/kg	57	43	U	ug/kg	43	43	U	ug/kg	43
Aroclor-1260	42	U	ug/kg	42	57	U	ug/kg	57	43	U	ug/kg	43	43	U	ug/kg	43

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SUBSURFACE SOIL -- PESTICIDES AND PCBs -- REPORT NO. 9348

Lab Sample Number:	C85MK				C85MM				C85MKRE				C8600			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SB4				CF19SB4D				CF19SB4RE				CF19SB5			
Collect Date:	13-FEB-97				13-FEB-97				13-FEB-97				14-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	2.3	U	ug/kg	2.3	2.4	U	ug/kg	2.4	2.3	U	ug/kg	2.3	2.5	U	ug/kg	2.5
beta-BHC	2.3	U	ug/kg	2.3	2.4	U	ug/kg	2.4	2.3	U	ug/kg	2.3	2.5	U	ug/kg	2.5
delta-BHC	2.3	U	ug/kg	2.3	2.4	U	ug/kg	2.4	2.3	U	ug/kg	2.3	2.5	U	ug/kg	2.5
gamma-BHC (Lindane)	2.3	U	ug/kg	2.3	2.4	U	ug/kg	2.4	2.3	U	ug/kg	2.3	2.5	U	ug/kg	2.5
Heptachlor	2.3	U	ug/kg	2.3	2.4	U	ug/kg	2.4	2.3	U	ug/kg	2.3	2.5	U	ug/kg	2.5
Aldrin	2.3	U	ug/kg	2.3	2.4	U	ug/kg	2.4	.19	J	ug/kg	2	2.5	U	ug/kg	2.5
Heptachlor epoxide	2.3	U	ug/kg	2.3	2.4	U	ug/kg	2.4	2.3	U	ug/kg	2.3	2.5	U	ug/kg	2.5
Endosulfan I	2.3	U	ug/kg	2.3	2.4	U	ug/kg	2.4	2.3	U	ug/kg	2.3	2.5	U	ug/kg	2.5
Dieldrin	4.7	U	ug/kg	4.7	4.7	U	ug/kg	4.7	4.7	U	ug/kg	4.7	5	U	ug/kg	5
4,4-DDE	4.7	U	ug/kg	4.7	4.7	U	ug/kg	4.7	4.7	U	ug/kg	4.7	5	U	ug/kg	5
Endrin	4.7	U	ug/kg	4.7	4.7	U	ug/kg	4.7	4.7	U	ug/kg	4.7	5	U	ug/kg	5
Endosulfan II	4.7	U	ug/kg	4.7	4.7	U	ug/kg	4.7	4.7	U	ug/kg	4.7	5	U	ug/kg	5
4,4-DDD	4.7	U	ug/kg	4.7	4.7	U	ug/kg	4.7	4.7	U	ug/kg	4.7	5	U	ug/kg	5
Endosulfan sulfate	4.7	U	ug/kg	4.7	4.7	U	ug/kg	4.7	4.7	U	ug/kg	4.7	5	U	ug/kg	5
4,4-DDT	4.7	U	ug/kg	4.7	4.7	U	ug/kg	4.7	54		ug/kg	5	5	U	ug/kg	5
Methoxychlor	23	U	ug/kg	23	24	U	ug/kg	24	23	U	ug/kg	23	25	U	ug/kg	25
Endrin ketone	4.7	U	ug/kg	4.7	4.7	U	ug/kg	4.7	4.7	U	ug/kg	4.7	5	U	ug/kg	5
Endrin aldehyde	4.7	U	ug/kg	4.7	4.7	U	ug/kg	4.7	4.7	U	ug/kg	4.7	5	U	ug/kg	5
alpha-Chlordane	2.3	U	ug/kg	2.3	2.4	U	ug/kg	2.4	2.3	U	ug/kg	2.3	2.5	U	ug/kg	2.5
gamma-Chlordane	2.3	U	ug/kg	2.3	2.4	U	ug/kg	2.4	2.3	U	ug/kg	2.3	2.5	U	ug/kg	2.5
Toxaphene	230	U	ug/kg	230	240	U	ug/kg	240	230	U	ug/kg	230	250	U	ug/kg	250
Aroclor-1016	47	U	ug/kg	47	47	U	ug/kg	47	47	U	ug/kg	47	50	U	ug/kg	50
Aroclor-1221	93	U	ug/kg	93	94	U	ug/kg	94	94	U	ug/kg	94	100	U	ug/kg	100
Aroclor-1232	47	U	ug/kg	47	47	U	ug/kg	47	47	U	ug/kg	47	50	U	ug/kg	50
Aroclor-1242	47	U	ug/kg	47	47	U	ug/kg	47	47	U	ug/kg	47	50	U	ug/kg	50
Aroclor-1248	47	U	ug/kg	47	47	U	ug/kg	47	47	U	ug/kg	47	50	U	ug/kg	50
Aroclor-1254	47	U	ug/kg	47	47	U	ug/kg	47	47	U	ug/kg	47	50	U	ug/kg	50
Aroclor-1260	47	U	ug/kg	47	47	U	ug/kg	47	47	U	ug/kg	47	50	U	ug/kg	50

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SUBSURFACE SOIL -- PESTICIDES AND PCBs -- REPORT NO. 9348

Lab Sample Number:	C8600RE				C85MQ				C85MQRE				C85MT			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SB5RE				CF19SB6				CF19SB6RE				CF19SB7			
Collect Date:	14-FEB-97				13-FEB-97				13-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	2.5	U	ug/kg	2.5	2	U	ug/kg	2	2	U	ug/kg	2	2.2	U	ug/kg	2.2
beta-BHC	2.5	U	ug/kg	2.5	2	U	ug/kg	2	2	U	ug/kg	2	2.2	U	ug/kg	2.2
delta-BHC	2.5	U	ug/kg	2.5	2	U	ug/kg	2	2	U	ug/kg	2	2.2	U	ug/kg	2.2
gamma-BHC (Lindane)	2.5	U	ug/kg	2.5	2	U	ug/kg	2	2	U	ug/kg	2	2.2	U	ug/kg	2.2
Heptachlor	2.5	U	ug/kg	2.5	2	U	ug/kg	2	2	U	ug/kg	2	2.2	U	ug/kg	2.2
Aldrin	2.5	U	ug/kg	2.5	2	U	ug/kg	2	2	U	ug/kg	2	2.2	U	ug/kg	2.2
Heptachlor epoxide	2.5	U	ug/kg	2.5	2	U	ug/kg	2	2	U	ug/kg	2	2.2	U	ug/kg	2.2
Endosulfan I	2.5	U	ug/kg	2.5	2	U	ug/kg	2	2	U	ug/kg	2	2.2	U	ug/kg	2.2
Dieldrin	5	U	ug/kg	5	4	U	ug/kg	4	4	U	ug/kg	4	4.5	U	ug/kg	4.5
4,4-DDE	5	U	ug/kg	5	4	U	ug/kg	4	4	U	ug/kg	4	4.5	U	ug/kg	4.5
Endrin	5	U	ug/kg	5	4	U	ug/kg	4	4	U	ug/kg	4	4.5	U	ug/kg	4.5
Endosulfan II	5	U	ug/kg	5	4	U	ug/kg	4	4	U	ug/kg	4	4.5	U	ug/kg	4.5
4,4-DDD	5	U	ug/kg	5	4	U	ug/kg	4	4	U	ug/kg	4	4.5	U	ug/kg	4.5
Endosulfan sulfate	5	U	ug/kg	5	4	U	ug/kg	4	4	U	ug/kg	4	4.5	U	ug/kg	4.5
4,4-DDT	5	U	ug/kg	5	4	U	ug/kg	4	4	U	ug/kg	4	4.5	U	ug/kg	4.5
Methoxychlor	25	U	ug/kg	25	20	U	ug/kg	20	20	U	ug/kg	20	22	U	ug/kg	22
Endrin ketone	5	U	ug/kg	5	4	U	ug/kg	4	4	U	ug/kg	4	4.5	U	ug/kg	4.5
Endrin aldehyde	5	U	ug/kg	5	4	U	ug/kg	4	4	U	ug/kg	4	4.5	U	ug/kg	4.5
alpha-Chlordane	2.5	U	ug/kg	2.5	2	U	ug/kg	2	2	U	ug/kg	2	2.2	U	ug/kg	2.2
gamma-Chlordane	2.5	U	ug/kg	2.5	2	U	ug/kg	2	2	U	ug/kg	2	2.2	U	ug/kg	2.2
Toxaphene	250	U	ug/kg	250	200	U	ug/kg	200	200	U	ug/kg	200	220	U	ug/kg	220
Aroclor-1016	50	U	ug/kg	50	40	U	ug/kg	40	40	U	ug/kg	40	45	U	ug/kg	45
Aroclor-1221	100	U	ug/kg	100	80	U	ug/kg	80	80	U	ug/kg	80	89	U	ug/kg	89
Aroclor-1232	50	U	ug/kg	50	40	U	ug/kg	40	40	U	ug/kg	40	45	U	ug/kg	45
Aroclor-1242	50	U	ug/kg	50	40	U	ug/kg	40	40	U	ug/kg	40	45	U	ug/kg	45
Aroclor-1248	50	U	ug/kg	50	40	U	ug/kg	40	40	U	ug/kg	40	45	U	ug/kg	45
Aroclor-1254	50	U	ug/kg	50	40	U	ug/kg	40	40	U	ug/kg	40	45	U	ug/kg	45
Aroclor-1260	50	U	ug/kg	50	40	U	ug/kg	40	40	U	ug/kg	40	45	U	ug/kg	45

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SUBSURFACE SOIL -- PESTICIDES AND PCBs -- REPORT NO. 9348

Lab Sample Number:	C85MTRE			
Site	PSC19			
Locator	CF19SB7RE			
Collect Date:	13-FEB-97			
	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW				
alpha-BHC	2.2	U	ug/kg	2.2
beta-BHC	2.2	U	ug/kg	2.2
delta-BHC	2.2	U	ug/kg	2.2
gamma-BHC (Lindane)	2.2	U	ug/kg	2.2
Heptachlor	2.2	U	ug/kg	2.2
Aldrin	.12	J	ug/kg	2.2
Heptachlor epoxide	2.2	U	ug/kg	2.2
Endosulfan I	2.2	U	ug/kg	2.2
Dieldrin	4.5	U	ug/kg	4.5
4,4-DDE	4.5	U	ug/kg	4.5
Endrin	4.5	U	ug/kg	4.5
Endosulfan II	4.5	U	ug/kg	4.5
4,4-DDD	4.5	U	ug/kg	4.5
Endosulfan sulfate	4.5	U	ug/kg	4.5
4,4-DDT	4.5	U	ug/kg	4.5
Methoxychlor	22	U	ug/kg	22
Endrin ketone	4.5	U	ug/kg	4.5
Endrin aldehyde	4.5	U	ug/kg	4.5
alpha-Chlordane	2.2	U	ug/kg	2.2
gamma-Chlordane	2.2	U	ug/kg	2.2
Toxaphene	220	U	ug/kg	220
Aroclor-1016	45	U	ug/kg	45
Aroclor-1221	89	U	ug/kg	89
Aroclor-1232	45	U	ug/kg	45
Aroclor-1242	45	U	ug/kg	45
Aroclor-1248	45	U	ug/kg	45
Aroclor-1254	45	U	ug/kg	45
Aroclor-1260	45	U	ug/kg	45

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SUBSURFACE SOIL -- METALS -- REPORT NO. 9349

Lab Sample Number:	C8529				C852A				C85ME				C85MK			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SB1				CF19SB2				CF19SB3				CF19SB4			
Collect Date:	13-FEB-97				13-FEB-97				13-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	1140		mg/kg	40	2100		mg/kg	40	232		mg/kg	40	184		mg/kg	40
Antimony	.76	U	mg/kg	12	1	U	mg/kg	12	.77	U	mg/kg	12	.85	U	mg/kg	12
Arsenic	.5	U	mg/kg	2	.68	U	mg/kg	2	.51	U	mg/kg	2	.56	U	mg/kg	2
Barium	1	J	mg/kg	40	12.4	J	mg/kg	40	1.4	J	mg/kg	40	1.8	J	mg/kg	40
Beryllium	.25	U	mg/kg	1	.34	U	mg/kg	1	.26	U	mg/kg	1	.28	U	mg/kg	1
Cadmium	.25	U	mg/kg	1	.34	U	mg/kg	1	.26	U	mg/kg	1	.28	U	mg/kg	1
Calcium	1120	J	mg/kg	1000	874	J	mg/kg	1000	543	J	mg/kg	1000	1090	J	mg/kg	1000
Chromium	1.4	J	mg/kg	2	2.5	J	mg/kg	2	.97	J	mg/kg	2	.61	J	mg/kg	2
Cobalt	.25	U	mg/kg	10	.34	U	mg/kg	10	.26	U	mg/kg	10	.28	U	mg/kg	10
Copper	.25	U	mg/kg	5	1.8	J	mg/kg	5	1.5	U	mg/kg	5	1.7	U	mg/kg	5
Iron	75.5		mg/kg	20	626		mg/kg	20	70.9	J	mg/kg	20	172	J	mg/kg	20
Lead	1.4		mg/kg	.6	9.9		mg/kg	.6	1.1		mg/kg	.6	.88		mg/kg	.6
Magnesium	32.7	J	mg/kg	1000	58	J	mg/kg	1000	18.1	J	mg/kg	1000	24.4	J	mg/kg	1000
Manganese	1.3	J	mg/kg	3	2	J	mg/kg	3	3.1	J	mg/kg	3	2.5	J	mg/kg	3
Mercury	.06	U	mg/kg	.1	.08	U	mg/kg	.1	.06	U	mg/kg	.1	.07	U	mg/kg	.1
Nickel	.5	U	mg/kg	8	.74	J	mg/kg	8	.51	U	mg/kg	8	.56	U	mg/kg	8
Potassium	11.8	U	mg/kg	1000	17.2	J	mg/kg	1000	12.1	U	mg/kg	1000	13.3	U	mg/kg	1000
Selenium	1	U	mg/kg	1	1.4	U	mg/kg	1	1	U	mg/kg	1	1.1	U	mg/kg	1
Silver	.25	U	mg/kg	2	.34	U	mg/kg	2	.26	U	mg/kg	2	.28	U	mg/kg	2
Sodium	28	U	mg/kg	1000	37.7	U	mg/kg	1000	28.6	U	mg/kg	1000	31.3	U	mg/kg	1000
Thallium	.76	U	mg/kg	2	1	U	mg/kg	2	.77	U	mg/kg	2	.85	U	mg/kg	2
Vanadium	1	J	mg/kg	10	3	J	mg/kg	10	1.4	J	mg/kg	10	.63	J	mg/kg	10
Zinc	1.5	J	mg/kg	4	3.9	J	mg/kg	4	.77	U	mg/kg	4	1.1	J	mg/kg	4
Cyanide	.08	U	mg/kg	.5	.1	U	mg/kg	.5	.08	U	mg/kg	.5	.08	U	mg/kg	.5

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SUBSURFACE SOIL -- METALS -- REPORT NO. 9349

Lab Sample Number:	C85MM				C8600				C85MQ				C85MT			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SB4D				CF19SB5				CF19SB6				CF19SB7			
Collect Date:	13-FEB-97				14-FEB-97				13-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	287		mg/kg	40	568		mg/kg	40	16200		mg/kg	40	187		mg/kg	40
Antimony	.85	U	mg/kg	12	.9	U	mg/kg	12	.72	U	mg/kg	12	.8	U	mg/kg	12
Arsenic	.56	U	mg/kg	2	.6	U	mg/kg	2	.74	J	mg/kg	2	.53	U	mg/kg	2
Barium	2.3	J	mg/kg	40	7.1	J	mg/kg	40	9.1	J	mg/kg	40	2.1	J	mg/kg	40
Beryllium	.28	U	mg/kg	1	.3	U	mg/kg	1	.24	U	mg/kg	1	.27	U	mg/kg	1
Cadmium	.28	U	mg/kg	1	.3	U	mg/kg	1	.24	U	mg/kg	1	.27	U	mg/kg	1
Calcium	1420		mg/kg	1000	294	J	mg/kg	1000	101	J	mg/kg	1000	100	J	mg/kg	1000
Chromium	.75	J	mg/kg	2	.96	J	mg/kg	2	13.8		mg/kg	2	1.2	J	mg/kg	2
Cobalt	.28	U	mg/kg	10	.3	U	mg/kg	10	.87	J	mg/kg	10	.71	J	mg/kg	10
Copper	1.7	U	mg/kg	5	1.8	U	mg/kg	5	1.4	U	mg/kg	5	1.6	U	mg/kg	5
Iron	234	J	mg/kg	20	261	J	mg/kg	20	4270	J	mg/kg	20	219	J	mg/kg	20
Lead	1.4		mg/kg	.6	2.1		mg/kg	.6	10.1		mg/kg	.6	1.2		mg/kg	.6
Magnesium	19.7	J	mg/kg	1000	56	J	mg/kg	1000	349	J	mg/kg	1000	16.3	J	mg/kg	1000
Manganese	4.6		mg/kg	3	1.8	J	mg/kg	3	6.2		mg/kg	3	7.1		mg/kg	3
Mercury	.07	U	mg/kg	.1	.07	U	mg/kg	.1	.06	U	mg/kg	.1	.07	U	mg/kg	.1
Nickel	.56	U	mg/kg	8	.6	U	mg/kg	8	4.5	J	mg/kg	8	.53	U	mg/kg	8
Potassium	13.2	U	mg/kg	1000	14.1	U	mg/kg	1000	235	J	mg/kg	1000	12.6	U	mg/kg	1000
Selenium	1.1	U	mg/kg	1	1.2	U	mg/kg	1	.96	U	mg/kg	1	1.1	U	mg/kg	1
Silver	.28	U	mg/kg	2	.3	U	mg/kg	2	.24	U	mg/kg	2	.27	U	mg/kg	2
Sodium	31.3	U	mg/kg	1000	33.3	U	mg/kg	1000	26.7	U	mg/kg	1000	29.6	U	mg/kg	1000
Thallium	.85	U	mg/kg	2	.9	U	mg/kg	2	.72	U	mg/kg	2	.8	U	mg/kg	2
Vanadium	.87	J	mg/kg	10	1.2	J	mg/kg	10	12	J	mg/kg	10	1.3	J	mg/kg	10
Zinc	1.3	J	mg/kg	4	.9	U	mg/kg	4	3.1	J	mg/kg	4	.8	U	mg/kg	4
Cyanide	.08	U	mg/kg	.5	.08	U	mg/kg	.5	.07	U	mg/kg	.5	.08	U	mg/kg	.5

U = NOT DETECTED J = ESTIMATED VALUE
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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
GROUNDWATER -- VOLATILES -- REPORT NO. 9350

Lab Sample Number:	CATPP			CAWWV			CAVFC			CAW68		
Site	PSC19			PSC19			PSC19			PSC19		
Locator	CF19MW1S			CF19MW2S			CF19MW3S			CF19MW4S		
Collect Date:	21-JUL-97			24-JUL-97			22-JUL-97			23-JUL-97		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP VOLATILES 90-SOW												
Chloromethane	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Bromomethane	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Vinyl chloride	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Chloroethane	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Methylene chloride	10	U ug/l	10	10	U ug/l	10	2	J ug/l	10	10	U ug/l	10
Acetone	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Carbon disulfide	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
1,1-Dichloroethene	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
1,1-Dichloroethane	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
1,2-Dichloroethene (total)	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Chloroform	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
1,2-Dichloroethane	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
2-Butanone	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
1,1,1-Trichloroethane	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Carbon tetrachloride	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Bromodichloromethane	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
1,2-Dichloropropane	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
cis-1,3-Dichloropropene	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Trichloroethene	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Dibromochloromethane	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
1,1,2-Trichloroethane	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Benzene	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
trans-1,3-Dichloropropene	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Bromoform	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
4-Methyl-2-pentanone	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
2-Hexanone	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Tetrachloroethene	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Toluene	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
1,1,2,2-Tetrachloroethane	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Chlorobenzene	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Ethylbenzene	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Styrene	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Xylenes (total)	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
GROUNDWATER -- VOLATILES -- REPORT NO. 9350

Lab Sample Number:	CAW6C				CAVF4				CAW6K				CAW6N			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19MW4SD				CF19MW5S				CF19MW6S				CF19MW7S			
Collect Date:	23-JUL-97				22-JUL-97				23-JUL-97				23-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW																
Chloromethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromomethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Vinyl chloride	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Methylene chloride	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acetone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbon disulfide	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1-Dichloroethene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1-Dichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloroethene (total)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chloroform	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Butanone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1,1-Trichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbon tetrachloride	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromodichloromethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloropropane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
cis-1,3-Dichloropropene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Trichloroethene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibromochloromethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1,2-Trichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
trans-1,3-Dichloropropene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromoform	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Methyl-2-pentanone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Hexanone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Tetrachloroethene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Toluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1,2,2-Tetrachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Ethylbenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Styrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Xylenes (total)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 9351

Lab Sample Number:	CATPP				CAWWV				CAVFC				CAW68			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19MW1S				CF19MW2S				CF19MW3S				CF19MW4S			
Collect Date:	21-JUL-97				24-JUL-97				22-JUL-97				23-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW																
Phenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethyl) ether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Chlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,3-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,4-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,2-oxybis(1-Chloropropane)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitroso-di-n-propylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Nitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Isophorone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitrophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dimethylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethoxy) methane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2,4-Trichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Naphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloroaniline	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobutadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloro-3-methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylnaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorocyclopentadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,6-Trichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,5-Trichlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
2-Chloronaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Dimethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acenaphthylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,6-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Acenaphthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
4-Nitrophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Dibenzofuran	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Diethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chlorophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluorene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
N-Nitrosodiphenylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbazole	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 9351

Lab Sample Number:	CATPP				CAWWV				CAVFC				CAW68			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19MW1S				CF19MW2S				CF19MW3S				CF19MW4S			
Collect Date:	21-JUL-97				24-JUL-97				22-JUL-97				23-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	1	J	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenzo (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 9351

Lab Sample Number:	CAW6C				CAVF4				CAW6K				CAW6N			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19MW4SD				CF19MW5S				CF19MW6S				CF19MW7S			
Collect Date:	23-JUL-97				22-JUL-97				23-JUL-97				23-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW																
Phenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethyl) ether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Chlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,3-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,4-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,2-oxybis(1-Chloropropane)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitroso-di-n-propylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Nitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Isophorone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitrophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dimethylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethoxy) methane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2,4-Trichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Naphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloroaniline	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobutadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloro-3-methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylnaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorocyclopentadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,6-Trichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,5-Trichlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
2-Chloronaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Dimethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acenaphthylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,6-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Acenaphthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
4-Nitrophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Dibenzofuran	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Diethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chlorophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluorene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 9351

Lab Sample Number:	CAW6C				CAVF4				CAW6K				CAW6N			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19MW4SD				CF19MW5S				CF19MW6S				CF19MW7S			
Collect Date:	23-JUL-97				22-JUL-97				23-JUL-97				23-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
N-Nitrosodiphenylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbazole	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	1	J	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenzo (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
GROUNDWATER -- PESTICIDES AND PSCs -- REPORT NO. 9352

Lab Sample Number:	CATPP				CAWWV				CAVFC				CAW68			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19MW1S				CF19MW2S				CF19MW3S				CF19MW4S			
Collect Date:	21-JUL-97				24-JUL-97				22-JUL-97				23-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	U	ug/l	.05	.0028	J	ug/l		.05	U	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1

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R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
GROUNDWATER -- PESTICIDES AND PSCs -- REPORT NO. 9352

Lab Sample Number:	CAW6C				CAVF4				CAW6K				CAW6N			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19MW4SD				CF19MW5S				CF19MW6S				CF19MW7S			
Collect Date:	23-JUL-97				22-JUL-97				23-JUL-97				23-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
GROUNDWATER -- METALS (UNFILTERED) -- REPORT NO. 9353

Lab Sample Number:	CATPP			CAWWV			CAVFC			CAW68		
Site	PSC19			PSC19			PSC19			PSC19		
Locator	CF19MW1S			CF19MW2S			CF19MW3S			CF19MW4S		
Collect Date:	21-JUL-97			24-JUL-97			22-JUL-97			23-JUL-97		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP METALS AND CYANIDE												
Aluminum	261	ug/l	200	21.8 U	ug/l	200	212	ug/l	200	168 J	ug/l	200
Antimony	23.8 U	ug/l	60	23.8 U	ug/l	60	23.8 U	ug/l	60	23.8 U	ug/l	60
Arsenic	4.4 U	ug/l	10	4.4 U	ug/l	10	4.4 U	ug/l	10	4.4 U	ug/l	10
Barium	5.1 J	ug/l	200	9 J	ug/l	200	10 J	ug/l	200	11.1 J	ug/l	200
Beryllium	.4 U	ug/l	5	.4 U	ug/l	5	.4 U	ug/l	5	.4 U	ug/l	5
Cadmium	.3 U	ug/l	5	.3 U	ug/l	5	.3 U	ug/l	5	.3 U	ug/l	5
Calcium	44100	ug/l	5000	8630	ug/l	5000	269 J	ug/l	5000	458 J	ug/l	5000
Chromium	1.8 U	ug/l	10	1.8 U	ug/l	10	1.8 U	ug/l	10	1.8 U	ug/l	10
Cobalt	1.2 U	ug/l	50	1.2 U	ug/l	50	1.2 J	ug/l	50	1.2 U	ug/l	50
Copper	3.9 U	ug/l	25	3.9 U	ug/l	25	3.9 U	ug/l	25	3.9 U	ug/l	25
Iron	720	ug/l	100	130	ug/l	100	427	ug/l	100	53.5 J	ug/l	100
Lead	2.2 U	ug/l	3	2.2 U	ug/l	3	2.2 U	ug/l	3	2.2 U	ug/l	3
Magnesium	654 J	ug/l	5000	930 J	ug/l	5000	479 J	ug/l	5000	464 J	ug/l	5000
Manganese	29.3	ug/l	15	8.4 J	ug/l	15	1.4 J	ug/l	15	2 J	ug/l	15
Mercury	.12 J	ug/l	.2	.11 J	ug/l	.2	.1 J	ug/l	.2	.1 J	ug/l	.2
Nickel	2.8 U	ug/l	40	2.8 U	ug/l	40	2.8 U	ug/l	40	2.8 U	ug/l	40
Potassium	219 J	ug/l	5000	332 J	ug/l	5000	66.1 U	ug/l	5000	66.1 U	ug/l	5000
Selenium	4.1 U	ug/l	5	4.1 U	ug/l	5	4.1 U	ug/l	5	4.1 U	ug/l	5
Silver	1 U	ug/l	10	1 U	ug/l	10	1 U	ug/l	10	1 U	ug/l	10
Sodium	2910 J	ug/l	5000	3600 J	ug/l	5000	2790 J	ug/l	5000	2790 J	ug/l	5000
Thallium	5.9 U	ug/l	10	5.9 U	ug/l	10	5.9 U	ug/l	10	5.9 U	ug/l	10
Vanadium	4.8 J	ug/l	50	1.1 J	ug/l	50	6.8 J	ug/l	50	1 U	ug/l	50
Zinc	5.3 U	ug/l	20	9.2 J	ug/l	20	5.7 J	ug/l	20	9.5 J	ug/l	20
Cyanide	1.5 U	ug/l	10	1.5 U	ug/l	10	1.5 U	ug/l	10	1.5 U	ug/l	10

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
GROUNDWATER -- METALS (UNFILTERED) -- REPORT NO. 9353

Lab Sample Number:	CAW6C			CAVF4			CAW6K			CAW6N		
Site	PSC19			PSC19			PSC19			PSC19		
Locator	CF19MW4SD			CF19MW5S			CF19MW6S			CF19MW7S		
Collect Date:	23-JUL-97			22-JUL-97			23-JUL-97			23-JUL-97		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP METALS AND CYANIDE												
Aluminum	129 J	ug/l	200	862	ug/l	200	757	ug/l	200	969	ug/l	200
Antimony	23.8 U	ug/l	60	23.8 U	ug/l	60	23.8 U	ug/l	60	23.8 U	ug/l	60
Arsenic	4.4 U	ug/l	10	4.4 U	ug/l	10	4.4 U	ug/l	10	4.4 U	ug/l	10
Barium	10.8 J	ug/l	200	11 J	ug/l	200	13.1 J	ug/l	200	23.1 J	ug/l	200
Beryllium	.4 U	ug/l	5	.4 U	ug/l	5	.4 U	ug/l	5	.4 U	ug/l	5
Cadmium	.3 U	ug/l	5	.3 U	ug/l	5	.3 U	ug/l	5	.3 U	ug/l	5
Calcium	433 J	ug/l	5000	2360 J	ug/l	5000	5870	ug/l	5000	3350 J	ug/l	5000
Chromium	1.8 U	ug/l	10	1.8 U	ug/l	10	1.8 U	ug/l	10	1.8 U	ug/l	10
Cobalt	1.2 U	ug/l	50	1.2 U	ug/l	50	1.2 U	ug/l	50	1.4 J	ug/l	50
Copper	5.9 J	ug/l	25	3.9 U	ug/l	25	4.2 J	ug/l	25	5.4 J	ug/l	25
Iron	34.1 J	ug/l	100	233	ug/l	100	189	ug/l	100	1640	ug/l	100
Lead	2.2 U	ug/l	3	2.2 U	ug/l	3	2.2 U	ug/l	3	2.2 U	ug/l	3
Magnesium	447 J	ug/l	5000	430 J	ug/l	5000	934 J	ug/l	5000	957 J	ug/l	5000
Manganese	1.8 J	ug/l	15	11.4 J	ug/l	15	4.8 J	ug/l	15	5.6 J	ug/l	15
Mercury	.1 J	ug/l	.2	.11 J	ug/l	.2	.1 U	ug/l	.2	.11 J	ug/l	.2
Nickel	2.8 U	ug/l	40	2.8 U	ug/l	40	2.8 U	ug/l	40	2.8 U	ug/l	40
Potassium	66.1 U	ug/l	5000	66.1 U	ug/l	5000	112 J	ug/l	5000	66.1 U	ug/l	5000
Selenium	4.1 U	ug/l	5	4.1 U	ug/l	5	4.1 U	ug/l	5	4.1 U	ug/l	5
Silver	1 U	ug/l	10	1 U	ug/l	10	1 U	ug/l	10	1 U	ug/l	10
Sodium	2600 J	ug/l	5000	3420 J	ug/l	5000	3250 J	ug/l	5000	7140 J	ug/l	5000
Thallium	5.9 U	ug/l	10	5.9 U	ug/l	10	5.9 U	ug/l	10	5.9 U	ug/l	10
Vanadium	1 U	ug/l	50	1.8 J	ug/l	50	2 J	ug/l	50	7.5 J	ug/l	50
Zinc	5.3 U	ug/l	20	5.3 U	ug/l	20	5.3 U	ug/l	20	10.5 J	ug/l	20
Cyanide	1.5 U	ug/l	10	1.5 U	ug/l	10	1.5 U	ug/l	10	1.5 U	ug/l	10

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
GROUNDWATER -- METALS (UNFILTERED) -- REPORT NO. 9353

Lab Sample Number:	CAW6KF				CAW6NF			
Site	PSC19				PSC19			
Locator	CF19MW6SF				CF19MW7SF			
Collect Date:	23-JUL-97				23-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE								
Aluminum	288		ug/l	200	804		ug/l	200
Antimony	23.8	U	ug/l	60	23.8	U	ug/l	60
Arsenic	4.4	U	ug/l	10	4.4	U	ug/l	10
Barium	13.1	J	ug/l	200	23.8	J	ug/l	200
Beryllium	.4	U	ug/l	5	.4	U	ug/l	5
Cadmium	.3	U	ug/l	5	.3	U	ug/l	5
Calcium	5920		ug/l	5000	3300	J	ug/l	5000
Chromium	1.8	U	ug/l	10	1.8	U	ug/l	10
Cobalt	1.2	U	ug/l	50	1.2	U	ug/l	50
Copper	5.7	J	ug/l	25	5.2	J	ug/l	25
Iron	153		ug/l	100	1660		ug/l	100
Lead	2.2	U	ug/l	3	2.2	U	ug/l	3
Magnesium	929	J	ug/l	5000	959	J	ug/l	5000
Manganese	5.2	J	ug/l	15	5.7	J	ug/l	15
Mercury	.1	U	ug/l	.2	.1	J	ug/l	.2
Nickel	2.8	U	ug/l	40	2.8	U	ug/l	40
Potassium	160	J	ug/l	5000	66.1	U	ug/l	5000
Selenium	4.1	U	ug/l	5	4.1	U	ug/l	5
Silver	1	U	ug/l	10	1	U	ug/l	10
Sodium	3680	J	ug/l	5000	6830	J	ug/l	5000
Thallium	5.9	U	ug/l	10	5.9	U	ug/l	10
Vanadium	1.3	J	ug/l	50	6.9	J	ug/l	50
Zinc	11	J	ug/l	20	17.9	J	ug/l	20
Cyanide	-				-			

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
GROUNDWATER -- METALS (FILTERED) -- REPORT NO. 9354

Lab Sample Number:	CAW6KF				CAW6NF			
Site	PSC19				PSC19			
Locator	CF19MW6SF				CF19MW7SF			
Collect Date:	23-JUL-97				23-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE								
Aluminum	288		ug/l	200	804		ug/l	200
Antimony	23.8	U	ug/l	60	23.8	U	ug/l	60
Arsenic	4.4	U	ug/l	10	4.4	U	ug/l	10
Barium	13.1	J	ug/l	200	23.8	J	ug/l	200
Beryllium	.4	U	ug/l	5	.4	U	ug/l	5
Cadmium	.3	U	ug/l	5	.3	U	ug/l	5
Calcium	5920		ug/l	5000	3300	J	ug/l	5000
Chromium	1.8	U	ug/l	10	1.8	U	ug/l	10
Cobalt	1.2	U	ug/l	50	1.2	U	ug/l	50
Copper	5.7	J	ug/l	25	5.2	J	ug/l	25
Iron	153		ug/l	100	1660		ug/l	100
Lead	2.2	U	ug/l	3	2.2	U	ug/l	3
Magnesium	929	J	ug/l	5000	959	J	ug/l	5000
Manganese	5.2	J	ug/l	15	5.7	J	ug/l	15
Mercury	.1	U	ug/l	.2	.1	J	ug/l	.2
Nickel	2.8	U	ug/l	40	2.8	U	ug/l	40
Potassium	160	J	ug/l	5000	66.1	U	ug/l	5000
Selenium	4.1	U	ug/l	5	4.1	U	ug/l	5
Silver	1	U	ug/l	10	1	U	ug/l	10
Sodium	3680	J	ug/l	5000	6830	J	ug/l	5000
Thallium	5.9	U	ug/l	10	5.9	U	ug/l	10
Vanadium	1.3	J	ug/l	50	6.9	J	ug/l	50
Zinc	11	J	ug/l	20	17.9	J	ug/l	20
Cyanide	-				-			

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SEDIMENT -- VOLATILES -- REPORT NO. 9355

Lab Sample Number:	C851W				C84D0				C84D1				C852C			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SD1				CF19SD2				CF19SD2D				CF19SD3			
Collect Date:	12-FEB-97				12-FEB-97				12-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW																
Chloromethane	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
Bromomethane	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
Vinyl chloride	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
Chloroethane	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
Methylene chloride	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
Acetone	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
Carbon disulfide	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
1,1-Dichloroethene	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
1,1-Dichloroethane	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
1,2-Dichloroethene (total)	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
Chloroform	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
1,2-Dichloroethane	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
2-Butanone	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
1,1,1-Trichloroethane	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
Carbon tetrachloride	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
Bromodichloromethane	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
1,2-Dichloropropane	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
cis-1,3-Dichloropropene	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
Trichloroethene	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
Dibromochloromethane	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
1,1,2-Trichloroethane	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
Benzene	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
trans-1,3-Dichloropropene	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
Bromoform	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
4-Methyl-2-pentanone	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
2-Hexanone	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
Tetrachloroethene	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
Toluene	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
1,1,2,2-Tetrachloroethane	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
Chlorobenzene	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
Ethylbenzene	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
Styrene	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31
Xylenes (total)	14	U	ug/kg	14	14	U	ug/kg	14	59	U	ug/kg	59	31	U	ug/kg	31

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SEDIMENT -- SEMIVOLATILES -- REPORT NO. 9356

Lab Sample Number:	C851W			C84D0			C84D1			C852C		
Site	PSC19			PSC19			PSC19			PSC19		
Locator	CF19SD1			CF19SD2			CF19SD2D			CF19SD3		
Collect Date:	12-FEB-97			12-FEB-97			12-FEB-97			13-FEB-97		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP SEMIVOLATILES 90-SOW												
Phenol	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
bis(2-Chloroethyl) ether	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
2-Chlorophenol	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
1,3-Dichlorobenzene	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
1,4-Dichlorobenzene	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
1,2-Dichlorobenzene	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
2-Methylphenol	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
2,2-oxybis(1-Chloropropane)	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
4-Methylphenol	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
N-Nitroso-di-n-propylamine	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
Hexachloroethane	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
Nitrobenzene	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
Isophorone	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
2-Nitrophenol	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
2,4-Dimethylphenol	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
bis(2-Chloroethoxy) methane	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
2,4-Dichlorophenol	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
1,2,4-Trichlorobenzene	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
Naphthalene	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
4-Chloroaniline	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
Hexachlorobutadiene	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
4-Chloro-3-methylphenol	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
2-Methylnaphthalene	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
Hexachlorocyclopentadiene	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
2,4,6-Trichlorophenol	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
2,4,5-Trichlorophenol	1100 U	ug/kg	1100	1100 U	ug/kg	1100	4600 U	ug/kg	4600	2500 U	ug/kg	2500
2-Chloronaphthalene	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
2-Nitroaniline	1100 U	ug/kg	1100	1100 U	ug/kg	1100	4600 U	ug/kg	4600	2500 U	ug/kg	2500
Dimethylphthalate	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
Acenaphthylene	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
2,6-Dinitrotoluene	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
3-Nitroaniline	1100 U	ug/kg	1100	1100 U	ug/kg	1100	4600 U	ug/kg	4600	2500 U	ug/kg	2500
Acenaphthene	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
2,4-Dinitrophenol	1100 U	ug/kg	1100	1100 U	ug/kg	1100	4600 U	ug/kg	4600	2500 U	ug/kg	2500
4-Nitrophenol	1100 U	ug/kg	1100	1100 U	ug/kg	1100	4600 U	ug/kg	4600	2500 U	ug/kg	2500
Dibenzofuran	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
2,4-Dinitrotoluene	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
Diethylphthalate	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
4-Chlorophenyl-phenylether	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
Fluorene	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
4-Nitroaniline	1100 U	ug/kg	1100	1100 U	ug/kg	1100	4600 U	ug/kg	4600	2500 U	ug/kg	2500
4,6-Dinitro-2-methylphenol	1100 U	ug/kg	1100	1100 U	ug/kg	1100	4600 U	ug/kg	4600	2500 U	ug/kg	2500
N-Nitrosodiphenylamine	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
4-Bromophenyl-phenylether	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
Hexachlorobenzene	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
Pentachlorophenol	1100 U	ug/kg	1100	1100 U	ug/kg	1100	4600 U	ug/kg	4600	2500 U	ug/kg	2500
Phenanthrene	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
Anthracene	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
Carbazole	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000
Di-n-butylphthalate	450 U	ug/kg	450	470 U	ug/kg	470	1900 U	ug/kg	1900	1000 U	ug/kg	1000

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SEDIMENT -- SEMIVOLATILES -- REPORT NO. 9356

Lab Sample Number:	C851W				C84D0				C84D1				C852C			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SD1				CF19SD2				CF19SD2D				CF19SD3			
Collect Date:	12-FEB-97				12-FEB-97				12-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluoranthene	450	U	ug/kg	450	470	U	ug/kg	470	1900	U	ug/kg	1900	1000	U	ug/kg	1000
Pyrene	450	U	ug/kg	450	470	U	ug/kg	470	1900	U	ug/kg	1900	1000	U	ug/kg	1000
Butylbenzylphthalate	450	U	ug/kg	450	470	U	ug/kg	470	1900	U	ug/kg	1900	1000	U	ug/kg	1000
3,3-Dichlorobenzidine	450	U	ug/kg	450	470	U	ug/kg	470	1900	U	ug/kg	1900	1000	U	ug/kg	1000
Benzo (a) anthracene	450	U	ug/kg	450	470	U	ug/kg	470	1900	U	ug/kg	1900	1000	U	ug/kg	1000
Chrysene	450	U	ug/kg	450	470	U	ug/kg	470	1900	U	ug/kg	1900	1000	U	ug/kg	1000
bis(2-Ethylhexyl) phthalate	450	U	ug/kg	450	470	U	ug/kg	470	1900	U	ug/kg	1900	1000	U	ug/kg	1000
Di-n-octylphthalate	450	U	ug/kg	450	470	U	ug/kg	470	1900	U	ug/kg	1900	1000	U	ug/kg	1000
Benzo (b) fluoranthene	450	U	ug/kg	450	66	J	ug/kg	470	1900	U	ug/kg	1900	1000	U	ug/kg	1000
Benzo (k) fluoranthene	450	U	ug/kg	450	470	U	ug/kg	470	1900	U	ug/kg	1900	1000	U	ug/kg	1000
Benzo (a) pyrene	450	U	ug/kg	450	470	U	ug/kg	470	1900	U	ug/kg	1900	1000	U	ug/kg	1000
Indeno (1,2,3-cd) pyrene	450	U	ug/kg	450	470	U	ug/kg	470	1900	U	ug/kg	1900	1000	U	ug/kg	1000
Dibenzo (a,h) anthracene	450	U	ug/kg	450	470	U	ug/kg	470	1900	U	ug/kg	1900	1000	U	ug/kg	1000
Benzo (g,h,i) perylene	450	U	ug/kg	450	470	U	ug/kg	470	1900	U	ug/kg	1900	1000	U	ug/kg	1000

U = NOT DETECTED J = ESTIMATED VALUE
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R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SEDIMENT -- PESTICIDES AND PCBs -- REPORT NO. 9357

Lab Sample Number:	C851W				C84D0				C84D1				C852C			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SD1				CF19SD2				CF19SD2D				CF19SD3			
Collect Date:	12-FEB-97				12-FEB-97				12-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	2.3	U	ug/kg	2.3	2.4	U	ug/kg	2.4	9.7	U	ug/kg	9.7	5.3	U	ug/kg	5.3
beta-BHC	2.3	U	ug/kg	2.3	2.4	U	ug/kg	2.4	9.7	U	ug/kg	9.7	5.3	U	ug/kg	5.3
delta-BHC	2.3	U	ug/kg	2.3	2.4	U	ug/kg	2.4	9.7	U	ug/kg	9.7	5.3	U	ug/kg	5.3
gamma-BHC (Lindane)	2.3	U	ug/kg	2.3	2.4	U	ug/kg	2.4	9.7	U	ug/kg	9.7	5.3	U	ug/kg	5.3
Heptachlor	2.3	U	ug/kg	2.3	2.4	U	ug/kg	2.4	9.7	U	ug/kg	9.7	5.3	U	ug/kg	5.3
Aldrin	.16	J	ug/kg	2	.87	J	ug/kg	2	2.5	J	ug/kg	9	.47	J	ug/kg	5
Heptachlor epoxide	2.3	U	ug/kg	2.3	2.4	U	ug/kg	2.4	9.7	U	ug/kg	9.7	5.3	U	ug/kg	5.3
Endosulfan I	2.3	U	ug/kg	2.3	2.4	U	ug/kg	2.4	9.7	U	ug/kg	9.7	5.3	U	ug/kg	5.3
Dieldrin	4.5	U	ug/kg	4.5	4.7	U	ug/kg	4.7	19	U	ug/kg	19	10	U	ug/kg	10
4,4-DDE	4.5	U	ug/kg	4.5	4.7	U	ug/kg	4.7	2.3	J	ug/kg	18	1.2	J	ug/kg	10
Endrin	4.5	U	ug/kg	4.5	4.7	U	ug/kg	4.7	19	U	ug/kg	19	10	U	ug/kg	10
Endosulfan II	4.5	U	ug/kg	4.5	4.7	U	ug/kg	4.7	19	U	ug/kg	19	10	U	ug/kg	10
4,4-DDD	4.5	U	ug/kg	4.5	4.7	U	ug/kg	4.7	19	U	ug/kg	19	10	U	ug/kg	10
Endosulfan sulfate	4.5	U	ug/kg	4.5	4.7	U	ug/kg	4.7	19	U	ug/kg	19	10	U	ug/kg	10
4,4-DDT	4.5	U	ug/kg	4.5	4.7	U	ug/kg	4.7	1.4	J	ug/kg	18	10	U	ug/kg	10
Methoxychlor	23	U	ug/kg	23	24	U	ug/kg	24	97	U	ug/kg	97	53	U	ug/kg	53
Endrin ketone	4.5	U	ug/kg	4.5	4.7	U	ug/kg	4.7	19	U	ug/kg	19	10	U	ug/kg	10
Endrin aldehyde	4.5	U	ug/kg	4.5	4.7	U	ug/kg	4.7	19	U	ug/kg	19	10	U	ug/kg	10
alpha-Chlordane	2.3	U	ug/kg	2.3	.9	J	ug/kg	2	2.6	J	ug/kg	9	2.3	J	ug/kg	5
gamma-Chlordane	2.3	U	ug/kg	2.3	2.4	U	ug/kg	2.4	1	J	ug/kg	9	1	J	ug/kg	5
Toxaphene	230	U	ug/kg	230	240	U	ug/kg	240	970	U	ug/kg	970	530	U	ug/kg	530
Aroclor-1016	45	U	ug/kg	45	47	U	ug/kg	47	190	U	ug/kg	190	100	U	ug/kg	100
Aroclor-1221	91	U	ug/kg	91	95	U	ug/kg	95	390	U	ug/kg	390	210	U	ug/kg	210
Aroclor-1232	45	U	ug/kg	45	47	U	ug/kg	47	190	U	ug/kg	190	100	U	ug/kg	100
Aroclor-1242	45	U	ug/kg	45	47	U	ug/kg	47	190	U	ug/kg	190	100	U	ug/kg	100
Aroclor-1248	45	U	ug/kg	45	47	U	ug/kg	47	190	U	ug/kg	190	100	U	ug/kg	100
Aroclor-1254	45	U	ug/kg	45	47	U	ug/kg	47	190	U	ug/kg	190	88	J	ug/kg	100
Aroclor-1260	45	U	ug/kg	45	47	U	ug/kg	47	190	U	ug/kg	190	100	U	ug/kg	100

U = NOT DETECTED J = ESTIMATED VALUE
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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SEDIMENT -- METALS -- REPORT NO. 9358

Lab Sample Number:	C851W				C84D0				C84D1				C852C			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SD1				CF19SD2				CF19SD2D				CF19SD3			
Collect Date:	12-FEB-97				12-FEB-97				12-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	238		mg/kg	40	1100		mg/kg	40	5160		mg/kg	40	5250		mg/kg	40
Antimony	.82	U	mg/kg	12	.86	U	mg/kg	12	3.5	U	mg/kg	12	1.9	U	mg/kg	12
Arsenic	.55	U	mg/kg	2	.57	U	mg/kg	2	2.3	U	mg/kg	2	1.5	J	mg/kg	2
Barium	1.3	J	mg/kg	40	5	J	mg/kg	40	21.1	J	mg/kg	40	26.2	J	mg/kg	40
Beryllium	.27	U	mg/kg	1	.29	U	mg/kg	1	1.2	U	mg/kg	1	.63	U	mg/kg	1
Cadmium	.27	U	mg/kg	1	.29	U	mg/kg	1	1.2	U	mg/kg	1	.63	U	mg/kg	1
Calcium	105	J	mg/kg	1000	430	J	mg/kg	1000	1980	J	mg/kg	1000	1870	J	mg/kg	1000
Chromium	.72	J	mg/kg	2	1.7	J	mg/kg	2	7.6	J	mg/kg	2	7.4		mg/kg	2
Cobalt	.27	U	mg/kg	10	.36	J	mg/kg	10	1.4	J	mg/kg	10	.78	J	mg/kg	10
Copper	.27	U	mg/kg	5	2	J	mg/kg	5	8.8	J	mg/kg	5	11.7	J	mg/kg	5
Iron	79.8		mg/kg	20	449		mg/kg	20	1880		mg/kg	20	2170		mg/kg	20
Lead	1.3		mg/kg	.6	4.9		mg/kg	.6	20.5		mg/kg	.6	22.8		mg/kg	.6
Magnesium	14.4	J	mg/kg	1000	54.2	J	mg/kg	1000	267	J	mg/kg	1000	234	J	mg/kg	1000
Manganese	1.6	J	mg/kg	3	3.9	J	mg/kg	3	18.8		mg/kg	3	8.1	J	mg/kg	3
Mercury	.07	U	mg/kg	.1	.07	U	mg/kg	.1	.29	U	mg/kg	.1	.16	U	mg/kg	.1
Nickel	.55	U	mg/kg	8	.57	U	mg/kg	8	2.3	U	mg/kg	8	2.3	J	mg/kg	8
Potassium	12.8	U	mg/kg	1000	20.4	J	mg/kg	1000	110	J	mg/kg	1000	134	J	mg/kg	1000
Selenium	1.1	U	mg/kg	1	1.1	U	mg/kg	1	4.7	U	mg/kg	1	2.5	U	mg/kg	1
Silver	.27	U	mg/kg	2	.29	U	mg/kg	2	1.2	U	mg/kg	2	.63	U	mg/kg	2
Sodium	30.3	U	mg/kg	1000	31.7	U	mg/kg	1000	129	U	mg/kg	1000	138	J	mg/kg	1000
Thallium	.82	U	mg/kg	2	.86	U	mg/kg	2	3.5	U	mg/kg	2	1.9	U	mg/kg	2
Vanadium	.76	J	mg/kg	10	2.5	J	mg/kg	10	11.5	J	mg/kg	10	7.5	J	mg/kg	10
Zinc	2.5	J	mg/kg	4	6.9		mg/kg	4	28.9		mg/kg	4	23.1		mg/kg	4
Cyanide	.08	U	mg/kg	.5	.09	U	mg/kg	.5	.33	U	mg/kg	.5	.18	U	mg/kg	.5

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R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SURFACE WATER -- VOLATILES -- REPORT NO. 9359

Lab Sample Number:	C84CT				C84CV				C84CW				C8526			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SW1				CF19SW2				CF19SW2D				CF19SW3			
Collect Date:	12-FEB-97				12-FEB-97				12-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW																
Chloromethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromomethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Vinyl chloride	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Methylene chloride	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acetone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbon disulfide	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1-Dichloroethene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1-Dichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloroethene (total)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chloroform	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Butanone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1,1-Trichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbon tetrachloride	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromodichloromethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloropropane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
cis-1,3-Dichloropropene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Trichloroethene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibromochloromethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1,2-Trichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
trans-1,3-Dichloropropene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromoform	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Methyl-2-pentanone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Hexanone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Tetrachloroethene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Toluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1,2,2-Tetrachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Ethylbenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Styrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Xylenes (total)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SURFACE WATER -- SEMIVOLATILES -- REPORT NO. 9360

Lab Sample Number:	C84CT				C84CV				C84CW				C8526			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SW1				CF19SW2				CF19SW2D				CF19SW3			
Collect Date:	12-FEB-97				12-FEB-97				12-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW																
Phenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethyl) ether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Chlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,3-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,4-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,2-oxybis(1-Chloropropane)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitroso-di-n-propylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Nitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Isophorone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitrophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dimethylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethoxy) methane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2,4-Trichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Naphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloroaniline	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobutadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloro-3-methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylnaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorocyclopentadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,6-Trichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,5-Trichlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
2-Chloronaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Dimethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acenaphthylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,6-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Acenaphthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
4-Nitrophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Dibenzofuran	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Diethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chlorophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluorene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
N-Nitrosodiphenylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbazole	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SURFACE WATER -- SEMIVOLATILES -- REPORT NO. 9360

Lab Sample Number:	C84CT				C84CV				C84CW				C8526			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SW1				CF19SW2				CF19SW2D				CF19SW3			
Collect Date:	12-FEB-97				12-FEB-97				12-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenzo (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

U = NOT DETECTED J = ESTIMATED VALUE
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R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SURFACE WATER -- PESTICIDES AND PSBs -- REPORT NO. 9361

Lab Sample Number:	C84CT				C84CV				C84CW				C8526			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SW1				CF19SW2				CF19SW2D				CF19SW3			
Collect Date:	12-FEB-97				12-FEB-97				12-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SURFACE WATER -- METALS (UNFILTERED) -- REPORT NO. 9362

Lab Sample Number:	C84CT				C84CV				C84CW				C8526			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SW1				CF19SW2				CF19SW2D				CF19SW3			
Collect Date:	12-FEB-97				12-FEB-97				12-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	203		ug/l	200	215		ug/l	200	249		ug/l	200	183	J	ug/l	200
Antimony	3	U	ug/l	60	3	U	ug/l	60	3	U	ug/l	60	3	U	ug/l	60
Arsenic	2	U	ug/l	10	2	U	ug/l	10	2	U	ug/l	10	2.2	J	ug/l	10
Barium	27.4	J	ug/l	200	24.9	J	ug/l	200	25.2	J	ug/l	200	23.2	J	ug/l	200
Beryllium	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5
Cadmium	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5
Calcium	11700		ug/l	5000	8930		ug/l	5000	8940		ug/l	5000	9230		ug/l	5000
Chromium	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10
Cobalt	1	U	ug/l	50	1	U	ug/l	50	1	U	ug/l	50	1	U	ug/l	50
Copper	1	U	ug/l	25	1	U	ug/l	25	1	U	ug/l	25	1.1	J	ug/l	25
Iron	926		ug/l	100	908		ug/l	100	926		ug/l	100	646		ug/l	100
Lead	1.5	J	ug/l	3	1	U	ug/l	3	1.1	J	ug/l	3	1	U	ug/l	3
Magnesium	2210	J	ug/l	5000	2000	J	ug/l	5000	1990	J	ug/l	5000	1860	J	ug/l	5000
Manganese	12.8	J	ug/l	15	10.8	J	ug/l	15	11.2	J	ug/l	15	9	J	ug/l	15
Mercury	.1	U	ug/l	.2	.1	U	ug/l	.2	.1	U	ug/l	.2	.1	U	ug/l	.2
Nickel	2	U	ug/l	40	2	U	ug/l	40	2	U	ug/l	40	2	U	ug/l	40
Potassium	824	J	ug/l	5000	645	J	ug/l	5000	646	J	ug/l	5000	626	J	ug/l	5000
Selenium	4	U	ug/l	5	4	U	ug/l	5	4.6	J	ug/l	5	4	U	ug/l	5
Silver	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10
Sodium	6630		ug/l	5000	6520		ug/l	5000	6620		ug/l	5000	6640		ug/l	5000
Thallium	3.4	J	ug/l	10	5.3	J	ug/l	10	5.4	J	ug/l	10	3	U	ug/l	10
Vanadium	1	U	ug/l	50	1	U	ug/l	50	1	U	ug/l	50	1	J	ug/l	50
Zinc	10.3	J	ug/l	20	5.8	J	ug/l	20	7.9	J	ug/l	20	38.2		ug/l	20
Cyanide	1.2	U	ug/l	10	1.2	U	ug/l	10	1.2	U	ug/l	10	1.2	U	ug/l	10

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
SURFACE WATER -- METALS (FILTERED) -- REPORT NO. 9363

Lab Sample Number:	C84CTF				C84CWF				C84CVF				C8526F			
Site	PSC19				PSC19				PSC19				PSC19			
Locator	CF19SW1F				CF19SW2DF				CF19SW2F				CF19SW3F			
Collect Date:	12-FEB-97				12-FEB-97				12-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	131	J	ug/l	200	171	J	ug/l	200	141	J	ug/l	200	109	J	ug/l	200
Antimony	4	J	ug/l	60	3	U	ug/l	60	3	U	ug/l	60	3	U	ug/l	60
Arsenic	2	J	ug/l	10	2	U	ug/l	10	2	U	ug/l	10	2	U	ug/l	10
Barium	25.4	J	ug/l	200	24.6	J	ug/l	200	24.6	J	ug/l	200	22.6	J	ug/l	200
Beryllium	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5
Cadmium	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5	1	U	ug/l	5
Calcium	11100		ug/l	5000	8980		ug/l	5000	9050		ug/l	5000	9090		ug/l	5000
Chromium	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10
Cobalt	1	U	ug/l	50	1	U	ug/l	50	1	U	ug/l	50	1	U	ug/l	50
Copper	1	U	ug/l	25	1	U	ug/l	25	1	U	ug/l	25	1.5	J	ug/l	25
Iron	490		ug/l	100	573		ug/l	100	452		ug/l	100	237		ug/l	100
Lead	1	U	ug/l	3	1	U	ug/l	3	1	U	ug/l	3	1	U	ug/l	3
Magnesium	2090	J	ug/l	5000	2000	J	ug/l	5000	2020	J	ug/l	5000	1870	J	ug/l	5000
Manganese	11.6	J	ug/l	15	9.7	J	ug/l	15	10.2	J	ug/l	15	9.1	J	ug/l	15
Mercury	.1	U	ug/l	.2	.1	U	ug/l	.2	.1	U	ug/l	.2	.1	U	ug/l	.2
Nickel	2	U	ug/l	40	2	U	ug/l	40	2	U	ug/l	40	2	U	ug/l	40
Potassium	790	J	ug/l	5000	695	J	ug/l	5000	659	J	ug/l	5000	598	J	ug/l	5000
Selenium	4	U	ug/l	5	4	U	ug/l	5	4	U	ug/l	5	4	U	ug/l	5
Silver	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10
Sodium	6540		ug/l	5000	6630		ug/l	5000	6780		ug/l	5000	6660		ug/l	5000
Thallium	4.8	J	ug/l	10	5.8	J	ug/l	10	3.9	J	ug/l	10	3	U	ug/l	10
Vanadium	1	U	ug/l	50	1	U	ug/l	50	1	U	ug/l	50	1	U	ug/l	50
Zinc	8.1	J	ug/l	20	8	J	ug/l	20	9	J	ug/l	20	12.1	J	ug/l	20
Cyanide	-				-				-				-			

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

APPENDIX D

TEST PITTING RESULTS

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
TEST PIT SOIL SAMPLE -- REPORT REQUEST NO. 10435

Lab Sample Number:	JR35723
Site	PSC19
Locator	19B00101
Collect Date:	08-OCT-98

	VALUE	QUAL	UNITS	DL
TEST PIT				
1,1-Dichloroethane	1	U	ug/kg	1
1,1-Dichloroethene	1	U	ug/kg	1
1,1-Dichloropropene	1	U	ug/kg	1
1,1,1-Trichloroethane	1	U	ug/kg	1
1,1,2,2-Tetrachloroethane	1	U	ug/kg	1
1,1,2-Trichloroethane	1	U	ug/kg	1
1,2-Dichlorobenzene	1	U	ug/kg	1
1,2-Dichloroethane	1	U	ug/kg	1
1,2-Dichloropropane	1	U	ug/kg	1
1,3-Dichlorobenzene	1	U	ug/kg	1
1,3-Dichloropropane	1	U	ug/kg	1
1,2,3-Trichlorobenzene	1	U	ug/kg	1
1,2,3-Trichloropropane	1.7	J	ug/kg	1
1,2,4-Trichlorobenzene	1	U	ug/kg	1
1,2,4-Trimethylbenzene	1	U	ug/kg	1
1,2-Dibromo-3-chloropropane	1	U	ug/kg	1
1,3,5-Trimethylbenzene	1	U	ug/kg	1
1,4-Dichlorobenzene	1	U	ug/kg	1
1-Methylnaphthalene	21	U	ug/kg	21
2-Butanone	25	U	ug/kg	25
2-Chloroethylvinyl ether	7	U	ug/kg	7
2-Chlorotoluene	1	U	ug/kg	1
2-Hexanone	25	U	ug/kg	25
2-Methylnaphthalene	21	U	ug/kg	21
Acenaphthene	21	U	ug/kg	21
Acenaphthylene	4.1	U	ug/kg	4.1
Anthracene	21	U	ug/kg	21
Benzene	1	U	ug/kg	1
Benzo (a) anthracene	2.1	U	ug/kg	2.1
Benzo (a) pyrene	2	U	ug/kg	2
Benzo (b) fluoranthene	4	U	ug/kg	4
Benzo (g,h,i) perylene	4.1	U	ug/kg	4.1
Benzo (k) fluoranthene	2	U	ug/kg	2
Bromodichloromethane	1	U	ug/kg	1
Bromobenzene	1	U	ug/kg	1
Bromochloromethane	1	U	ug/kg	1
Bromoform	1	U	ug/kg	1
Bromomethane	1	U	ug/kg	1
Carbon tetrachloride	1	U	ug/kg	1
Chlorobenzene	1	U	ug/kg	1
Chloroethane	1	U	ug/kg	1
Chloroform	1	U	ug/kg	1
Chloromethane	1	U	ug/kg	1
Chrysene	2.1	U	ug/kg	2.1
Dibenzo (a,h) anthracene	4.1	U	ug/kg	4.1
Dibromochloromethane	1	U	ug/kg	1
Dibromomethane	1	U	ug/kg	1
Dichlorodifluoromethane	2	U	ug/kg	2
Ethylbenzene	1	U	ug/kg	1
Ethylene dibromide	1	U	ug/kg	1

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 19
TEST PIT SOIL SAMPLE -- REPORT REQUEST NO. 10435

Lab Sample Number:	JR35723
Site	PSC19
Locator	19B00101
Collect Date:	08-OCT-98

	VALUE	QUAL	UNITS	DL
Fluoranthene	4.1	U	ug/kg	4.1
Fluorene	4.1	U	ug/kg	4.1
Hexachlorobutadiene	1	U	ug/kg	1
Indeno (1,2,3-cd) pyrene	2.1	U	ug/kg	2.1
Methyl tert-butyl ether	7	U	ug/kg	7
Tert-Butylbenzene	1	U	ug/kg	1
Methylene chloride	31	U	ug/kg	31
Naphthalene	1.4		ug/kg	1
Phenanthrene	2.1	U	ug/kg	2.1
Pyrene	2.1	U	ug/kg	2.1
Styrene	1	U	ug/kg	1
Tetrachloroethene	7	J	ug/kg	4
Toluene	2.6		ug/kg	1
Trichloroethene	1	U	ug/kg	1
Trichlorofluoromethane	1	U	ug/kg	1
Vinyl chloride	1	U	ug/kg	1
m,p-Xylene	2	U	ug/kg	2
o-Xylene	1	U	ug/kg	1
cis-1,2-Dichloroethene	1	U	ug/kg	1
cis-1,3-Dichloropropene	1	U	ug/kg	1
trans-1,2-Dichloroethene	1	U	ug/kg	1
FLA PRO				
TPH C8-C40	8.1	U	mg/kg	8.1

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

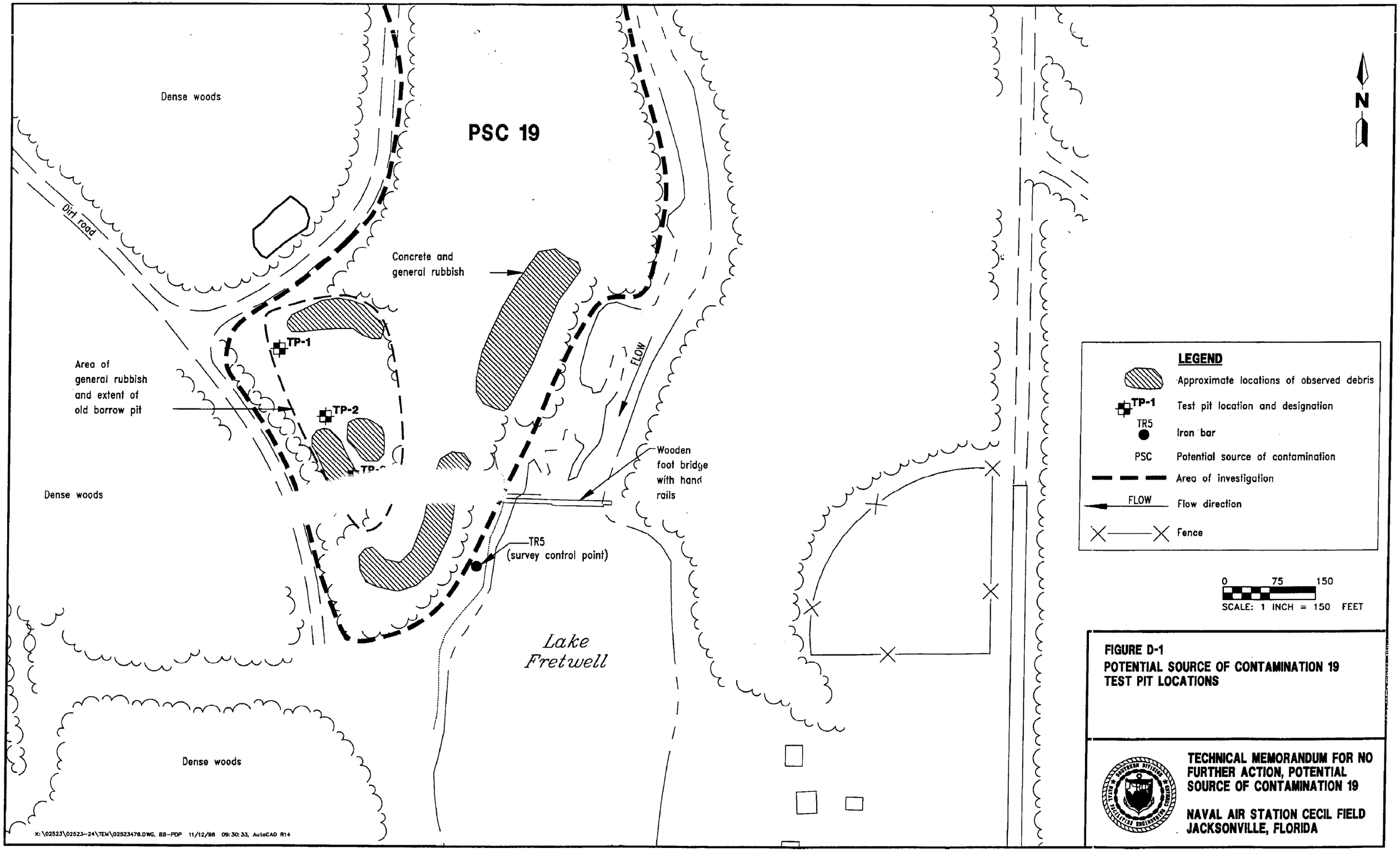

FIGURE D-1
POTENTIAL SOURCE OF CONTAMINATION 19
TEST PIT LOCATIONS

TECHNICAL MEMORANDUM FOR NO FURTHER ACTION, POTENTIAL SOURCE OF CONTAMINATION 19

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

APPENDIX E

PRELIMINARY RISK EVALUATION METHODOLOGY

E.1 Human Health Preliminary Risk Evaluation (PRE) Methodology. The human health PRE is a screening-level evaluation of potential risks from environmental contaminants to human receptors at a site. While a site may have numerous actual or future hypothetical receptors, as a site-screening tool, it is common to use the most sensitive human for risk calculations. Therefore, for surface soil, groundwater, sediment, and surface water, the residential receptor will be used to evaluate potential risks at the site. For subsurface soil, the industrial worker will be used to evaluate potential risks at the site.

Naval Air Station (NAS) Cecil Field Screening Criteria. The NAS Cecil Field Base Realignment and Closure (BRAC) cleanup team (BCT) has established screening criteria to be used for screening inorganics. These screening criteria have only been developed for inorganics.

Soil Human Health Screening Values. The NAS Cecil Field BCT has agreed that soil human health screening values for this PRE are to be taken from Florida Department of Environmental Protection (FDEP) soil cleanup goals for Florida (FDEP, 1995). This document provides over 200 health-based cleanup goals, both residential and industrial, based on generalized exposure assumptions and, mostly, on U.S. Environmental Protection Agency (USEPA) risk assessment toxicity factors. The soil cleanup goals are based on direct exposure to the media (intake from incidental ingestion, dermal contact, and inhalation of soil particulates) using exposure assumptions consistent with both residential and commercial or industrial land use.

The target risk for each soil cleanup goal and the health risk associated with the cleanup goal is 1×10^{-6} for those analytes recognized by the USEPA as carcinogens and a hazard quotient of 1 for noncarcinogens. Other specific variables and exposure assumptions used in calculating the soil cleanup goals are provided in the document.

Groundwater Human Health Screening Values. Groundwater screening values are taken from USEPA and Florida Drinking Water Standards (USEPA, 1996 and FDEP, 1996). These documents contain both primary drinking water standards that are mostly human health based and secondary standards that are established for potability or aesthetic reasons. Both types of values are presented in the human health PRE; however, the ratios calculated using these two different groundwater standards are not comparable.

Ratios calculated using primary drinking water standards, designated "PD" in the groundwater PRE table, are human health-based risk ratios roughly comparable to cancer risks of 1×10^{-6} for those analytes recognized by the USEPA as carcinogens and a hazard quotient of 1 for noncarcinogens. The ratios calculated using the secondary drinking water standards, designated "SD" in the groundwater PRE table, are not health based. Rather, they provide the risk manager with the magnitude of the exceedance over the secondary drinking water standard.

Human Health Surface Water Screening Values. Surface water screening values are taken from Chapter 62-302.530, Florida Administrative Code, "Florida Surface Water and Drinking Water Standards Class III, Mostly Fresh" (FDEP, 1995). The ratios calculated using these standards, are not health based. Rather, they provide the risk manager with the magnitude of the exceedance over the surface water standard.

Human Health Sediment Screening Values. There are no*pl722Xsediment screening values for human health. As a very conservative screen, the NAS Cecil Field BCT has agreed that sediment analytes are to be compared with FDEP soil cleanup goals for Florida (FDEP, 1995). These comparisons are health based but are highly conservative due to the exposure assumptions used to calculate the cleanup values.

Human Health PRE Methodology. The human health PRE is conducted in two steps. First, all analytes detected in at least one sample in a medium are compared to the medium-specific screening values described above and, for inorganics, the NAS Cecil Field screening values. All analytes detected at concentrations below these screening values are dropped from further evaluation.

Those analytes detected in at least one sample at concentrations above the media-specific screening values and the NAS Cecil Field screening values are further evaluated in the human health PRE.

E.2 Ecological Preliminary Risk Evaluation Process. The ecological PRE is a screening-level evaluation of potential risks from environmental contaminants to ecological receptors at a site. The methodology is in accordance with USEPA draft supplemental guidance for ecological preliminary risk evaluation (USEPA, 1995a; 1995b; 1995c). The ecological PRE consists of ecological characterization, identification of potential exposure pathways, and an estimation of toxicity and risks potentially associated with each exposure pathway by comparison of maximum medium-specific analyte concentrations to ecological screening values.

The ecological characterization of NAS Cecil Field identifies terrestrial, wetland, and aquatic habitats. The field program includes a walkover survey to confirm ecological habitat types, flora, and fauna in the vicinity of each study area. Ecological receptors in each study area are identified. Major site-specific exposure pathways (consisting of a source of contamination, potentially contaminated media, and an exposure route) are evaluated, and possible signs of stress on biological receptors at the site are observed.

Particular emphasis is placed on identifying sensitive ecological receptors and assessing the potential occurrence of rare, threatened, or endangered species at the installation. The U.S. Fish and Wildlife Service, Florida Natural Heritage Program, and regional authorities were contacted regarding the presence of State or Federally listed threatened and/or endangered species at NAS Cecil Field. Table E-1 identifies the protected species known or expected to occur at NAS Cecil Field.

Steps in the PRE screening process include reviewing the site history and plans for future use, identifying the ecological habitat and making an initial evaluation.

- If no habitat is present, current and future exposure pathways are incomplete. No further screening is done, and a statement of explanation is provided.

Table E-1
Rare, Endangered, and Threatened Flora and Fauna at or in the Vicinity of NAS Cecil Field

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Common Name	FGFWFC[1]	USFWS[2]	FDA[3]	Comments
Florida gopher frog (*Rana capito*)	SSC	C2		Possible resident at NAS Cecil Field (Envirodyne Engineers, 1985).
American alligator (*Alligator mississippiensis*)	SSC	T(S/A)		Confirmed resident in Lake Fretwell (Envirodyne Engineers, 1985).
Eastern indigo snake (*Drymarchon corais couperi*)	T	T		Possible resident at NAS Cecil Field (Envirodyne Engineers, 1985) but its presence has not been confirmed (Cochran, 1995).
Gopher tortoise (*Gopherus polyphemus*)	SSC	C2		Confirmed resident at NAS Cecil Field; observed in association with Sites 2, 4, and 5; a possible resident at Site 1 (Envirodyne Engineers, 1985; ABB-ES, 1994a; ABB-ES, 1994b). Also observed in several outlying areas of NAS Cecil Field and the Yellow Water Weapons Area (CZR, 1994).
Wood stork (*Mycteria americana*)	E	E		Confirmed migrant, observed feeding at Lake Fretwell (Cochran, 1995). Suitable habitat for feeding may be present in additional shallow water areas at NAS Cecil Field (Envirodyne Engineers, 1985).
Southeastern kestrel (*Falco sparverius paulus*)	T	C2		Either this, or the closely related subspecies, *F. sparverius sparverius*, has been observed in the Yellow Water Weapons Area by HLA biologists and others (Cochran, 1995).
Bald eagle (*Haliaeetus leucocephalus*)	T	T		Confirmed migrant (Envirodyne Engineers, 1985).
Bachman's sparrow (*Aimophila aestivalis*)		C2		Observed in Yellow Water Weapons Area (CZR, 1994).
Loggerhead shrike (*Lanius lucovicianus*)		C2		Observed at Yellow Water Weapons Area near the weapons compound by HLA biologist, and near runways at the facility (Cochran, 1995)
Sherman's fox squirrel (*Sciurus niger shermani*)	SSC	C2		Possible resident near Site 18 (HLA biologist) and confirmed at NAS Cecil Field (Cochran, 1995).
Florida black bear (*Ursus americanus floridanus*)	T	C2		Evidence of black bears reported in outlying areas in 1982 (Envirodyne Engineers, 1985).
Florida mouse (*Podomys floridanus*)	SSC	C2		Known from Clay County, may range into habitats (sand pine scrub and longleaf pine-turkey oak communities) present at NAS Cecil. Not known to be a resident at NAS Cecil Field (Envirodyne Engineers, 1985; Cochran, 1995).

See notes at end of table.

Table E-1 (Continued)
Rare, Endangered, and Threatened Flora and Fauna
at or in the Vicinity of NAS Cecil Field

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Common Name	FGFWFC[1]	USFWS[2]	FDA[3]	Comments
Hooded pitcher plant (*Sarracenia minor*)			T	Observed in wetlands associated with Sites 3 and 17 (HLA), and Sites 4 and 5 (CDM, 1994).
Spoon-leaved sundew (*Drosera intermedia*)			T	Observed at one location at Yellow Water Weapons Area in drainage ditch (ESP, 1990).
Cinnamon fern (*Osmunda cinnamomea*)			CE	Observed at Sites 1 (HLA ecologist), 2, 3, 4, 5, and 17 (CDM, 1994) and the Yellow Water Weapons Area (CZR, 1994).
Royal fern (*Osmunda regalis*)			CE	Observed at Sites 1 (HLA ecologist), 2, 4, 5, and 17 (CDM, 1994) and the Yellow Water Weapons Area (CZR, 1994).
Southern shield fern (*Thelypteris kunthii*)			T	Not observed at NAS Cecil Field, but appropriate habitat exists at Sites 11 and 18.
Comb fern (*Polypodium plumula*)			T	Not observed at NAS Cecil Field, but appropriate habitat exists within mesophytic hardwood communities.
Bartram's ixia (*Salpingostylis coelestina*)			E	Confirmed by Navy personnel in the southwest quadrant of NAS Cecil Field (Burst, 1995; Cochran, 1995).
Variable-leaf crown beard (*Verbesina heterophylla*)		C2		Observed at one location at NAS Cecil Field in sandhill habitat (ESP, 1990).
Netted chain fern (*Woodwardia areolata*)			T	Observed at Sites 3 and 5 (CDM, 1994), 1 and 17 (HLA ecologist).
Grass pink (*Calopogon tuberosus*)			T	Observed at Site 17 by HLA ecologist.
Ladies' tresses (*Spiranthes vernalis*)			T	Confirmed at NAS Cecil Field (Cochran, 1995).
Rose pogonia (*Pogonia ophioglossoides*)			T	Confirmed at NAS Cecil Field (Cochran, 1995).
Foxtail Clubmoss (*Lycopodium alopeuroides*)			T	Observed at Site 4 (CDM, 1994) and OU 2 (HLA ecologist).
Wild azalea (*Rhododendron canescens*)			CE	Observed at NAS Cecil Field (CZR, 1994).
Swamp honeysuckle (*Rhododendron viscosum*)			T	Observed at NAS Cecil Field (CZR, 1994).
Dahoon holly (*Ilex cassine*)			CE	Observed at NAS Cecil Field (CZR, 1994).

See notes at end of table.

Table E-1 (Continued)
Rare, Endangered, and Threatened Flora and Fauna at or in the Vicinity of NAS Cecil Field

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Common Name	FGFWFC[1]	USFWS[2]	FDA[3]	Comments
American holly (*Ilex opaca*)			CE	Observed at NAS Cecil Field (CZR, 1994).
Dwarf palmetto (*Sabal minor*)			T	Observed in disturbed upland areas of OU 1 and OU 2 (HLA ecologists).

[1] Florida Game and Fresh Water Fish Commission (FGFWFC) (list published in Sections 39-27.003-005, Florida Administrative Code) (Wood, 1994).
[2] U.S. Fish and Wildlife Service (USFWS) (list published in List of Endangered and Threatened Wildlife and Plants, 50 Code of Federal Regulations 17.11-12) (Wood, 1994).
[3] Florida Department of Agriculture and Consumer Services (FDA) (list is statutorily designated by the Preservation of Native Flora of Florida Act (581.185-187, Florida Statutes) (Wood, 1994).

Notes: NAS = Naval Air Station.
SSC = species of special concern.
C2 = a candidate for Federal listing with some evidence of vulnerability, but for which not enough information exists to justify listing.
T(S/A) = threatened due to similarity of appearance.
T = threatened.
ABB-ES = ABB Environmental Services, Inc.
HLA = Harding Lawson Associates.
CZR = CZR, Incorporated.
E = endangered.
CDM = Camp, Dresser & McKee.
ESP = Environmental Services & Permitting.
CE = commercially exploited.
OU = operable unit.

- If a habitat is present, and current and future exposure pathways are incomplete, then further screening is done, and a statement of explanation is provided.

- If a habitat is present and/or plans for future use suggest the site will provide a habitat for ecological receptors, analytical results from appropriate media samples are subjected to Tier I Screening.

Tier I Screening. Maximum organic and inorganic analyte concentrations are compared to preliminary screening values (presented in *Soil Criteria for Evaluating the Severity of Contamination Under the Dutch Soil Cleanup Act*, (Richardson, 1987), and the Region III Biological Technical Assistance Group (BTAG) screening levels) for each analyte. Inorganics are also compared with background concentrations established by the NAS Cecil Field BCT.

If the maximum site concentration of an analyte is less than the Dutch or BTAG screening value, or for inorganics, BCT background, the analyte is not assumed to represent an unacceptable site-related risk and is not further evaluated. If all analytes for a site are eliminated by this level of screening, results are presented in tabular form, accompanied by a brief explanation stating that minimal to no adverse effects are expected. Any analytes that exceed the Tier I screening procedure are evaluated in the Tier II screening process described below.

Tier II Screening. This evaluation is performed if any organic or inorganic concentration exceeds the Tier I screening procedure or if any screening value is unavailable.

For surface soil analytes, a screening table containing the information below is presented.

- Frequency of detection of each analyte that failed the Tier I screening.

- Maximum concentration of each analyte that failed the Tier I screening.

- Reference toxicity values (RTVs) for plants (see Table E-2).

- RTVs for soil invertebrates (see Table E-2).

- Protective contaminant levels (PCLs) for wildlife receptors (see Table E-2 for PCL values). The lowest PCL for wildlife receptors is presented and used for screening purposes.

- Risk ratios calculated by dividing the maximum detected concentration by each Tier II screening value.

For surface water and sediment analytes, screening tables containing the information below will be used (see Tables D-3 and D-4, respectively):

- Frequency of detection of each analyte that failed the Tier I screening.

- Maximum concentration of each analyte that failed the Tier I screening.

Table E-2
Terrestrial Plant, Invertebrate and Wildlife Toxicity Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analyte	Phytotoxicity Screening Value[1]	Invertebrate Screening Value[2]	Wildlife Protective Contaminant Levels[3]
Volatile Organic Compounds (mg/kg)			
2-Butanone	NA	NA	22,000
Acetone	[4]200	NA	35,000,000
Benzene	[4]200	NA	NA
Carbon disulfide	NA	NA	1,400
Chloroform	NA	NA	33,000
Ethylbenzene	[4]200	NA	NA
Methylene chloride	[5]>1,000	150	6,800
Tetrachloroethylene	>1,000	150	13,000
Trichloroethene	[5]>1,000	NA	96,000
Toluene	200	21	9,700
Xylene (total)	>1,000	NA	64,000
Semivolatile Organic Compounds (mg/kg)			
2-Methylnaphthalene	[6]25	34	4,600
2-Methylphenol	[7]>100	8	6,400
4-Chloroaniline	[8]15	NA	1,600
4-Methylphenol	[8]96	8	6,400
1,2-Dichlorobenzene	[10]248	NA	510
1,3-Dichlorobenzene	[10]248	NA	510
1,4-Dichlorobenzene	248	NA	510
2,4-Dinitrophenol	20	NA	NA
Acenaphthene	25	34	910
Acenaphthylene	[6]25	34	910
Anthracene	[6]25	34	910
Benzo(a)anthracene	[6]25	34	910
Benzo(a)pyrene	[6]25	34	910
Benzo(b)fluoranthene	[6]25	34	910
Benzo(g,h,i)perylene	[6]25	34	910
Benzo(k)fluoranthene	[6]25	34	910
bis(2-Ethylhexyl)phthalate	[7]>1,000	478	1,700
Butylbenzylphthalate	[11]200	478	500,000

See notes at end of table.

Table E-2 (Continued)
Terrestrial Plant, Invertebrate and Wildlife Toxicity Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analyte	Phytotoxicity Screening Value[1]	Invertebrate Screening Value[2]	Wildlife Protective Contaminant Levels[3]
Semivolatile Organic Compounds (mg/kg) (continued)			
Carbazole	NA	34	880
Chrysene	[6]25	34	910
Dibenzofuran	[12]617	NA	11,000
Dibenz(a,h)anthracene	[6]25	34	910
Diethylphthalate	[7]134	478	94,000
Dimethyl phthalate	[11]200	478	NA
Di-*n*-butyl phthalate	200	478	16,000
Di-*n*-octyl phthalate	[11]200	478	16,000
Fluoranthene	[6]125	34	910
Fluorene	[6]25	34	910
Indeno(1,2,3-cd)pyrene	[6]25	34	910
Naphthalene	[7]100	34	3,300
n-Nitrosodiphenylamine	NA	NA	1,300
Phenanthrene	[6]25	34	910
Phenol	[7]79	8	1,200
Pentachlorophenol	[7]8	NA	380
Pyrene	[6]25	34	910
Pesticides and PCBs (mg/kg)			
4,4'-DDD	[13]12.5	12	0.79
4,4'-DDE	[13]12.5	12	1.5
4,4'-DDT	[14]12.5	12	3.9
Aldrin	NA	2.2	83
Aroclor-1016	40	NA	4.2
Aroclor-1242	40	NA	4.2
Aroclor-1248	40	NA	4.2
Aroclor-1254	40	NA	4.2
Aroclor-1260	40	NA	18
BHC-alpha	[15]>1,000	8	16
BHC-beta	[7]>1,000	8	640
BHC-delta	[15]<1,000	8	640

See notes at end of table.

Table E-2 (Continued)
Terrestrial Plant, Invertebrate and Wildlife Toxicity Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analyte	Phytotoxicity Screening Value[1]	Invertebrate Screening Value[2]	Wildlife Protective Contaminant Levels[3]
Pesticides and PCBs (mg/kg) (continued)			
BHC-gamma (lindane)	[15] > 1,000	NA	640
Chlordane-alpha	[13] 12.5	NA	0.35
Chlordane-gamma	[13] 12.5	NA	0.35
Dieldrin	[13] 12.5	30	1.9
Endosulfan I	[7] > 1,000	1	23
Endosulfan II	[16] > 1,000	1	25
Endosulfan sulfate	[16] > 1,000	1	25
Endrin	[13] 12.5	NA	8.3
Endrin aldehyde	[13] 12.5	NA	8.3
Endrin ketone	[13] 12.5	NA	8.3
Heptachlor	[13] 12.5	6.4	5.1
Heptachlor epoxide	[13] 12.5	6.4	5.1
Methoxychlor	[13] 12.5	NA	1,300
Toxaphene	[13] 12.5	NA	NA
Silvex	[13] 12.5	NA	NA
Inorganic Analytes (mg/kg)			
Aluminum	50	NA	54,000
Antimony	5	NA	5,100
Arsenic	10	100	15
Barium	500	NA	23,000
Beryllium	10	NA	110
Boron	0.5	NA	NA
Cadmium	3	50	5.3
Calcium	NA	NA	NA
Chromium	1	50	14,000
Cobalt	20	NA	1,600
Copper	100	30	1,000
Cyanide	NA	NA	1,500
Iron	NA	NA	NA
Lead	50	1,190	260

See notes at end of table.

Table E-2 (Continued)
Terrestrial Plant, Invertebrate and Wildlife Toxicity Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analyte	Phytotoxicity Screening Value[1]	Invertebrate Screening Value[2]	Wildlife Protective Contaminant Levels[3]
Inorganic Analytes (mg/kg) (continued)			
Magnesium	NA	NA	NA
Manganese	500	NA	5,800
Mercury	0.3	36	3.9
Nickel	30	400	550
Potassium	NA	NA	NA
Selenium	1	NA	7.3
Silver	2	NA	500
Sodium	NA	NA	NA
Thallium	1	NA	89
Tin	50	NA	2,500
Vanadium	2	NA	1,100
Zinc	50	130	1,600

[1] Phytotoxicity Screening Values from Suter et al. (1993b) or Will and Suter (1994), unless otherwise noted. The screening value is the lowest observed effects level from among plant growth studies conducted in solid media.
[2] Invertebrate Screening Values from Neuhauser et al. (1985a); Neuhauser et al. (1985b); Bousche (1987); Malecki et al. (1982); Molnar et al. (1989); and van Gestel and Dis (1988). For organic compounds, the screening value is the lowest LC_{50} (14-day soil test on *Eisenia foetida*) from among chemicals in the same chemical class; a conservative factor of 0.2 was applied and the resultant value should be protective of 99.9 percent of the population from acute effects (U.S. Environmental Protection Agency, 1986).
[3] The wildlife screening values represent the lowest protective contaminant level for the cotton mouse, short-tailed shrew, red fox, red-tailed hawk, and robin.
[4] Value for toluene used as a surrogate.
[5] Value for tetrachloroethylene used as a surrogate.
[6] Value for acenaphthene used as a surrogate.
[7] Value from Hulzebos et. al. (1993); values represent 14-day growth EC_{50} for *Lactuca sativa* in soil.
[8] Value for 3-chloroaniline used as a surrogate.
[9] Value for 3-methylphenol used as a surrogate.
[10] Value for 1,4-dichlorobenzene used as a surrogate.
[11] Value for di-*n*-butylphthalate used as a surrogate.
[12] Value for furan used as a surrogate.
[13] Value for 4,4-DDT used as a surrogate.
[14] Value from Eno and Everett (1958).
[15] Value for beta-BHC used as a surrogate.
[16] Value for endosulfan I used as a surrogate.

Notes: mg/kg = milligrams per kilogram.
NA = not applicable.
> = greater than.
PCB = polychlorinated biphenyl.
DDD = dichlorodiphenyldichloroethane.
DDE = dichlorodiphenyldichloroethene.
DDT = dichlorodiphenyltrichloroethane.
BHC = benzene hexachloride.
< = less than.

Table E-3
Surface Water Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analyte	Region IV Chronic Water Quality Screening Value[1]	Ambient Water Quality Criteria[2]	Florida Class III Surface Water Quality Standards[3]	AQUIRE Lowest Reported Adverse Effect Concentration/Test Species[4]
Volatile Organic Compounds (µg/ℓ)				
Acetone	NA	NA	NA	550,000/chronic mortality in water flea
Benzene	53	NA	[5,7]71.28	3,660/leopard from LC_{50}
Bromoform	293	NA	[5]360	
2-Butanone	NA	NA	NA	520,000/5% of LC_{50} in water flea
Carbon tetrachloride	352	NA	[5]4.42	
Chlorobenzene	195	[6]50	NA	
Chloroform	289	[6]1,240	[5]470.8	
1,2-Dichloroethane	2,000	[6]20,000	NA	
1,1-Dichloroethene	303	NA	[7]3.2	
1,2-Dichloroethene	1,350	NA	[7,16]3.2	[16]2,400/water flea lethality
1,2-Dichloromethane	NA	NA	NA	
1,1-Dichloromethene	NA	NA	NA	
1,2-Dichloropropane	525	[6]5,700	NA	
1,3-Dichloropropylene (*cis* and *trans*)	24.4	[6]244	NA	
Ethylbenzene	453	NA	NA	
4-Methyl-2-pentanone	NA	NA	NA	7,800/reproduction in water flea
Methyl bromide	110	NA	NA	
Methyl chloride	5,500	NA	[5]470.8	
Methylene chloride	1,930	NA	[5]1,580	
1,1,2,2-Tetrachloroethane	240	[6]2,400	[5]10.8	

See notes at end of table.

Table E-3 (Continued)
Surface Water Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analyte	Region IV Chronic Water Quality Screening Value[1]	Ambient Water Quality Criteria[2]	Florida Class III Surface Water Quality Standards[3]	AQUIRE Lowest Reported Adverse Effect Concentration/Test Species[4]
Volatile Organic Compounds (μg/ℓ) (continued)				
Tetrachloroethylene	84	[6]840	[5]8.85	
Toluene	175	NA	NA	
1,1,1-Trichloroethane	528	NA	NA	
1,1,2-Trichloroethane	940	[6]9,400	NA	
Trichloroethylene	NA	[6]21,900	[7]80.7	
1,1,1-Trichloromethane	NA	NA	NA	
Vinyl chloride	NA	NA	NA	
Xylenes (total)	NA	NA	NA	
Semivolatile Organic Compounds (μg/ℓ)				
Acenaphthene	17	[6]520	[7]2,700	
Acenaphthylene	NA	NA	NA	
Acrolein	2.1	[6]21	NA	
Acrylonitrile	75.5	[6]2,600	NA	
Anthracene	NA	NA	[7]110,000	
bis(2-Ethylhexyl)phthalate	0.3	[8]160	3	0.89/moor frog hatchability
Butylbenzylphthalate	22	[6]3	3	
2-Chlorophenol	43.8	[6]2,000	[7]400	
1,2-Dichlorobenzene	15.8	[6]763	NA	
1,3-Dichlorobenzene	50.2	[6]763	NA	
1,4-Dichlorobenzene	11.2	[6]763	NA	

See notes at end of table.

Table E-3 (Continued)
Surface Water Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analyte	Region IV Chronic Water Quality Screening Value[1]	*Ambient Water* Quality Criteria[2]	Florida Class III Surface Water Quality Standards[3]	*AQUIRE Lowest Reported Adverse* Effect Concentration/Test Species[4]
Semivolatile Organic Compounds (μg/ℓ) (continued)				
2,4-Dichlorophenol	36.5	[6]365	[7]790	
Diethylphthalate	521	[6]3	3	
Dimethylphthalate	330	[6]3	3	
2,4-Dimethylphenol	21.2	NA	NA	
Di-n-butylphthalate	9.4	[6]3	3	
2,4-Dinitrophenol	6.2	NA	[7]14,260	
2,4-Dinitrotoluene	310	[6]230	[5]9.1	
Fluoranthene	39.8	NA	[7]370	
Fluorene	NA	NA	[7]14,000	
Isophorone	1,170	NA	NA	
2-Methylnaphthalene	NA	NA	NA	2,000,000/growth effects in green algae
Naphthalene	62	[6]620	NA	
Nitrobenzene	270	NA	NA	
2-Nitrophenol	3,500	[6]150	NA	
4-Nitrophenol	82.8	[6]150	NA	
Phenol	256	[6]2,560	300	
Pyrene	NA	NA	[7]11,000	
2,4,6-Trichlorophenol	3.2	[6]970	[5]6.5	
Pesticides and PCBs (μg/ℓ)				
Aldrin	0.3	NA	3.0	

See notes at end of table.

Table E-3 (Continued)
Surface Water Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analyte	Region IV Chronic Water Quality Screening Value[1]	Ambient Water Quality Criteria[2]	Florida Class III Surface Water Quality Standards[3]	AQUIRE Lowest Reported Adverse Effect Concentration/Test Species[4]
Pesticides and PCBs (µg/ℓ) (continued)				
Aroclor-1248	0.014	0.014	0.014	
Aroclor-1254	0.014	0.014	0.014	
Aroclor-1260	0.014	0.014	0.014	
alpha-BHC	[9]500	NA	NA	
beta-BHC	[9]5,000	NA	[5]0.046	
gamma-BHC (Lindane)	0.08	0.08	0.08	
Chlordane	0.0043	0.0043	0.0043	
4,4'-DDD	0.0064	0.001	NA	
4,4'-DDE	10.5	0.001	NA	
4,4'-DDT	0.001	0.001	0.001	
Dieldrin	0.0019	0.0019	0.0019	
Endosulfan (I and II)	0.056	0.056	0.056	
Endrin	0.0023	0.0023	0.0023	
Heptachlor (and heptachlor epoxide)	0.0038	0.0038	0.0038	
Malathion	0.1	0.1	0.1	
Parathion	0.013	0.013	0.04	
Toxaphene	0.0002	0.0002	0.0002	
Inorganic Analytes (µg/ℓ)				
Aluminum	[10]87	[10]87	NA	50/narrow-mouthed frog LC_{50} and acute minnow mortality
Antimony	160	[8]30	4,300	

See notes at end of table.

Table E-3 (Continued)
Surface Water Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analyte	Region IV Chronic Water Quality Screening Value[1]	Ambient Water Quality Criteria[2]	Florida Class III Surface Water Quality Standards[3]	AQUIRE Lowest Reported Adverse Effect Concentration/Test Species[4]
Inorganic Analytes (µg/ℓ) (continued)				
Arsenic	[11]190	[11]190	50	1,700/water flea LC_{50}
Barium	NA	NA	NA	8,900/water flea reproduction
Beryllium	0.53	[6]5.3	[5]0.13	
Cadmium	[12]0.7	[12]0.7	[12]0.7	
Calcium	[13]NA	[13]NA	[13]NA	
Chromium	[14]11	[14]11	[14]11	5/water flea mortality, growth and reproduction
Cobalt	NA	NA	NA	8,000/scud lethality
Copper	[12]7	[12]7	[12]7	1.5/water flea reproduction and chronic mortality
Cyanide	5.2	5.2	5.2	432/snail LC_{50} or 180/bluegill LC_{50}
Iron	1,000	1,000	1,000	3,700/duckweed growth
Lead	[12]1.3	[12]1.3	[12]1.3	
Magnesium	[13]NA	[13]NA	[13]NA	
Manganese	NA	NA	NA	280/EC_{50} for growth in algae
Mercury	0.012	0.012	0.012	
Nickel	[12]88	[12]88	[12]88	50/chronic water flea mortality
Potassium	[13]NA	[13]NA	[13]NA	
Selenium	5	5	5	
Silver	0.012	0.12	0.07	
Sodium	[13]NA	[13]NA	[13]NA	
Thallium	4	[6]40	[7]6.3	82/green algae growth
Tributyltin	0.026	NA	NA	

See notes at end of table.

Table E-3 (Continued)
Surface Water Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analyte	Region IV Chronic Water Quality Screening Value[1]	Ambient Water Quality Criteria[2]	Florida Class III Surface Water Quality Standards[3]	AQUIRE Lowest Reported Adverse Effect Concentration/Test Species[4]
Inorganic Analytes (μg/ℓ) (continued)				
Vanadium	NA	NA	NA	[15] 128/LC_{50} in guppy
Zinc	[12]59	[12]59	[12]59	17.1/invertebrate population endpoints
TPH	NA	NA	NA	

[1] U.S. Environmental Protection Agency (USEPA) Region IV Waste Management Division Chronic Freshwater Surface Water Screening Values for Hazardous Waste Sites, November (USEPA, 1995b).
[2] Federal Ambient Water Criteria (USEPA, 1988a; 1991).
[3] Chapter 62-302, Florida Administrative Code, Surface Water Quality Standards, 1995.
[4] Reported toxicity values are from the USEPA AQUIRE database.
[5] Value equals maximum concentration at average annual flow conditions.
[6] Value represents the lowest effect concentration as presented in USEPA, 1986, for the chemical or its class; insufficient information is available to develop criteria.
[7] Criteria are protective of human health, not aquatic health; therefore, this screening concentration was not used in the evaluation.
[8] Proposed criterion.
[9] Based on the lowest plant value reported, as cited in USEPA, 1995a (see footnote 1).
[10] Criterion is based on a pH of 6.5 to 9 (USEPA, 1988d).
[11] Screening value for trivalent species of arsenic.
[12] Hardness dependent criterion based on a standard default hardness concentration of 50 milligrams per liter calcium carbonate. Site-specific criteria should be calculated using measured hardness concentrations or hardness concentrations calculated using site-specific calcium and magnesium concentrations.
[13] Analyte is an essential nutrient, and is not considered toxic except at high concentrations.
[14] Screening value for hexavalent species of chromium.
[15] Value for vanadium oxide sulfate used as a surrogate.
[16] Value for 1,1-dichloroethylene used as a surrogate.

Notes: AQUIRE = Aquatic Information Retrieval.
μg/ℓ = micrograms per liter.
NA = not available.
LC_{50} = lethal concentration to 50 percent of test population.
% = percent.
PCB = polychlorinated biphenyl.
BHC = benzene hexachloride.
DDD = dichlorodiphenyldichloroethane.
DDE = dichlorodiphenyldichloroethene.
DDT = dichlorodiphenyltrichloroethane.
TPH = total petroleum hydrocarbons.

Table E-4
Sediment Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analyte	Region IV Sediment Screening Value[1]	NOAA[2]		OME LEL[3]	USEPA SQGs[4]	MacDonald SQAGs[5]	
		ER-L	ER-M			TEL	PEL
Volatile Organic Compounds (µg/kg)							
2-Butanone	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds (µg/kg)							
Acenaphthene	330	16	500	NA	1,300	6.71	88.9
Acenaphthylene	330	44	640	NA	NA	5.87	128
Anthracene	330	85.3	1,100	220	NA	46.9	245
Benzo(a)anthracene	330	261	1,600	320	NA	74.8	693
Benzo(a)pyrene	330	430	1,600	370	NA	88.8	763
Benzo(b)fluoranthene	655	NA	NA	[14] 240	NA	NA	NA
Benzo(g,h,i)perylene	655	NA	NA	170	NA	NA	NA
Benzo(k)fluoranthene	655	NA	NA	240	NA	NA	NA
Butylbenzylphthalate	NA	NA	NA	NA	NA	NA	NA
Carbazole	NA	NA	NA	NA	NA	NA	NA
Chrysene	330	384	2,800	340	NA	108	846
Di-*n*-butylphthalate	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	330	63.4	260	60	NA	6.22	135
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA
***bis*(2-Ethylhexyl)phthalate**	**182**	**NA**	**NA**	**NA**	**NA**	**182**	**2647**
Fluoranthene	**330**	**600**	**5,100**	**750**	**6,200**	**113**	**1494**
Fluorene	**330**	**19**	**540**	**190**	**NA**	**21.2**	**144**
Indeno(1,2,3-cd)pyrene	**655**	**NA**	**NA**	**200**	**NA**	**NA**	**NA**

See notes at end of table.

Table E-4 (Continued)
Sediment Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analyte	Region IV Sediment Screening Value[1]	NOAA[2]		OME LEL[3]	USEPA SQGs[4]	MacDonald SQAGs[5]	
		ER-L	ER-M			TEL	PEL
Semivolatile Organic Compounds (µg/kg) (continued)							
2-Methylnaphthalene	330	70	670	NA	NA	20.2	201
Naphthalene	330	160	2,100	NA	NA	34.6	391
Phenanthrene	330	240	1,500	560	1,800	86.7	544
Pyrene	330	665	2,600	490	NA	153	1398
Pesticides and PCBs (µg/kg)							
Aldrin	NA	NA	NA	2	NA	NA	NA
Aroclor-1248	33	[6]22.7	[6]180	30	[7]195	[6]21.6	[6]189
Aroclor-1254	33	[6]22.7	[6]180	60	195	[6]21.6	[6]189
Aroclor-1260	33	[6]22.7	[6]180	5	[7]195	[6]21.6	[6]189
alpha-BHC	[12]3.3	NA	NA	6	NA	NA	NA
beta-BHC	[12]3.3	NA	NA	5	NA	NA	NA
gamma-BHC	3.3	NA	NA	3	NA	0.32	0.99
alpha-Chlordane	1.7	0.5	6	7	NA	2.26	4.79
gamma-Chlordane	1.7	0.5	6	7	NA	2.26	4.79
4,4'-DDD	3.3	[8]1.58	[8]46.1	8	[9]8.28	1.22	7.81
4,4'-DDE	3.3	2.2	27	5	[9]8.28	2.07	374
4,4'-DDT	3.3	[8]1.58	[8]46.1	8	8.28	1.19	4.77
Dieldrin	3.3	0.02	8	2	0.1	0.715	4.3
Endosulfan I	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	NA	NA	NA	NA	NA	NA	NA
Endrin	3.3	0.02	45	3	42	NA	NA
Endrin ketone	[13]3.3	[13]0.02	[13]45	[13]3	[13]42	NA	NA

See notes at end of table.

Table E-4 (Continued)
Sediment Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analyte	Region IV Sediment Screening Value[1]	NOAA[2]		OME LEL[3]	USEPA SQGs[4]	MacDonald SQAGs[5]	
		ER-L	ER-M			TEL	PEL
Pesticides and PCBs (µg/kg) (continued)							
Heptachlor	NA	NA	NA	[10]51	1.10	NA	NA
Heptachlor epoxide	NA	NA	NA	5	[11]1.10	NA	NA
Methoxychlor	NA	NA	NA	NA	NA	NA	NA
Inorganic Analytes (mg/kg)							
Aluminum	NA	NA	NA	NA	NA	NA	NA
Antimony	12	2	25	NA	NA	NA	NA
Arsenic	7.24	8.2	70	6	NA	7.24	41.6
Barium	NA	NA	NA	NA	NA	NA	NA
Beryllium	NA	NA	NA	NA	NA	NA	NA
Cadmium	1	1.2	9.6	0.6	NA	0.676	4.21
Calcium	NA	NA	NA	NA	NA	NA	NA
Chromium	52.3	81	370	26	NA	52.3	160
Cobalt	NA	NA	NA	50	NA	NA	NA
Copper	18.7	34	270	16	NA	18.7	108
Cyanide	NA	NA	NA	0.1	NA	NA	NA
Iron	NA	NA	NA	20,000	NA	NA	NA
Lead	30.2	46.7	218	31	NA	30.2	112
Magnesium	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	460	NA	NA	NA
Mercury	0.13	0.15	0.71	0.2	NA	0.13	0.696
Nickel	15.9	20.9	51.6	16	NA	15.9	42.8
Potassium	NA	NA	NA	NA	NA	NA	NA

See notes at end of table.

Table E-4 (Continued)
Sediment Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analyte	Region IV Sediment Screening Value[1]	NOAA[2]		OME LEL[3]	USEPA SQGs[4]	MacDonald SQAGs[5]	
		ER-L	ER-M			TEL	PEL
Inorganic Analytes (mg/kg) (continued)							
Selenium	NA	NA	NA	NA	NA	NA	NA
Silver	2	1	3.7	0.5	NA	0.733	1.77
Sodium	NA	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA
Zinc	124	150	410	120	NA	124	271
TPH	NA	NA	NA	NA	NA	NA	NA

[1] Draft Region IV Waste Management Division Sediment Screening Values (U.S. Environmental Protection Agency [USEPA], 1995c).
[2] National Oceanic and Atmospheric Administration (NOAA) Effects Range-Low (ER-L) Sediment Guideline corresponds to the lower 10th percentile of effects data for each chemical, a range intended to estimate conditions in which effects would be rarely observed; Effects Range-Medium (ER-M) corresponds to the median, or 50th percentile, of the effects data, a concentration representing a possible-effects range within which effects would occasionally occur (Long et al., 1995). Values for antimony, and isomers of chlordane, dieldrin and endrin are from Long and Morgan, 1990.
[3] Ontario Ministry of the Environment (OME) Low Effects Level (LEL) Provincial Sediment Quality Guidelines (Persaud et. al., 1996) corresponds to a concentration that can be tolerated by the majority of benthic organisms.
[4] USEPA (1988e; 1993c) mean Sediment Quality Criteria values (SQCs) at 1 percent total organic carbon. Values presented are from the 1993 documents, when available; otherwise the 1988 values are used. The lower of the available Final Residue Values and Final Chronic Values is presented.
[5] Values from MacDonald Environmental Sciences, Ltd., 1994, *Approach to the Assessment of Sediment Quality in Florida Coastal Waters*. Threshold effects level (TEL) corresponds to concentrations of contaminants in coastal and estuarine water below which biological effects are not expected, and probable effects level (PEL) corresponds to concentrations of analytes in coastal and estuarine water above which biological effects are likely.
[6] Value represents the total for PCBs.
[7] Value for Aroclor-1254 used as a surrogate.
[8] Value represents the total for DDT.
[9] Value for 4,4'-DDT used as a surrogate.
[10] Value for heptachlor epoxide used as a surrogate.
[11] Value for heptachlor used as a surrogate.
[12] Value for gamma-BHC used as a surrogate.
[13] Value for endrin used as a surrogate.
[14] Value for benzo(b)fluoranthene used as a surrogate.

Notes: SQAGs = sediment quality assessment guidelines.
μg/kg = micrograms per kilogram.
NA = not available.
PCB = polychlorinated biphenyl.
BHC = benzene hexachloride.
DDD = dichlorodiphenyldichloroethane.
DDE = dichlorodiphenyldichloroethene.
DDT = dichlorodiphenyltrichloroethane.
mg/kg = milligrams per kilogram.
TPH = total petroleum hydrocarbons.

- Available Federal and State criteria for each medium, including

  - Region IV surface water and sediment values
  - ambient water quality criteria (for water)
  - Florida Class III surface water quality standards
  - MacDonald sediment screening values
  - National Oceanic and Atmospheric Administration screening values
  - Ontario Ministry of the Environment Provincial sediment quality guidelines
  - USEPA mean sediment quality criteria Values

- PCLs for wildlife receptors (See Table E-2 for PCL values). The lowest PCL for wildlife receptors is presented and used for screening purposes.

- Available reported toxicity values for aquatic receptors (for screening analytes for which there are no available Federal or State screening tools). Lowest adverse effect levels on reproduction, growth or survival in nonsalmonid species will be selected. When lethal concentration to 50 percent of test population (LC_{50}) values are selected, one-fifth of the value is used for screening.

- Risk ratios calculated by dividing the maximum detected concentration by each Tier II screening value.

Contaminant Evaluation. For those analytes that do not exceed screening values, it is concluded (provided sampling data are representative) that risks are negligible for current and future land uses. For those analytes that exceed a screening value, qualitative consideration is given as to how many analytes exceed the values, the extent to which they exceed the values, the toxicity of the analyte, frequency of detection, relationship to screening concentration, appropriateness of the screening tool for a given site, and other relevant site-specific uncertainties.

For those analytes that have insufficient data for screening, uncertainties regarding preliminary risk analysis are discussed.

Conclusions and Recommendations. A brief paragraph will be presented summarizing conclusions and recommendations supported by the preceding analyses.

Protective Contaminant Level. PCLs are defined as the soil concentration of an analyte that represents a Hazard Quotient of ≤ 1 for wildlife receptors. Wildlife receptors include members of terrestrial and wetland vertebrate classes (amphibians, reptiles, birds, and mammals).

PCLs are analyte-specific screening values derived for wildlife receptors appropriate to NAS Cecil Field. Surrogate species selected as representing wildlife groups likely to occur at terrestrial sites at NAS Cecil Field are listed in Table E-5. These representative wildlife receptors are considered on several trophic levels. This may result in overestimation of risk for industrial areas at the facility.

PCLs are developed for the most sensitive receptor at a site. RTVs are conservatively selected from available literature to represent the lowest

Table E-5 Surrogate Species Selected to Represent Wildlife Receptor Groups at NAS Cecil Field Technical Memorandum for No Further Action Potential Source of Contamination 19 Naval Air Station Cecil Field Jacksonville, Florida
Cotton mouse (*Peromyscus gossypinus*). The cotton mouse represents a small mammalian herbivore. This species could potentially be exposed to contamination in soil and surface water, and in plant tissue (accumulated from the soil). The cotton mouse represents the small mammal herbivore communities at NAS Cecil Field.
American robin (*Turdus migratorius*). The robin is often seen in developed areas, including maintained grassy lawns. This species represents avian receptors that may come into contact with contaminants in surface soil as a result of ingestion of earthworms and other soil invertebrates. The robin was selected to represent avian species that would receive the highest dose as a result of its small body size and feeding habits.
Short-tailed shrew (*Blarina brevicauda*). The short-tailed shrew finds suitable habitat in forests, fields, marshes, and brush. It primarily feeds on earthworms, snails, centipedes, insects, small vertebrates, and slugs (DeGraaf and Rudis, 1986). Relative to other small mammals, insectivorous species may receive high doses of contamination as a result of their voracious appetite relative to their small body size and the ability of their prey items to accumulate constituents. The shrew represents small mammal omnivores found in wooded sections of NAS Cecil Field.
Red fox (*Vulpes vulpes*). This omnivorous mammal prefers open woodlands and grassy fields, and is most active at dawn, dusk, and night. It is an opportunistic forager, feeding on small mammals, birds, amphibians, reptiles, and invertebrates, as well as berries and other fruits (Burt and Grossenheider, 1976). The red fox has an estimated home range of approximately 1,727 acres. The red fox represents predatory mammals at NAS Cecil Field.
Red-tailed hawk (*Buteo jamaicensis*). The red-tailed hawk forages in open country, frequently on woodland edges feeding primarily on small mammals. It will also consume invertebrates, reptiles, and small birds in its diet. Red-tailed hawks are year round residents in the southeastern United States, and are frequently seen perched adjacent to open fields (DeGraaf and Rudis, 1986). The red-tailed hawk has an estimated home range of 800 acres. The red-tailed hawk represents predatory birds at NAS Cecil Field.
Notes: NAS = Naval Air Station.

available reported adverse effect threshold for reproduction, growth, or survival (see Table E-6).

The RTVs are incorporated into the food-web model described below. When an LD_{50} value is selected as the basis for the RTV, the LD_{50} value is divided by 5 to approximate an effect threshold. When no RTV value is available for birds, the most conservative value for mammals is used. These methods may underestimate or overestimate risk.

The food-web model is described below and shown in Table E-7. The food-web model incorporates the total body dose for the indicator species, including assumptions regarding study area foraging frequency and duration (Table E-8); percentage of diet consisting of prey items and soil (Table E-8); tissue concentrations for potential prey items, estimated using bioaccumulation factors (Table E-9); additional exposure parameters derived from *Wildlife Exposure Factors Handbook* (USEPA, 1993a) (see Table E-8); an assumed site acreage of 0.5; and RTVs for mortality, reproduction, and growth (Table E-6). The PCL for each analyte representing the most sensitive surrogate receptor species is presented in Table E-2.

Table E-6
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Volatile Organic Compounds							
Acetone	Rat	Oral	NR	LD_{50}	5,800		RTECS, 1994
	Rat	Single Oral Dose		LD_{50}	9,750		Sax, 1984
	Rat	Oral	NR	LOAEL for reproductive effects		273,000	RTECS, 1994
	Mouse	Oral	NR	LD_{50}	3,000		RTECS, 1994
	Rabbit	Oral	NR	LD_{50}	5,340		RTECS, 1994
2-Butanone	Rat	Oral dose	NR	LD_{50}	2,737		RTECS, 1994
	Rat	Oral (subchronic)	13 weeks	NOAEL for neurological effects		173	ATSDR, 1991a
	Mouse	Oral dose	NR	LD_{50}	4,050		RTECS, 1994
Bromodichloromethane	Rat	Oral LD_{50}	1 dose	LD_{50}	470		ATSDR, 1988a
	Rat	Oral LD_{50}	1 dose	LD_{50}	943		ATSDR, 1988a
	Mouse	Oral LD_{50}	1 dose	LD_{50}	675		ATSDR, 1988a
	Rat	Oral (acute)	6 to 10 days of gestation	LOAEL for fetotoxicity		50	ATSDR, 1988a
Carbon disulfide	Rat	Oral	NR	LD_{50}	3,188		RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		2,000	RTECS, 1994
	Mouse	Oral	NR	LD_{50}	2,780		RTECS, 1994
	Rabbit	Oral	NR	LD_{50}	2,550		RTECS, 1994
	Rabbit	Oral	NR	LOAEL for reproductive effects		350	RTECS, 1994
	Rabbit	Oral	NR	LOAEL for reproductive effects		2,100	RTECS, 1994
	Rabbit	Oral (subchronic)	3 months	Mortality, blood chemistry, histopathology		12.5	USEPA, 1984e

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Volatile Organic Compounds (continued)							
Carbon disulfide (continued)	Rabbit	Converted inhalation	34 weeks	NOAEL for fetotoxicity and malformations		11	IRIS, 1991
	Guinea pig	Oral	NR	LD_{50}	2,125		RTECS, 1994
Chloroform	Dog (Beagle)	Oral (chronic)	7.5 years	Liver cyst formation		12.9	IRIS, 1991
	Rat	Oral	NR	Mortality	908		RTECS, 1994
	Rat	Oral	NR	Reproductive effects		1,260	RTECS, 1994
	Rat	Oral	NR	Reproductive effects		4,000	RTECS, 1994
	Mouse	Oral	NR	Reproductive effects		2,177	RTECS, 1994
	Mouse	Oral	NR	Reproductive effects		2,115	RTECS, 1994
	Guinea pig	Oral	NR	Mortality	820		RTECS, 1994
	Rabbit	Oral	NR	Reproductive effects		260	RTECS, 1994
Methylene chloride	Rat	Oral (chronic)	2 years	LOAEL for liver toxicity		52.6	IRIS, 1991
	Rat	Oral (subchronic)	3 months	NOAEL for mortality, blood chemistry, histopathology		125	USEPA, 1984a
	Rat	Oral LD_{50}	NR	Mortality	1,600		RTECS, 1994
	Dog	Oral LD_{50}	NR	Mortality	3,000		RTECS, 1994
	Rabbit	Single oral dose	1 dose	LD_{50}	1,900		Sax, 1984
Tetrachloroethene	Rat	Oral LD_{50}	1 dose	LD_{50}	8,850		NIOSH, 1985
	Mouse	Oral (subchronic)	13 weeks	LOAEL for hepatotoxicity		100	Buben and O'Flaherty, 1985

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Volatile Organic Compounds (continued)							
Toluene	Rat	Oral (subchronic)	13 weeks	LOAEL for increased liver and kidney weight		446	IRIS, 1991
	Rat	Oral dose	NR	LD_{50}	5,000		NIOSH, 1985
	Rat	Single oral dose	NR	LD_{50}	636		RTECS, 1994
	Mouse	Oral (subchronic)	76 days	LOAEL for decreased open field activity		76	ATSDR, 1992b
	Mouse	Oral	NR	LOAEL for reproductive effects		9,000	RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		15,000	RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		30,000	RTECS, 1994
Trichloroethene	Mouse	Single oral dose	1 dose	LD_{50}	2,402		NIOSH, 1985
	Rat	Single oral dose	1 dose	LD_{50}	7,193		NIOSH, 1985
	Mouse	Oral (multi-generational)	12 weeks	LOAEL for decreased dam and fetal weights		750	ATSDR, 1991d
Xylenes (total)	Rat	Oral (chronic)	103 weeks	LOAEL for hyperactivity, decreased BW, mortality		500	IRIS, 1991
	Rat	Oral dose	NR	LD_{50}	4,300		NIOSH, 1985
	Japanese quail	Oral (acute)	5 days	LOAEL for mortality	2,014		Hill and Camardese, 1986
Semivolatile Organic Compounds							
1,4-Dichlorobenzene (surrogate for 1,2-dichlorobenzene)	Mouse	Oral (chronic)	2 years	NOAEL for nephropathy; renal tubular degeneration		300	NTP, 1987
	Rat	Single oral dose	1 dose	LOAEL for mortality	4		NTP, 1987

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Semivolatile Organic Compounds (continued)							
2,4-Dinitrotoluene (surrogate for 2,6-DNT)	Rat	Single oral dose	1 dose	LD_{50}	268		NIOSH, 1985
	Dog	Oral (subchronic)	13 weeks	LD_{50}	25		ATSDR, 1988
	Mouse	Single oral dose	1 dose	LD_{50}	790		NIOSH, 1985
4-Chloroaniline	Rat	Oral (chronic)	102 weeks	LOAEL for fibrosis of the splenic capsule		12.5	IRIS, 1993
4-Methylphenol (surrogate for 2-methylphenol)	Rat	Single oral dose	1 dose	LD_{50}	1,800		Verschueren, 1983
	Rabbit	Single oral dose	1 dose	LD_{50}	1,100		Verschueren, 1983
	Rat	Oral (subchronic)	13 weeks	LOAEL for CNS stimulation		50	ATSDR, 1990a
	Rat	Single oral dose	90 days	NOAEL for loss in body weight and neurotoxicity		50	IRIS, 1991
Acenaphthene	Mouse	Oral (chronic)	90 days	NOAEL for liver weight increase		175	IRIS, 1990
	Rat	Oral (chronic)	32 days	LOAEL for physiological changes		2,000	USEPA, 1984b
Anthracene	Mouse	Oral LD_{50}	NR	Mortality	17,000		RTECS, 1994
	Rodents	Oral (chronic)	NS	Carcinogenicity		3,300	Eisler, 1987a
	Mouse	Oral (chronic)	90 days	LOAEL for clinical and pathological effects		1,000	IRIS, 1990
Benzo(a)anthracene	Rodents	Oral (chronic)	NR	Carcinogenicity		2	Eisler, 1987a

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Semivolatile Organic Compounds (continued)							
Benzo(a)pyrene (surrogate for other PAHs)	Rat	Oral (chronic)	Pregnancy	LOAEL for sterility in offspring		40	USEPA, 1984c
	Rat	Oral (chronic)	3.5 months	LOAEL for reproductive		50	USEPA, 1984c
	Mouse	Oral	Multigenerational	LOAEL for decreased fertility of F1 progeny, decreased F2 litter size		10	MacKenzie and Angevine, 1981
	Mouse	Oral (subchronic)	6 months	Mortality	120		ATSDR, 1993
Benzo(b)fluoranthene	Rodents	Oral (chronic)	NR	Carcinogenicity		40	Eisler, 1987a
Benzo(g,h,i)perylene	Rodents	Oral (chronic)	NR	Carcinogenicity		99	Eisler, 1987a
Benzo(k)fluoranthene	Rodents	Oral (chronic)	NR	Carcinogenicity		40	Eisler, 1987a
Butylbenzylphthalate	Rat	Oral	NR	LD_{50}	2,330		RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		16,400	RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		4,900	RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		21,000	RTECS, 1994
	Mouse	Oral	NR	LD_{50}	4,170		RTECS, 1994
	Guinea Pig	Oral	NR	LD_{50}	13,750		RTECS, 1994
Carbazole	Rat	Oral LD_{50}	NR	Mortality		10	USEPA, 1986
Chrysene	Rodents	Oral (chronic)	NR	Carcinogenicity		99	Eisler, 1987a
Dibenzofuran	Rodents	Single oral dose	1 dose	LC^{20}	500		ATSDR, 1991g
	Rodents	Oral (chronic)	13 weeks	LC^{10}	125		ATSDR, 1991g
Diethylphthalate	Rat	Oral (subchronic)	16 weeks	NOAEL for decreased body weight gain; decreased food utilization		750	IRIS, 1993

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Semivolatile Organic Compounds (continued)							
Di-*n*-butylphthalate (surrogate for di-*n*-octylphthalate)	Rat	Oral (subchronic)	48 days	LOAEL for reproductive effects		125	ATSDR, 1989a
	Rat	Oral (chronic)	1 year	LOAEL for mortality	600		IRIS, 1991
	Mouse	Single oral dose	1 dose	LD_{50}	6,513		Sax, 1984
Fluoranthene	Rat	Oral LD dose	NR	LD_{50}	2,000		RTECS, 1994
	Mouse	Oral (subchronic)	90 days	LOAEL for nephropathy, clinical and pathological effects		250	IRIS, 1990
Fluorene	Mouse	Oral (subchronic)	13 weeks	Loael for hematological changes		125	IRIS, 1990
Indeno(1,2,3-*cd*)pyrene	Rodents	Oral (chronic)	NR	Carcinogenicity		72	Eisler, 1987a
Isophorone	Rat	Oral (acute)	1 dose	LD_{50}	3,460		ATSDR, 1988e
Naphthalene (surrogate for 2-methylnaphthalene)	Rat	Oral (subchronic)	13 weeks	LOAEL for decreased body weight gain		35.7	USEPA, 1990
Nitrobenzene	Rat	Single oral dose	1 dose	LOAEL for mortality		13	Sax, 1984
N-Nitrosodiphenylamine	Rat	Single oral dose		LD_{50}	1,650		Sax, 1984
	Rat	Oral	NR	LD_{50}	1,825		RTECS, 1994
	Mouse	Oral	NR	LD_{50}	1,860		RTECS, 1994
Pentachlorophenol	Rat	Oral	1 dose	LD_{50}	27		Eisler, 1989
	Mouse	Oral	1 dose	LD_{50}	65		Eisler, 1989
	Rat	Oral (chronic)	2 years	NOAEL for effects on growth, survival, and reproduction		3	Eisler, 1989

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Semivolatile Organic Compounds (continued)							
Phenanthrene	Mouse	Oral dose	NR	LD_{50}	700		RTECS, 1994
	Mouse	Oral (subchronic)	6 months	LOAEL for increased liver weight		120	ATSDR, 1989b
Phenol	Rat	Single oral dose	1 dose	LD_{50}	700		Eisler, 1987a
	Rat	Oral (subchronic)	Gestational	LOAEL for reduced fetal body weights		120	IRIS, 1993
	Rabbit	Single oral dose	1 dose	LD_{50}	600		USEPA, 1980a
	Dog	Single oral dose	1 dose	LD_{50}	500		USEPA, 1980
Pyrene	Rat	Oral dose	NR	LD_{50}	2,700		RTECS, 1993 and NIOSH, 1985
	Mouse	Oral dose	NR	LD_{50}	800		RTECS, 1993 and NIOSH, 1985
	Mouse	Oral (subchronic)	13 weeks	LOAEL for renal effects		125	IRIS, 1990
bis(2-Ethylhexyl)-phthalate	Rat	Oral	NR	LD_{50}	30,600		RTECS, 1994
	Rat	Single oral dose		LD_{50}	26,000		ATSDR, 1988f
	Rat	Single oral dose		LD_{50}	8,600		NIOSH, 1985
	Rat	Oral	NR	LOAEL for reproductive effects		7,140	RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		35	RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		6,000	RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		17,200	RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		10,000	RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		9,766	RTECS, 1994

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Semivolatile Organic Compounds (continued)							
bis(2-Ethylhexyl)-phthalate (continued)	Mouse	Oral	NR	LD_{50}	30,000		RTECS, 1994
	Mouse	Single oral dose		LD_{50}	800		RTECS, 1993 and NIOSH, 1985
	Mouse	Oral	NR	LOAEL for reproductive effects		78,880	RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		4,200	RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		50	RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		1,000	RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		2,040	RTECS, 1994
	Mouse	Oral (subchronic)	13 weeks	LOAEL for renal effects		125	RTECS, 1993
	Rabbit	Oral	NR	LD_{50}	34,000		RTECS, 1994
	Guinea pig	Oral	NR	LD_{50}	26,000		RTECS, 1994
	Guinea pig	Oral	NR	LOAEL for reproductive effects		20,000	RTECS, 1994
	Mammal	Oral	NR	LOAEL for reproductive effects		20,000	RTECS, 1993
	Mammal	Oral	NR	LOAEL for reproductive effects		500,000	RTECS, 1993
Pesticides and PCBs							
4,4'-DDD	Rat	Oral	NR	LD_{50}	113		RTECS, 1994
	Hamster	Oral	NR	LD_{50}	>5,000		RTECS, 1994
	Ring-necked pheasant	Oral dose	NR	LD_{50}	386		USFWS, 1984
	Mallard	Oral dose	NR	LD_{50}	2,000		USFWS, 1984

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Pesticides and PCBs (continued)							
4,4'-DDE	Rat	Oral	NR	LD_{50}	800		RTECS, 1994
	Mouse	Oral	NR	LD_{50}	700		RTECS, 1994
	Hamster	Oral	NR	LD_{50}	>5,000		RTECS, 1994
	Mallard	Oral	NR	Eggshell thinning		2.91	IRIS, 1993
	Mallard	Oral	2 years	Embryo mortality, cracked eggs		0.58	IRIS, 1993
	Kestrel	Oral	NR	Eggshell thinning		0.39	IRIS, 1993
4,4'-DDT	Rat	Oral	NR	LD_{50}	87		RTECS, 1994
	Rat	Single oral dose		LD_{50}	100		USEPA, 1985b
	Rat	Oral	NR	LOAEL for reproductive effects		112	RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		100	RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		430	RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		1,890	RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		250	RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		50	RTECS, 1994
	Rat	Oral	3 generations	LOAEL for reproductive effects		0.2	RTECS, 1994
	Rat	Oral	2 years	LOAEL for reproductive effects		2.5	RTECS, 1994
	Mouse	Oral	NR	LD_{50}	135		RTECS, 1994
	Mouse	Single oral dose		LD_{50}	200		USEPA, 1985b
	Mouse	Oral	NR	LOAEL for reproductive effects		504	RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		81	RTECS, 1994

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Pesticides and PCBs (continued)							
4,4'-DDT (continued)	Mouse	Oral	NR	LOAEL for reproductive effects		124	RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		148	RTECS, 1994
	Rabbit	Oral	NR	LD_{50}	250		RTECS, 1994
	Rabbit	Oral	NR	LOAEL for reproductive effects		150	RTECS, 1994
	Guinea pig	Oral	NR	LD_{50}	150		RTECS, 1994
	Hamster	Oral	NR	LD_{50}	>5,000		RTECS, 1994
	Dog	Single oral dose		LD_{50}	150		RTECS, 1994
	Dog	Oral	NR	LD_{50}	60		USEPA, 1985b
	Dog	Oral	NR	LOAEL for reproductive effects		3,540	RTECS, 1994
	Monkey	Oral	NR	LD_{50}	200		RTECS, 1994
	Chicken	Oral	NR	Decreased reproductive success, toxic symptoms		[1]91.4	USEPA, 1985b
	Rock dove	Single oral dose		LD_{50}	4,000		USFWS, 1984
	Black duck	Oral	NR	Reduced eggshell thickness		[1]0.14	Longcore and Stendell, 1977
	Mallard	Single oral dose		LD_{50}	2,240		USFWS, 1984
	Mallard	Oral	NR	Reduced eggshell thickness		2.8	Longcore and Stendell, 1977
	Mallard	Oral	NR	Eggshell thinning		1.16	IRIS, 1993
	Mallard	Oral	NR	Eggshell thinning		2.91	IRIS, 1993
	Mallard	Oral	NR	LOAEL for reproductive effects		1.45	IRIS, 1993
	California quail	Single oral dose		LD_{50}	595		USFWS, 1984

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Pesticides and PCBs (continued)							
4,4'-DDT (continued)	Japanese quail	Single oral dose		LD_{50}	841		USFWS, 1984
	Pheasant	Single oral dose		LD_{50}	1,334		USFWS, 1984
	Sandhill crane	Single oral dose		LD_{50}	1,200		USFWS, 1984
	Kestrel	Oral	NR	Reduced eggshell thickness		[1]0.56	USEPA, 1985b
	Kestrel	Oral	NR	Reduced eggshell thickness		[1]0.16	Weimeyer, et al., 1986
	Barn owl	Oral	NR	Reduced eggshell thickness		[1]0.14	Longcore and Stendell, 1977
Aroclor-1254	Rat	Single oral dose	One time	LD_{50}	500		Eisler, 1986
	Rat	Oral	NR	LD_{50}	1,010		RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		192	RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		188	RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		645	RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		90	RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		40	RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		750	RTECS, 1994
	Rat	Oral	2 generations	Reduced litter size		7.6	USEPA, 1985c
	Rat	Oral	9 weeks	Fetal mortality/maternal toxicity		6.4	ATSDR, 1987a
	Mouse	Oral	NR	LOAEL for reproductive effects		59.4	RTECS, 1994
	Rabbit	Oral	NR	LOAEL for reproductive effects		350	RTECS, 1994
	Rabbit	Oral	NR	LOAEL for reproductive effects		280	RTECS, 1994

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Pesticides and PCBs (continued)							
Aroclor-1254 (continued)	Mouse	Oral	NR	LOAEL for reproductive effects		1.53	IRIS, 1993
	Chicken	Oral (chronic)	NR	LOAEL for reproductive effects		0.9	USEPA, 1976
	Rock dove	Oral (chronic	NR	LOAEL for parental incubation behavior		0.9	Peakall and Peakall, 1973
	American kestrel	Oral (chronic)	69 days	LOAEL for reduced sperm concentration		9	Eisler, 1986
	Mink	Oral dose	160 days	LOAEL for reproduction		0.096	IRIS, 1993
	Mink	Oral	NR	LOAEL for kit growth		0.15	IRIS, 1993
	Mink	Oral	12.5 days	LOAEL for reproduction		0.375	IRIS, 1993
	Chicken	Oral	39 weeks	LOAEL for egg production and fertility		2.44	IRIS, 1993
	Chicken	Oral	NR	LOAEL for egg production and hatchability		9.8	IRIS, 1993
	Chicken	Maternal diet	NR	LOAEL for chick growth		0.98	IRIS, 1993
	Pheasant	Oral	16 weeks	LOAEL for egg hatchability		1.8	IRIS, 1993
Aroclor-1260	Rat	Oral LD_{50}	NR	LD_{50}	1,315		RTECS, 1993
	Rat	Oral LD_{50}	NR	LD_{50}	500		Eisler, 1986
	Rat	Oral LD_{50}	NR	LD_{50}	1,300		Eisler, 1986
	Rat	Oral	NR	LOAEL for reproductive effects		1,674	RTECS, 1993
	Rat	Oral (chronic)	2 generation	LOAEL for reduced litter size		7.6	USEPA, 1989
	Rat	Oral (subchronic)	9 weeks	LOAEL for fetal mortality, maternal toxicity		6.4	ATSDR, 1987a
	Mouse	Oral	NR	LOAEL for reproductive effects		74	RTECS, 1993

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Pesticides and PCBs (continued)							
Aroclor-1260 (continued)	Mink	Oral LD_{50}		LD_{50}	4,000		Eisler, 1986
	Mink	Oral LD_{50}		LD_{50}	3,000		Eisler, 1986
	Mink	Oral LD_{50}		LD_{50}	750		Eisler, 1986
	Mink	Oral (subchronic)	4 months	LOAEL for impaired reproduction		0.0075	Newell et al., 1987
	Dog (Beagle)	Oral (chronic)	2 years	LOAEL		0.37	USEPA, 1976
	Bobwhite	Oral LD_{50}	8 days	LD_{50}	80 [b]		Eisler, 1986
	Mallard	Oral LD_{50}	8 days	LD_{50}	111		Eisler, 1986
	Chicken	Oral (chronic)	NR	LOAEL for embryonic mortality		0.9	USEPA, 1976
	American kestrel	Oral (chronic)	69 days	LOAEL for reduced sperm concentration		9	Eisler, 1986
alpha-BHC	Rat	Oral (chronic)	56 weeks	LOAEL for liver necrosis		2.5	ATSDR, 1988b
	Mouse	Oral (chronic)	50 weeks	LOAEL for hepatomegaly		65	ATSDR, 1988b
	Rat	Single oral dose	One time	LD_{50}	177		Sax, 1984
beta-BHC	Rat	Oral (acute)	2 to 14 days	LOAEL for renal hypertrophy		40	ATSDR, 1988b
	Rat	Single oral dose	One time	LD_{50}	6,000		Sax, 1984
delta-BHC	Rat	Oral (chronic)	24 or 48 weeks	NOAEL for hepatic necrosis		50	ATSDR, 1988b
	Rat	Single oral dose	One time	LD_{50}	1,000		Sax, 1984
gamma-BHC (and surrogate for other BHC isomers)	Rat	Oral (chronic)	15 weeks	NOAEL for reproductive effects		5	ATSDR, 1988b
	Mouse	Single oral dose	Gestation	LOAEL for increased resorptions		25	ATSDR, 1988b
	Bobwhite	Oral (acute)	5 days	LD_{50}	78		Hill et al., 1975

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Pesticides and PCBs (continued)							
Chlordane (alpha and gamma)	Rat	Oral	NR	LD_{50}	283		RTECS, 1994
	Rat	Single oral dose		LD_{50}	430		Allen et al., 1979
	Rat	Single oral dose		LD_{50}	335		Allen et al., 1979
	Rat	Oral	NR	LD_{50}	200		RTECS, 1994
	Rat	Oral (chronic)	Multigenerational	LOAEL for decreased fertility		16	ATSDR, 1992c
	Mouse	Oral	NR	LD_{50}	145		RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		3.36	RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		152	RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		7	RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		3.04	RTECS, 1994
	Rabbit	Single oral dose		LD_{50}	300		Allen et al., 1979
	Rabbit	Single oral dose		LD_{50}	100		RTECS, 1994
	Hamster	Oral	NR	LD_{50}	1,720		RTECS, 1994
	Dog	Single oral dose		LD_{50}	200		Allen et al., 1979
	Domestic mammal	Oral	NR	LD_{50}	50		RTECS, 1994

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Pesticides and PCBs (continued)							
Chlordane (alpha and gamma) (continued)	Goat	Single oral dose		LD_{50}	180		Allen et al., 1979
	Duck	Oral	NR	LD_{50}	1,200		RTECS, 1994
	Mallard	Oral	5 days	LD_{50}	[1]62		Hill et al., 1975
	Japanese quail	Oral	5 days	LD_{50}	[1]35		Hill et al., 1975
	Bobwhite	Oral	5 days	LD_{50}	[1]29		Hill et al., 1975
	Pheasant	Single oral dose	NR	LD_{50}	24		USFWS, 1984
	Young chicken	Chronic	4 week	NOAEL for egg hatchability and growth		[1]0.031	Eisler, 1990
	Chicken	Oral	NR	LD_{50}	220		RTECS, 1994
	Duck	Oral	NR	LD_{50}	1,200		RTECS, 1994
	Mallard	Oral	5 days	LD_{50}	[1]62		Hill et al., 1975
	Japanese quail	Oral	5 days	LD_{50}	[1]35		Hill et al., 1975
	Bobwhite	Oral	5 days	LD_{50}	[1]29		Hill et al., 1975
	Pheasant	Single oral dose	NR	LD_{50}	24		USFWS, 1984
Dieldrin (Surrogate for aldrin)	Mouse	Single oral dose		LD_{50}	38		Allen et al., 1979
	Mouse	Oral	NR	LD_{50}	38		RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		30.6	RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		15	RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		2.25	RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		12.5	RTECS, 1994

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Pesticides and PCBs (continued)							
Dieldrin (surrogate for aldrin) (continued)	Mouse	Oral	NR	LOAEL for reproductive effects		4.5	RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		6.25	RTECS, 1994
	Mouse	Oral (subchronic)	4 weeks	LOAEL for decreased pup survival		0.65	Virgo & Bellward, 1975
	Rat	Oral	NR	LOAEL for reproductive effects		0.014 [b]	RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		0.336	RTECS, 1994
	Rat	Single oral dose		LD_{50}	46		Allen et al., 1979
	Rat	Oral	NR	LD_{50}	38.3		RTECS, 1994
	Dog	Oral	NR	LOAEL for reproductive effects		2.19	RTECS, 1994
	Hamster	Oral	NR	LOAEL for reproductive effects		30	RTECS, 1994
	Guinea pig	Single oral dose		LD_{50}	25		Allen et al., 1979
	Guinea pig	Oral	NR	LD_{50}	49		RTECS, 1994
	Rabbit	Single oral dose		LD_{50}	45		Allen et al., 1979
	Rabbit	Oral	NR	LD_{50}	45		RTECS, 1994
	Goat	Single oral dose		LD_{50}	100		Allen et al., 1979
	Sheep	Single oral dose		LD_{50}	50		Allen et al., 1979
	Cattle	Single oral dose		LD_{50}	60		Allen et al., 1979
	Mule deer	Single oral dose		LD_{50}	75		Allen et al., 1979
	Cat	Single oral dose		LD_{50}	300		Allen et al., 1979
	Cat	Oral	NR	LD_{50}	500		RTECS, 1994
	Dog	Single oral dose		LD_{50}	65		Allen et al., 1979

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Pesticides and PCBs (continued)							
Dieldrin (surrogate for aldrin) (continued)	Dog	Oral	NR	LD_{50}	65		RTECS, 1994
	Hamster	Oral	NR	LD_{50}	60		RTECS, 1994
	Pig	Oral	NR	LD_{50}	38		RTECS, 1994
	Monkey	Oral	NR	LD_{50}	3		RTECS, 1994
	House sparrow	Single oral dose		LD_{50}	48		USFWS, 1984
	Chicken	Single oral dose		LD_{50}	20		Allen et al., 1979
	Chicken	Oral	NR	LD_{50}	20		RTECS, 1994
	Rock dove	Single oral dose		LD_{50}	27		USFWS, 1984
	Rock dove	Single oral dose		LOAEL for mortality	5		USFWS, 1984
	Gray partridge	Single oral dose		LD_{50}	9		USFWS, 1984
	Chukar	Single oral dose		LD_{50}	25		USFWS, 1984
	Japanese quail	Oral	5 days	LD_{50}	[1]6		Hill et al., 1975
	Japanese quail	Single oral dose		LD_{50}	70		USFWS, 1984
	California quail	Single oral dose		LD_{50}	9		USFWS, 1984
	Quail	Oral	NR	LD_{50}	10.78		RTECS, 1994
	Bobwhite	Oral	5 days	LD_{50}	[1]3		Hill et al., 1975
	Pheasant	Single oral dose		LD_{50}	79		USFWS, 1984
	Mallard	Oral	5 days	LD_{50}	[1]12		Hill et al., 1975
	Mallard	Oral	5 days	LD_{50}	[1]11		Hill et al., 1975

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Pesticides and PCBs (continued)							
Dieldrin (surrogate for aldrin) (continued)	Dog	Oral	NR	LD_{50}	65		RTECS, 1994
	Hamster	Oral	NR	LD_{50}	60		RTECS, 1994
	Pig	Oral	NR	LD_{50}	38		RTECS, 1994
	Monkey	Oral	NR	LD_{50}	3		RTECS, 1994
	House sparrow	Single oral dose		LD_{50}	48		USFWS, 1984
	Chicken	Single oral dose		LD_{50}	20		Allen et al., 1979
	Chicken	Oral	NR	LD_{50}	20		RTECS, 1994
	Rock dove	Single oral dose		LD_{50}	27		USFWS, 1984
	Rock dove	Single oral dose		LOAEL for mortality	5		USFWS, 1984
	Gray partridge	Single oral dose		LD_{50}	9		USFWS, 1984
	Chukar	Single oral dose		LD_{50}	25		USFWS, 1984
	Japanese quail	Oral	5 days	LD_{50}	[1]6		Hill et al., 1975
	Japanese quail	Single oral dose		LD_{50}	70		USFWS, 1984
	California quail	Single oral dose		LD_{50}	9		USFWS, 1984
	Quail	Oral	NR	LD_{50}	10.78		RTECS, 1994
	Bobwhite	Oral	5 days	LD_{50}	[1]3		Hill et al., 1975
	Pheasant	Single oral dose		LD_{50}	79		USFWS, 1984
	Mallard	Oral	5 days	LD_{50}	[1]12		Hill et al., 1975
	Mallard	Oral	5 days	LD_{50}	[1]11		Hill et al., 1975

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Pesticides and PCBs (continued)							
Heptachlor (surrogate for heptachlor epoxide)	Rat	Oral (chronic)	1 generation	LOAEL for increased pup death		0.35	IRIS, 1991
	Rat	Single oral dose	1 dose	LD_{50}	40		Sax, 1984
	Chicken	Single oral dose	1 dose	LD_{50}	62		Sax, 1984
Methoxychlor	Rat	Oral (chronic)	2 years	LOAEL for growth retardation		10	USEPA, 1985c
	Rat	Oral (chronic)	6 weeks	LOAEL for early onset of puberty and decreased litter size		60	Harris et al., 1975
	Rat	Oral (chronic)	6 to 20 days	LOAEL for increased percent off-spring dead and early onset of puberty		200	Khera et al., 1978
Inorganic Analytes							
Aluminum	Mouse	Oral (chronic)	2-3 generations	LOAEL for reduced body weight gain of newborns		425	NIOSH, 1985
	Rat	Oral (subchronic)	1-5 days	LOAEL for reduced growth		100	Bernuzzi, et al., 1989
	Rat	Oral LD_{50}	NR	Mortality	3,700		Sax, 1984
Antimony	Rat	Oral	NR	LD_{50}	7,000		RTECS, 1994
	Rat	Oral (subchronic)	24 weeks	Decreased RBC (swelling of hepatic cords)		41.8	ATSDR, 1991g
Arsenic	Rat	Oral	NR	LD_{50}	763		RTECS, 1994
	Rat	Oral	NR	Reproductive effects		0.58	RTECS, 1993
	Mouse	Oral	NR	LD_{50}	145		RTECS, 1994
	Hamster	Single oral dose	Gestation	7 to 36% fetal mortality		14	ATSDR, 1992a

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Inorganic Analytes (continued)							
Arsenic (continued)	Pheasant	Single oral dose		LD_{50}	386		Eisler, 1988a
	Mallard	Single oral dose		LD_{50}	323		Eisler, 1988a
	Young chicken	Oral	56 days	NOAEL for egg production		1	Hermeyer, 1977
Barium	Rat	Oral	13 weeks	20% population mortality	430		Dietz et al., 1979
	Rat	Oral	10 days	Decreased ovarian weight		198	ATSDR, 1990b
Beryllium	Rat	Single oral dose	NR	LD_{50}	10		USEPA, 1985d
	Rat	Oral (chronic)	3.2 years	NOAEL		0.85	ATSDR, 1987b
Cadmium	Rat	Oral	NR	LOAEL for reproductive effects		155	RTECS, 1993
	Rat	Oral	NR	LOAEL for reproductive effects		220	RTECS, 1993
	Rat	Oral	NR	LOAEL for reproductive effects		21.5	RTECS. 1993
	Rat	Oral	NR	LOAEL for reproductive effects		23	RTECS, 1993
	Rat	Single oral dose		LD_{50}	250		Eisler, 1985
	Rat	Single oral dose	NR	LD_{50}	225		RTECS, 1993
	Mouse	Single oral dose		LD_{50}	890		RTECS, 1993
	Mouse	Oral	NR	LOAEL for reproductive effects		448	RTECS, 1993
	Mouse	Oral	NR	LOAEL for reproductive effects		1,700	RTECS, 1993
	Guinea pig	Single oral dose		LD_{50}	150		Eisler, 1985
	Mallard	Oral (subchronic)	90 days	Egg production suppressed		10	Eisler, 1985
Chromium (Potassium dichromate)	Japanese quail	Oral	5 days	LD_{50}	126		Hill and Camardese, 1986

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Inorganic Analytes (continued)							
Chromium (III)	Rat	Oral	90 days	NOAEL for reproductive effects		1,400	Ivankovic and Preussman, 1975
	Black duck	Oral	5 months	NOAEL for reproductive effects		200	Outridge and Scheuhaemmer, 1993
Cobalt	Rat	Single oral dose		LD_{50}	91		ATSDR, 1991b
	Rat	Oral	NR	LD_{50}	6,171		RTECS, 1994
	Rabbit	Oral	NR	LD_{50}	750		RTECS, 1994
	Rat	Oral (chronic)	98 days	Testicular degeneration		13	ATSDR, 1991b
Copper	Rat	Single oral dose		LOAEL for reproductive effects		152	NIOSH, 1985 and RTECS, 1994
	Rat	Oral LD_{50}	NR	Mortality	940		Sax, 1984
	Mouse	Oral	30 days	Decreased litter sizes with teratogenic effects		100	Lecyk, 1980
	Mallard	Oral	NR	LOAEL		29	NRC, 1977
	Mallard	Oral (subchronic)	29 days	NOAEL for survivorship		2.1	Demayo et al., 1982
Cyanide	Mouse	Single oral dose		LD_{50}	8.5		Arthur D. Little, Inc., 1987
	Hamster	Oral	12 days	Decreased fetal weight		12	Frakes et al., 1986
	Pig	Oral	110 days	Thyroid hypofunction during pregnancy		11	Tewe and Maner, 1981

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Inorganic Analytes (continued)							
Cyanide (continued)	Young chickens	Oral	20 days	Decreased growth and food intake		11	Elzubier and Davis, 1988
Iron	Rat	Oral	NR	LD_{50}	30,000		RTECS, 1994
	Guinea pig	Oral	NR	LD_{50}	20,000		RTECS, 1994
Lead	Guinea pig	Single oral dose		LD_{50}	300		Sax, 1984
	Rat	Oral	3 weeks	50% of progeny dead		200	
	Rat	Oral (subchronic)	12 to 14 days	Decreased fetal body weight		2.5	McClain and Becker, 1972
	Rat	Oral	NR	LOAEL for reproductive effects		790	RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		1,140	RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		520	RTECS, 1994
	Rat	Oral	NR	LOAEL for reproductive effects		1,100	RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		1,120	RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		6,300	RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		300	RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		4,800	RTECS, 1994
	Domestic animal	Oral	NR	LOAEL for reproductive effects		662	RTECS, 1994
	Japanese quail	Oral LD_{50}	5 days	Mortality	24,752		Hill and Camerdese, 1986
	Rock dove	Oral (chronic)	NR	Kidney pathology, learning deficiencies		6.25	Anders et al., 1982 and Dietz et al., 1979

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Inorganic Analytes (continued)							
Lead (continued)	Rock dove	Oral LD_{50}	NR	Mortality	375		Kendall and Scanlon, 1985
Lead acetate	Chicken	Oral	4 weeks	Growth rate suppressed, no mortality or hematological effects		169	Eisler, 1988b
Metallic lead powder	American kestrel nestlings	Oral	10 days	Reduced growth and brain weight, abnormal development		125	Eisler, 1988b
Tetraethyl lead	Rat	Single oral dose		LD_{50}	12		Eisler, 1988b
	Cattle	Oral	105 days	LOAEL for mortality	6		Eisler, 1988b
	Horse	Oral	NR	LOAEL for mortality	2.4		Eisler, 1988b
Triethyl lead chloride	Starling	Oral	11 days	Reduced food consumption, no mortality		2.8	Eisler, 1988b
Manganese	Mouse	Oral (subchronic)	6 months	NOAEL for mortality		2300	ATSDR, 1990c
	Mouse	Oral (subchronic)	90 days	LOAEL for delayed growth of testes		140	ATSDR, 1990c
	Mouse	Oral (chronic)	103 weeks	NOAEL for mortality		810	ATSDR, 1990c
	Rat	Single oral dose	1 dose	LD_{50}	410		ATSDR, 1990c
	Rat	Oral (acute)	20 days	LD_{50}	225		ATSDR, 1990c
	Rat	Oral (subchronic)	10 weeks	NOAEL for hepatic effects		12	ATSDR, 1990c
	Rat	Oral (subchronic)	20 days	NOAEL for decreased litter weight during gestation		620	ATSDR, 1990c
	Rat	Oral (subchronic)	103 weeks	LOAEL for mortality	930		ATSDR, 1990c
	Guinea pig	Single oral dose	1 dose	LD_{50}	400		USEPA, 1984d
	Monkey	Oral (chronic)	18 months	LOAEL for weakness, rigidity		25	ATSDR, 1990c

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Inorganic Analytes (continued)							
Manganese (continued)	Rodents/ livestock	Oral (subchronic)	10 days to 2 months	LOAEL for decreased growth rate		250	Cunningham et al., 1966
	Mouse	Oral (subchronic)	180 days	NOAEL for mortality		2,300	Gianutsos and Murray, 1982
Mercury	Mouse	Single oral dose		LD_{50}	22		NIOSH, 1985
	Mouse	Oral	50 days	Embryotoxicity		0.9	Suzuki, 1979
	Mouse	Oral	Day 0 to 18 (gest)	Embryolethality and teratogenicity		0.7	Suzuki, 1979
	Rat	Single oral dose		LD_{50}	18		NIOSH, 1985
	Rat	Oral	Day 6 to 14 (gest)	Retarded fetus growth		4	Suzuki, 1979
	Chicken	Single oral dose		LD_{50}	20		Fimreite, 1979
	Bantam chicken	Single oral dose		LD_{50}	190		Fimreite, 1979
	Japanese quail	Oral	NR	LOAEL for reproductive effects		5	Fimreite, 1979
	Bobwhite quail	Oral	5 days	LD_{50}	523		Hill et. al., 1975
Inorganic mercury	Mouse	Oral	18 days	LOAEL for mortality	6.3		Suzuki, 1979
	Mouse	Oral	38 days	LOAEL for mortality	5		Suzuki, 1979
	Mouse	Oral	Day 6 to 17 (gest)	Stillbirths and neonatal death		4	Suzuki, 1979
	Japanese quail	Diet	3 weeks	Depressed gonad weights		[1]0.81	Eisler, 1987b
	Japanese quail	NR	14d posttreatment	LD_{50}	31.1		Eisler, 1987b
	Coturnix	NR	14d posttreatment	LD_{50}	26 to 54		Eisler, 1987b
Ethylmercury	Rock dove	Single oral dose		LD_{50}	22.8		Eisler, 1987b
	Prairie chicken	Single oral dose		LD_{50}	11.5		Eisler, 1987b

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Inorganic Analytes (continued)							
Ethylmercury (continued)	Chuckar	Single oral dose		LD_{50}	26.9		Eisler, 1987b
	Gray partridge	Single oral dose		LD_{50}	17.6		Eisler, 1987b
Methylmercury	Mink	Diet	2 months	Fatal to 100%	[1]0.048		Eisler, 1987b
	House sparrow	NR	14d posttreatment	LD_{50}	12.6 to 37.8		Eisler, 1987b
	Coturnix	NR	14d posttreatment	LD_{50}	11 to 27		Eisler, 1987b
	Fulvous whistling duck	NR	14d posttreatment	LD_{50}	37.8		Eisler, 1987b
	Black duck	Oral	28 weeks	Reproduction inhibited		[1]0.22	Eisler, 1987b
	Northern bobwhite	NR	14d posttreatment	LD_{50}	23.8		Eisler, 1987b
	Japanese quail	NR	14d posttreatment	LD_{50}	14.4 to 33.7		Eisler, 1987b
	Ring-necked pheasant	NR	14d posttreatment	LD_{50}	11.5 to 26.8		Eisler, 1987b
Organomercury	Mule deer	Single oral dose		LD_{50}	17.9		Eisler, 1987b
	River otter	Diet	NR	Fatal	[1]0.14		Eisler, 1987b
	Rat	Oral	NR	Reduced fertility		0.5	Eisler, 1987b
	Pig	Oral	Pregnancy	High incidence of stillbirths		0.5	Eisler, 1987b
	Monkey	Oral	Day 20 to 30 (gest)	Maternally toxic and abortient		0.5	Eisler, 1987b
	Cat	Oral	Day 10 to 58 (gest)	Increased incidence of anomalous fetuses		0.25	Eisler, 1987b
	Dog	Oral	Pregnancy	High incidence of stillbirths		0.1 to 0.25	Eisler, 1987b
	Mallard	Oral	NR	Reproduction, behavior		0.064	IRIS, 1993
	Gray pheasant	Oral	30 days	Reduced reproductive ability		0.64	Eisler, 1987b
	Japanese quail	NR	14d posttreatment	LD_{50}	14.4 to 33.7		Eisler, 1987b
	Ring-necked pheasant	NR	14d posttreatment	LD_{50}	11.5 to 26.8		Eisler, 1987b

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Inorganic Analytes (continued)							
Organomercury (continued)	Mallard	Oral	NR	Reproduction, behavior		0.064	IRIS, 1993
	Gray pheasant	Oral	30 days	Reduced reproductive ability		0.64	Eisler, 1987b
	Japanese quail	NR	14d posttreatment	LD_{50}	14.4 to 33.7		Eisler, 1987b
	Ring-necked pheasant	NR	14d posttreatment	LD_{50}	11.5 to 26.8		Eisler, 1987b
Nickel	Rat	Single oral dose	1 dose	LD_{50}	67		ATSDR, 1987c
	Rat	Oral	NR	LOAEL for reproductive effects		158	RTECS, 1994
	Rat	Oral	2 years	Decreased body weight gain		50	ATSDR, 1987c
	Japanese quail	Oral (acute)	5 days	NOAEL		10	Hill and Camardese, 1986
	Japanese quail	Oral (acute)	5 days	Mortality	304		Hill and Camardese, 1986
Selenium	Rat	Oral	NR	LD_{50}	6,700		RTECS, 1994
	Rat	Oral	2 years	Decrease in breeding		0.4	ATSDR, 1988b
	Mouse	Oral	NR	LOAEL for reproductive effects		134	RTECS, 1994
	Japanese quail	Oral	NR	Reduced egg hatching		0.6	Eisler, 1985b
	Mallard	Oral	3 months	Reduced hatchability		1.75	Eisler, 1985b
Silver	Mouse	Intraperitoneal (acute)		Mortality	34		NIOSH, 1985
	Mouse	Oral (chronic)	125 days	LOAEL for hypoactivity		18.1	ATSDR, 1990d
	Rat	Oral	2 week	NOAEL for mortality		181.2	ATSDR, 1990d
	Rat	Oral (chronic)	37 weeks	LOAEL for lack of weight gain		222.2	ATSDR, 1990d

See notes at end of table.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Chemical	Test Species	Test Type	Duration	Effect	Result (mg/kg BW/day)		Reference
					Lethal	Sublethal	
Inorganic Analytes (continued)							
Thallium	Rat	Single oral dose	NR	LD_{50}	35		Sax, 1984
	Rat	Oral (subchronic)	30 to 60 days	LOAEL for testicular effects		0.7	IRIS, 1993
Tin	Rat	Single oral dose		LD_{50}	188		Eisler, 1989
	Rat	Oral (chronic)	13 weeks	NOEL		20	Eisler, 1989
Vanadium	Rat	Oral (subchronic)	2 months	LOAEL for hypertension		15	Susic and Kentera, 1986
	Rat	Oral (subchronic)	35 days	NOAEL for developmental effects		8.4	Domingo et al., 1986
	Japanese quail	Oral dose	5 days	LD_{50}	96		Hill and Camardese, 1986
	Chicken	Oral (subchronic)	6 weeks	LOAEL for decreased egg-laying		11	Berg et al., 1963
Zinc	Rat	Single oral dose		LD_{50}	2,510		Sax, 1984
	Rat	Oral	Gestation	Fetal resorptions in 4 to 20% of population		200	Schlicker and Cox, 1968
	Ferret	Oral	3-13 days	LOAEL for mortality	390		Straube et. al., 1980
Zinc phosphide	Mallard	Diet	5 days	LC_{50}	[1]6,458		Hill et. al., 1975

See notes on following page.

Table E-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

Technical Memorandum For No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Converted to dose per kilogram body weight by multiplying by food ingestion rate and dividing by body weight.

Notes: mg/kg BW/day = milligrams per kilogram body weight per day.
NR = not reported.
LD_{50} = dose resulting in 50 percent mortality in test population.
RTECS = Registry of Toxic Effects of Chemical Substances.
LOAEL = lowest observed adverse effect level.
NOAEL = no observed adverse effect level.
ATSDR = Agency for Toxic Substance and Disease Registry.
USEPA = U.S. Environmental Protection Agency.
IRIS = Integrated Risk Information System.
NIOSH = National Institute for Occupational Safety and Health.
BW = body weight.
NTP = National Toxicology Program.
DNT = dinitrotoluene.
CNS = central nervous system.
PAH = polynuclear aromatic hydrocarbon.
F1 = first generation.
F2 = second generation.
LC^{20} = lethal concentration, lethal to 20 percent.
LC^{10} = lethal concentration, lethal to 10 percent.
PCB = polychlorinated biphenyl.
DDD = dichlorodiphenyldichloroethane.
> = greater than.
USFWS = U.S. Fish and Wildlife Service.
DDE = dichlorodiphenyldichloroethene.
DDT = dichlorodiphenyltrichloroethane.
BHC = benzene hexachloride.
RBC = risk-based concentration.
gest. = gestation.
% = percent.
14d = 14 days.

Table E-7
Model for Estimation of Chemical Exposures for Representative Wildlife Species

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Estimation of Contaminant Exposures Related to Surface Soil

Description: Estimates the amount (dose) of a contaminant ingested and accumulated by a species via incidental ingestion of contaminated surface soil and ingestion of contaminated food items.

Soil Contaminant Concentration: Maximum: The maximum detected concentration of the ecological chemicals of potential concern (ECPCs) when the number of samples is ≤ 3, and the lesser of the maximum detected concentration or the 95th percent upper confidence limit (UCL) when the number of samples is ≥ 4.

Average: Average of detected concentrations. If the average is greater than the maximum exposure point concentration (EPC), the maximum EPC was selected.

Concentration of a Contaminant in a Food Item (T_N):

$$\underset{(mg/kg)}{\text{Food Contaminant Concentration}} = BAF \times \underset{(mg/kg)}{\text{Soil Contaminant or Prey Item Concentration}}$$

where

BAF = bioaccumulation factor or mg/kg fresh weight tissue over mg/kg dry weight soil for invertebrates and plants, and mg/kg fresh weight tissue over mg/kg fresh weight food for small mammals and small birds.

Potential Dietary Exposure (PDE):

$$PDE = \frac{[P_1 \times T_1 + P_2 \times T_2 + \ldots + P_N \times T_N + \text{soil exposure}] \times IR_{Diet} \times SFF \times ED}{BW}$$

where

PDE = potential dietary exposure (mg/kg BW-day),
P_N = percent of diet composed of food item N,
T_N = tissue concentration in food item N (mg/kg),
IR_{Diet} = food ingestion rate of receptor (kg of food or dietary item per day),
BW = body weight (kg) of receptor,
SFF = site foraging frequency (site area [acres] divided by home range [acres]). Assumed to be equal to 1 for lethal exposure scenario, and
ED = exposure duration (fraction of year species is expected to occur on site).

Soil Exposure:

$$\underset{(mg/kg)}{\text{Soil Exposure}} = (\%\ \text{of Diet as Soil}) \times \underset{(mg/kg)}{\text{Soil Contaminant Concentration}}$$

See notes at end of table.

Table E-7 (Continued)
Model for Estimation of Chemical Exposures for Representative Wildlife Species

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Estimation of Contaminant Exposures Related to Surface Water and Sediment

Description: Estimates the amount of a contaminant ingested and accumulated by a species resulting from ingestion of surface water, incidental ingestion of sediment, and ingestion of contaminated aquatic food items.

Contaminant Concentration: Same as described above for soil.

where

BCF = bioconcentration factor (mg/kg of contaminant in food item per mg/ℓ of contaminant in water). Only BCFs greater than 300 were considered (USEPA, 1988c).

BAF = bioaccumulation factor (see note above).

Sediment Exposure:

$$\begin{matrix}\text{Sediment}\\ \text{Contaminant}\\ \text{Exposure}\\ (mg/day)\end{matrix} = \begin{matrix}\text{\% of Diet}\\ \text{as}\\ \text{Sediment}\end{matrix} \times \begin{matrix}IR_{diet}\\ (kg/day)\end{matrix} \times \begin{matrix}\text{Sediment Contaminant}\\ \text{Concentration}\\ (mg/kg)\end{matrix}$$

Surface Water Exposure:

$$\begin{matrix}\text{Surface Water}\\ \text{Contaminant}\\ \text{Exposure}\\ (mg/day)\end{matrix} = \begin{matrix}\text{Surface Water}\\ \text{Contaminant}\\ \text{Concentration}\\ (mg/\ell)\end{matrix} \times \begin{matrix}\text{Water Ingestion}\\ \text{Rate}\\ (\ell/day)\end{matrix}$$

Aquatic Prey Exposure:

$$\begin{matrix}\text{Aquatic Prey}\\ \text{Exposure}\\ (mg/day)\end{matrix} = \begin{matrix}\text{\% Diet}\\ \text{as}\\ \text{Aquatic Prey}\end{matrix} \times \begin{matrix}IR_{diet}\\ (kg/day)\end{matrix} \times \begin{matrix}\text{Aquatic Prey}\\ \text{Contaminant}\\ \text{Concentration}\\ (mg/kg)\end{matrix}$$

where

IR_{diet} = food ingestion rate of receptor (kg of food per day).

Total Exposure Related to Surface Water and Sediment:

$$\begin{matrix}\text{Potential}\\ \text{Dietary}\\ \text{Exposure}\\ (mg/kg)\end{matrix} = \frac{\begin{matrix}\text{Aquatic Prey}\\ \text{Exposure}\\ (mg/kg)\end{matrix} + \begin{matrix}\text{Surface Water}\\ \text{Exposure}\\ (mg/kg)\end{matrix} + \begin{matrix}\text{Sediment}\\ \text{Exposure}\\ (mg/kg)\end{matrix}}{BW}$$

where BW = body weight (kg) of receptor.

Notes:
- ≤ = less than or equal to.
- ≥ = greater than or equal to.
- mg/kg = milligrams per kilogram.
- mg/kg BW-day = milligrams per kilogram body weight per day.
- kg = kilogram.
- % = percent.
- mg/ℓ = milligrams per liter.
- USEPA = U.S. Environmental Protection Agency.
- mg/day = milligrams per day.
- kg/day = kilogram per day.
- ℓ/day = liter per day.

Table E-8
Exposure Parameters for Surrogate Wildlife Species

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Representative Wildlife Species	Body Weight (kg)	Reported Diet	Soil and Sediment Ingestion (% of diet)	Assumed Diet for Exposure Assessment (% of diet)	Food Ingestion Rate (kg/day)	Water Intake Rate (ℓ/day)	Home Range (acres)
Cotton mouse [a] (*Peromyscus gossypinus*)	0.021 [b]	Seeds and some insects [c]	2% soil [d] 1% sediment [e]	88% Plants 10% Invertebrates	0.0029 [f]	0.0031 [g]	0.147 [h]
Short-tailed shrew (*Blarina brevicauda*)	0.017 [i]	Earthworms, slugs and snails, fungi, insects, and vegetation [c]	10% soil [d] 5% sediment [e]	78% Invertebrates 12% Plants	0.0024 [f]	0.0039 [g]	0.96 [c]
American robin (*Turdus migratorius*)	0.077 [j]	Mostly invertebrates and some fruits [c]	10% soil [d] 5% sediment [e]	83% invertebrates 7% plants 10% soil	0.011 [k]	0.01 [l]	1.04 [c]
Red fox (*Vulpes vulpes*)	4.69 [m]	Small mammals, birds, and invertebrates, as well as berries and other fruits [c]	2.8% soil [c]	57% Small mammals 20% Invertebrates 10% Birds 10% Plants	0.24 [f]	NE	1,727 [c]
Red-tailed hawk (*Buteo jamaicensis*)	1.02 [n]	Primarily small mammals; also birds, snakes, turtles, frogs, crickets, beetles, crayfishes, and carp [c]	3% soil [c]	70% small mammals 27% small birds	0.113 [k]		800 [c]

[a] Values for the deer mouse were used for the cotton mouse (U.S. Environmental Protection Agency [USEPA], 1993a).
[b] Average of adult male and female deer mice in North America (USEPA, 1993a).
[c] *Wildlife Exposure Factors Handbook* (USEPA, 1993a).
[d] Deer mouse value used for cotton mouse. Surrogates were chosen based on similarities in diet. Other values were based on diet composition (USEPA, 1993a).
[e] Sediment ingestion assumed to be 50% of soil ingestion, except for the raccoon and the heron.
[f] Calculated using the mammal equation based on body weight (Wt.) in kg. Food ingestion (kg/day) = $0.0687 \times Wt^{0.822}$ (USEPA, 1993a).
[g] Calculated using the mammal equation based on body weight (Wt.) in kg. Water ingestion (ℓ/day) = $0.099 \times Wt^{0.90}$ (USEPA, 1993a).
[h] Average for male and female deer mice, Virginia/mixed deciduous forest (USEPA, 1993a).
[i] Mean of means reported for male and female shrews in summer and fall (USEPA, 1993a).
[j] Dunning (1984), cited in *Wildlife Exposure Factors Handbook* (USEPA, 1993a).
[k] By bird equation based on body weight (Wt.) in kg. Food Ingestion (kg/day) = $0.0582 \times Wt.^{0.651}$ (USEPA, 1993a).
[l] By bird equation based on body weight (Wt.) in kg. Water ingestion (ℓ/day) = $0.059 \times Wt.^{0.67}$ (USEPA, 1993a).
[m] Average of adult male and female foxes in spring (USEPA, 1993a).
[n] Terres, 1990.

Notes: kg = kilogram.
% = percent.
kg/day = kilograms per day.
ℓ/day = liters per day.
NE = not evaluated.

Table E-9
Bioaccumulation Data

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analyte	Bioaccumulation Factor [a]					
	log K_{ow}	[b]	Invertebrate [c]	Plant [d]	Mammal [e]	Bird [f]
Semivolatile Organic Compounds						
Acenaphthene	3.9	5.2	5.0E-02	7.6E-03	2.4E-01	NA
Acenaphthylene	4.1	5.2	5.0E-02	7.6E-03	2.4E-01	NA
Anthracene	4.5	5.2	5.0E-02	7.6E-03	2.4E-01	NA
Benzo(a)anthracene	5.7	5.2	5.0E-02	7.6E-03	2.4E-01	NA
Benzo(a)pyrene	6	5.2	5.0E-02	7.6E-03	2.4E-01	NA
Benzo(b)fluoranthene	6.1	5.2	5.0E-02	7.6E-03	2.4E-01	NA
Benzo(g,h,i)perylene	6.6	5.2	5.0E-02	7.6E-03	2.4E-01	NA
Benzo(k)fluoranthene	6.1	5.2	5.0E-02	7.6E-03	2.4E-01	NA
Butylbenzylphthalate	4.9	4.6	NA	1.7E-02	NA	NA
Carbazole	3.76 [g]	3.76	5.0E-02	5.2E-02	NA	NA
Chrysene	5.7	5.2	5.0E-02	7.6E-03	2.4E-01	NA
Dibenz(a,h)anthracene	6.5	5.2	5.0E-02	7.6E-03	2.4E-01	NA
Dibenzofuran	4.1	4.1	5.0E-02	3.3E-02	NA	NA
Di-*n*-butylphthalate	5.2	4.6	NA	1.7E-02	NA	NA
Diethylphthalate	3.2	4.6	NA	1.7E-02	NA	NA
bis(2-Ethylhexyl)phthalate	5.1	4.6	NA	1.7E-02	NA	NA
Fluoranthene	4.95 [h]	5.2	5.0E-02	7.6E-03	2.4E-01	NA
Fluorene	4.2	5.2	5.0E-02	7.6E-03	2.4E-01	NA
Indeno(1,2,3-c,d)pyrene	6.6	5.2	5.0E-02	7.6E-03	2.4E-01	NA
2-Methylnaphthalene	3.86 [i]	5.2	5.0E-02	7.6E-03	2.4E-01	NA
4-Methylphenol	1.9	1.7	NA	8.1E-01	NA	NA
Naphthalene	3.6	5.2	5.0E-02	7.6E-03	2.4E-01	NA
Phenanthrene	4.5	5.2	5.0E-02	7.6E-03	2.4E-01	NA
Phenol	1.5	1.7	NA	8.1E-01	NA	NA
Pyrene	5.3	5.2	5.0E-02	7.6E-03	2.4E-01	NA
Pesticides and PCBs						
Aroclor-1248	6 [j]		5.8E+00 [k]	1.2E-01 [l]	3.8E+00 [m]	3.2E-01 [n]
Aroclor-1254	6 [j]		5.8E+00 [k]	1.2E-01 [l]	3.8E+00 [m]	3.2E-01 [n]
Aroclor-1260	7.1 [j]		5.8E+00 [k]	1.2E-01 [l]	3.8E+00 [m]	3.2E-01 [n]
alpha-BHC	3.8		2.6E+00 [o]	4.9E-02	1.5E-06	2.1E-01 [p]
alpha-Chlordane	5.5		1.6E+00 [q]	5.1E-03	5.5E-01 [r]	1.8E+00 [s]
gamma-Chlordane	5.5		1.6E+00 [t]	5.1E-03	5.5E-01 [r]	1.8E+00 [s]
4,4'-DDD	6		3.3E+00 [u]	1.0E-02 [v]	1.2E+00 [w]	2.9E+00 [x]
4,4'-DDE	5.7		1.7E+00 [u]	1.0E-02 [v]	1.2E+00 [w]	2.9E+00 [x]

See notes at end of table.

Table E-9 (Continued)
Bioaccumulation Data

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

Analyte	Bioaccumulation Factor [a]					
	log K_{ow}	[b]	Invertebrate [c]	Plant [d]	Mammal [e]	Bird [f]
Pesticides and PCBs (continued)						
4,4'-DDT	6.4		5.7E-01 [u]	1.0E-02 [v]	1.2E+00 [w]	2.9E+00 [x]
Dieldrin	4.6		5.5E+00 [o]	1.7E-02	1.5E+00 [y]	4.4E-01 [z]
Endosulfan I	3.6		NA	6.4E-02	1.1E-03 [p]	NA
Endosulfan II	3.6		NA	6.4E-02	1.1E-03 [p]	NA
Endosulfan sulfate	3.6		NA	6.4E-02	1.1E-03 [p]	NA
Endrin	5.6		7.2E-01 [ab]	4.5E-03	1.8E-03 [p]	5.9E-01 [p]
Endrin ketone	5.6		7.2E-01 [ab]	4.5E-03	1.8E-03 [p]	5.9E-01 [p]
Heptachlor	4.3		1.0E+00 [ac]	2.5E-02	4.7E-02 [p]	6.0E-01 [p]
Heptachlor epoxide	5.4		1.0E+00 [t]	5.9E-03	3.5E-01 [p]	1.4E+00 [p]
Inorganic Analytes						
Aluminum	NA		NA	8.0E-04 [ae]	7.5E-02 [af]	NA
Antimony	NA		NA	4.0E-02 [ae]	5.0E-02 [af]	NA
Arsenic	NA		6.6E-03 [ag]	3.0E-01 [ah]	1.0E-01 [af]	NA
Barium	NA		7.9E-02 [ad]	3.0E-02 [ae]	7.5E-03 [af]	NA
Beryllium	NA		NA	2.0E-03 [ae]	5.0E-02 [as]	NA
Cadmium	NA		1.4E+00 [aj]	3.3E+01 [ak]	2.1E+00 [af]	3.8E-01 [al]
Chromium	NA		1.6E-01 [k]	1.5E-03 [ae]	2.8E-01 [af]	NA
Cobalt	NA		NA	4.0E-03 [ae]	1.0E+00 [af]	NA
Copper	NA		1.6E-01 [k]	7.8E-01 [ar]	6.0E-01 [ak]	NA
Cyanide	NA		0.0E+00 [an]	0.0E+00 [an]	0.0E+00 [an]	0.0E+00 [an]
Lead	NA		2.8E-02 [ad]	0.0E+00 [ai]	1.5E-02 [af]	NA
Manganese	NA		2.6E-01 [ad]	5.0E-02 [ae]	2.0E-02 [af]	NA
Mercury	NA		6.8E-02 [ao]	1.8E-01 [ae]	1.0E-02 [ao]	2.3E+00 [ao]
Nickel	NA		2.3E-01 [ap]	1.2E-02 [ae]	3.0E-01 [af]	NA
Selenium	NA		7.6E-01 [af]	9.0E-03 [aq]	7.5E-01 [af]	5.1E-01 [ar]
Silver	NA		4.5E-01 [ad]	8.0E-02 [ae]	1.5E-01 [af]	NA
Thallium	NA		NA	8.0E-04 [ae]	2.0E+00 [af]	NA
Tin	NA		NA	6.0E-03 [ae]	1.5E+00 af]	NA
Vanadium	NA		NA	1.1E-03 [ae]	1.3E-01 [af]	NA
Zinc	NA		1.8E+00 [k]	6.1E-01 [am]	2.1E+00 [af]	NA

[a] Units for bioaccumulation factors (BAFs) are milligrams per kilogram (mg/kg) fresh weight tissue over mg/kg dry weight soil for invertebrates and plants, and mg/kg fresh weight tissue over mg/kg fresh weight food for small mammals and small birds. No BAFs were calculated for volatile organic compounds since available evidence suggests that these analytes do not bioaccumulate. Units for bioconcentration factors (BCFs) are μg/kg fresh weight tissue over μg/ℓ water.
[b] From Superfund Chemical Data Matrix (U.S. Environmental Protection Agency [USEPA], 1993b) unless otherwise noted. Log K_{ow}s for classes of semivolatile compounds were averaged to provide an average BAF value. Compounds were grouped accordingly: PAHs (5.2); phthalates (4.6); dibenzofuran (4.1), and carbazole (3.76).

Table E-9 (Continued)
Bioaccumulation Data

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

[c] Average of earthworm BAFs (Beyer, 1990) converted from dry weight to wet weight assuming earthworm is 80% water, unless otherwise noted.
[d] Plant BAF calculated using the following equation presented by Travis and Arms (1988) unless otherwise noted: log (Plant Uptake Factor) = 1.588-0.578 (log K_{ow}). Converted from dry weight to wet weight plant concentration assuming 80% water content of earthworms.
[e] Calculated using the following equation in Travis and Arms (1988) for semivolatile organic analytes with log K_{ow}s >5: log BTF (biotransfer factor) = log K_{ow} - 7.6; result multiplied by average ingestion rates for nonlactating and lactating test animals to convert from BTFs to BAFs, and divided by a factor of 0.2 to convert from dry feed to fresh feed. There is an uncertainty factor involved in using this equation for PAHs because this study did not use any PAHs in the regression analysis. When no literature values were available, BAFs were calculated for pesticides and PCBs, regardless of the log K_{ow}, due to the tendency of these lipophilic compounds to bioaccumulate. With the exception of pesticides and PCBs, BAFs for analytes with log K_{ow}s < 5 are assumed to be 0.15 because they are unlikely to bioaccumulate in animal tissue (Maughan, 1993).
[f] Small mammal BAF used unless otherwise noted.
[g] Hansch and Leo (1979)
[h] USEPA (1992), *Dermal Exposure Assessment.*
[i] Agency for Toxic Substances and Disease Registry, 1993a (Toxicological Profile for Naphthalene).
[j] USEPA (1990a). "Basics of Pump-and-Treat Ground-Water Remediation Technology".
[k] BCF for earthworms from Diercxsens et al. (1985).
[l] Arithmetic mean BAF for corn, leaves, carrots, beets, sugarbeets, radishes, and soybeans (tops, roots, and whole plants) from USEPA (1985c) and Webber (1983).
[m] BAF calculated from discussion in Eisler (1986) stating that Aroclor-1254 residues in subcutaneous fat of adult minks were up to 38 times dietary levels. Converted to whole body concentrations assuming 10% lipid content.
[n] BAF calculated from data presented in Eisler (1986). Kestrels fed 33 mg PCB/kg diet for 62 to 69 days accumulated 107 mg PCB/kg lipid weight in muscle. Assuming muscle is 10% lipid content, the muscle concentration is about 10.7 mg/kg.
[o] Geometric mean of reported BAFs for earthworms (Edwards and Thompson, 1973). Values provided by Gish (1970) were converted from dry weight to wet weight by multiplying by a conversion factor of 0.2 assuming 80% water composition of earthworms.
[p] BAFs from Garten and Trabalka (1983) were converted from (mg/kg of fat)/(mg/kg of diet) to (mg/kg fresh wt.)/(mg/kg diet) by multiplying the value by an assumed fat content of 10%. Poultry and small bird values were used for bird BAFs, and rodent, dog, swine, and cow values were used for mammal BAFs. Dog values were used for endrin and its derivatives. Rodent values were used for endosulfan (and its derivatives) and gamma-BHC. Swine values were used for methoxychlor, aldrin, and heptachlor. Cow values were used for heptachlor epoxide. Small bird values were used for 4,4'-DDD, 4,4'-DDE, and 4,4'DDT. Poultry values were used for endrin, alpha-BHC, beta-BHC, gamma-BHC, aldrin, endrin, heptachlor, and heptachlor epoxide.
[q] Value for gamma-chlordane used as a surrogate.
[r] BAF calculated from data presented in Eisler (1990). Rats fed 20 mg/kg diet technical chlordane (equivalent to 3.6 mg/kg diet *cis*- and *trans*-chlordane) for 350 days accumulated 20 mg/kg in lipids. Assuming 10% lipid content, the whole body concentration is about 2 mg/kg.
[s] BAF calculated from data presented in Eisler (1990). Red-winged blackbirds fed 10 mg/kg diet technical chlordane (equivalent to 1.8 mg/kg diet *cis*- and *trans*- chlordane) for 84 days accumulated 1.8 mg/kg wet weight whole body residue.
[t] Geometric mean of reported BAFs for earthworms (Gish, 1970) converted from dry weight to wet weight assuming 80% water composition of earthworms.

Table E-9 (Continued)
Bioaccumulation Data

Technical Memorandum for No Further Action
Potential Source of Contamination 19
Naval Air Station Cecil Field
Jacksonville, Florida

[u] Geometric means of 4,4'-DDT [Davis (1968), Davis and Harrison (1966), Wheatley and Hardman (1968), Bailey et al. (1970), Cramp and Olney (1967), and Beyer and Gish (1980)], 4,4'-DDE [Davis (1968), Davis and Harrison (1966), Cramp and Olney (1967), Collett and Harrison (1968), Hunt and Sacho (1969), and Gish (1970)], and 4,4-DDD [Barker (1958), Davis (1968), Davis and Harrison (1966), Cramp and Olney (1967), Collett and Harrison (1968), Wheatley and Hardman (1968), Hunt and Sacho (1969), Bailey et al. (1970), Dimond et al. (1970), Gish (1970), and Beyer and Gish (1980)] reported for earthworms. Dry soil concentrations calculated assuming 10% moisture content in sandy-loam soils (Donahue et al., 1977).
[v] Geometric mean of 4,4'-DDT, 4,4'-DDD, and 4,4'-DDE BAFs (fresh weight over dry weight) reported for roots (carrot, potato, sugar beet), grains (corn, oats), and legumes (alfalfa) derived from USEPA (1985b) converted from dry weight to wet weight per values provided by Suter (1993).
[w] BAF for shrews and voles calculated using measured concentrations of DDT_R in stomach content and in whole body (Forsyth and Petrle, 1984).
[x] Whole-body pheasant BAF for 4,4'-DDT presented in USEPA (1985b); derived from Kenaga (1973).
[y] BAF calculated from data presented by Potter et al (1974). Based on an average dieldrin concentration in cow muscle and fat of 0.17 mg/kg (dry weight) and a dieldrin concentration of 0.11 mg/kg in the diet (dry weight).
[z] Jeffries and Davis (1968).
[aa] Assumed value based on average of BAFs for Aroclor 1260, alpha chlordane, 4-4'DDE, dieldrin, and endrin ketone.
[ab] Value reported for endrin from Gish (1970).
[ac] Value for heptachlor epoxide used as a surrogate.
[ad] Value is equal to value calculated for Cecil Field sites using site-specific earthworm and soil data.
[ae] Value from Baes et al. (1984) for leafy portions of plants multiplied by 0.2 to represent 80% water composition of plants.
[af] Value derived from BTFs presented in Baes et al. (1984) for uptake into cattle. BTF converted to BAF by multiplying by food ingestion rate of 50 kilograms per day wet weight.
[ag] Average of values for industrial soils from Beyer and Cromartie (1987) multiplied by 0.2 to represent 80% water composition in earthworms.
[ah] Average of BAF values reported from Wang et al. (1984), Sheppard et al. (1985), and Merry et al. (1986).
[ai] Lead does not accumulate in plant tissue; therefore, a BAF of zero was assigned.
[aj] Mean of values reported for soil invertebrates in MacFadyen (1980) converted from dry weight to wet weight.
[ak] Mammal value for copper and plant value for cadmium from Levine et al., (1989).
[al] Based on accumulation of cadmium in kidneys of European quail in Pimentel et al. (1984).
[am] Median of values reported from Levine et al. (1989).
[an] Cyanide has not been shown to bioaccumulate in any organisms.
[ao] Uptake value (fresh weight over dry weight) for earthworms from USEPA (1985c) sludge document. Fresh weight tissue concentrations calculated assuming 80% body water content.
[ap] Value from nickel sludge document (USEPA, 1985e) multiplied by 0.2 to represent 80% water composition of earthworms.
[aq] Based on reported ratio of selenium in plant tissue and iron fly ash amended soil (Stoewsand et al., 1978).
[ar] Based on average of reported ratio of selenium in diet to liver, kidney, and breast tissue of chickens (Eisler, 1985b).
[as] Mean of values reported for Sorex araneus in MacFadyen (1980).

Notes: NA = not available.
PCB = polychlorinated biphenyl.
BHC = benzene hexachloride.
DDD = dichlorodiphenyldichloroethane.
DDE = dichlorodiphenyldichloroethene.
DDT = dichlorodiphenyltrichloroethane.
μg/kg = micrograms per kilogram.
μg/ℓ = micrograms per liter.
Log K_{ow} = Logarithm transformation of the octanol/water partitioning coefficient.
PAH = polynuclear aromatic hydrocarbon.
% = percent.
> = greater than.
< = less than.
mg = milligram.

REFERENCES

ABB Environmental Services, Inc. (ABB-ES). 1994a. *Remedial Investigation and Feasibility Study Workplan, Naval Air Station Cecil Field, Operable Unit 2*. Prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), North Charleston, South Carolina.

ABB-ES. 1994b. *Wetlands Assessment, Wetland Delineation, and Terrestrial Habitat Mapping at Operable Units, Naval Air Station Cecil Field, Jacksonville, Florida*. Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina.

Agency for Toxic Substances and Disease Registry (ATSDR). 1987a. U.S. Public Health Service. "Toxicological Profile for Selected PCBs." (October).

ATSDR. 1987b. U.S. Public Health Service. "Toxicological Profile for Beryllium" (October).

ATSDR. 1987c. U.S. Public Health Service. "Toxicological Profile for Nickel" (October).

ATSDR. 1988a. U.S. Public Health Service. "Toxicological Profile for Dichloromethanes" (December).

ATSDR. 1988b. "Toxicological Profile for the alpha-, beta-, gamma-, and delta-isomers of Hexachlorocyclohexane"; Agency for Toxic Substances and Disease Register, U.S. Public Health Service (December).

ATSDR. 1988c. U.S. Public Health Service. "Toxicological Profile for Selenium" (December).

ATSDR. 1989a. U.S. Public Health Service. "Toxicological Profile for Di-*n*-butylphthalate" (October).

ATSDR. 1989b. "Toxicological Profile for Polycyclic Aromatic Hydrocarbons (Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)-pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene). U.S. Public Health Service (October).

ATSDR. 1990a. U.S. Public Health Service. "Toxicological Profile for Naphthalene and 2-Methylnaphthalene" (February).

ATSDR. 1990b. U.S. Public Health Service. "Toxicological Profile for Barium."

ATSDR. 1990c. U.S. Public Health Service. "Toxicological Profile for Manganese" (October).

ATSDR. 1990d. U.S. Public Health Service. "Toxicological Profile for Silver" (October).

ATSDR. 1990e. 1990e. U.S. Public Health Service. "Toxicological Profile for Endrin". Washington, D.C. (December).

ATSDR. 1991a. U.S. Public Health Service. "Toxicological Profile for 2-Butanone."

ATSDR. 1991b. U.S. Public Health Service. "Toxicological Profile for Cobalt."

ATSDR. 1991c. U.S. Public Health Service. "Toxicological Profile for Endosulfan."

ATSDR. 1991d. U.S. Public Health Service. "Toxicological Profile for Chloroethanes."

ATSDR. 1991e. "Toxicological Profile for Antimony. U.S. Public Health Service.

ATSDR. 1992a. U.S. Public Health Service. "Toxicological Profile for Arsenic."

ATSDR. 1992b. U.S. Public Health Service. "Toxicological Profile for Toluene."

ATSDR. 1992c. U.S. Public Health Service. "Toxicological Profile for Chlordane."

ATSDR. 1993. U.S. Public Health Service. "Toxicological Profile for Benzo(a)pyrene."

Allen. J.R., et al. 1979. "Comparative Toxicology of Chlorinated Compounds on Mammalian Species." *Pharmac. Ther.* 7:513-549.

Anders, E., D.D. Dietz, C.R. Bagnell, Jr., J. Gaynor, M.R. Krigman, D.W. Ross, J.D. Leander, and P. Mushak. 1982. "Morphological, Pharmacokinetic, and Hematological Studies of Lead Exposed Pigeons." *Environ. Res.* 28:344-363.

Arthur D. Little, Inc. 1981. "Reference Constants for Priority Pollutants and Selected Chemicals." Reference No. 84204 (March). 33 pp.

Arthur D. Little, Inc. 1987. *The Installation Restoration Program Toxicology Guide*. Vol.2. Harry G. Armstrong Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base. Cambridge, Massachusetts. pp. 56.1 to 56.17.

Aquatic Retrieval System (AQUIRE). 1994. USEPA on-line Aquatic Database Record Search. April (Toxicity Data) and July (Bioconcentration Factors).

Baes, C.F. III, R.D. Sharp, A.L. Sjoreen, and R.W. Shor. 1984. "A Review and Analysis of Parameters for Assessing Transport of Environmentally Released Radionuclides through Agriculture." ORNL-5786. Oak Ridge National Laboratory (1984).

Bailey, S., P.J. Bunyan, D.M. Jennings and A. Taylor. 1970. *Pestic. Sci.* 1,66.

Barker, R.J. 1958. "Notes on Some Ecological Effects of DDT Sprayed on Elms." *Journal of Wildlife Management* 22:269-274.

Berg, L.R., Bearse, G.E., Merrill, L.H. 1963. "Vanadium Toxicity in Laying Hens." *Poult. Sci.* 42:1407-1411.

Bernuzzi, V., D.Desor, and P.R. Lehr. 1989. "Effects of Postnatal Aluminum Lactate Exposure on Neuromotor Maturation in Rat." *Bulletin of Environmental Contamination and Toxicology* 42:451-5.

Beyer, W.N. 1990. "Evaluating Soil Contamination." Biological Report 90(2). U.S. Fish and Wildlife Service.

Beyer, W.N., and E.J. Cromartie. 1987. "A Survey of Pb, Cu, Zn, Cd, Cr, As and Se in Earthworms and Soil from Diverse Sites." *Env. Mon. Assessment* 8(1987):27-36.

Beyer, W.N. and C. D. Gish. 1980. "Persistence in Earthworms and Potential Hazards to Birds of Soil applied DDT, Dieldrin, and Heptachlor." *J. of Applied Ecology* 17:295-307.

Bousche, M.B.. 1987. "Earthworm Toxicological Tests, Hazard Assessment and Biomonitoring. A Methodological Approach." In *Earthworms in Waste and Environmental Management*, eds. C.A. Edwards and E.F. Neuhauser. The Netherlands: SPB Academic Publishing, p. 315-320.

Buben, J.A., and E.J. O'Flaherty. 1985. "Delineation of the Role of Metabolism in the Hepatotoxicity of Trichloroethylene and Perchloroethylene: A Dose-Effect Study." *Toxicol. Appl. Pharmacol.* 78:105-122; as cited in ATSDR (1991).

Burst, Thomas. 1994. Personal communication from Thomas Burst. Department of the Navy, Southern Division, North Charleston, South Carolina, to Nancy T. Goddard, ABB Environmental Services, Inc. Tallahassee, Florida (December 6).

Burt, W.H., and R.P. Grossenheider. 1976. *A Field Guide to the Mammals*. Boston: Haughton Mifflin Co.

Camp, Dresser, & McKee (CDM) Federal Programs Corporation and ABB-ES, Inc. 1994. *Wetlands Assessment, Wetland Delineation, and Terrestrial Habitat Mapping at Naval Air Station Cecil Field, Jacksonville, Florida.* Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina.

Cochran, Hank. 1994; 1995. Personal communication from Hank Cochran, Naval Air Station Cecil Field Forester, to Nancy T. Goddard, ABB-ES, Inc. Tallahassee, Florida.

Collett, N. and D.L. Harrison. 1968. "Some Observations on the Effects of Using Organochlorine Sprays in an Orchard." *New Zealand Journal of Science* 11: 371-379.

Cramp, S., and P.J.S. Olney. 1967. *Sixth Report on Toxic Chemicals*. Joint Committee British Trust for Ornithology and Royal Society for Protection of Birds on Toxic Chemicals. 26 pp.

Cunningham, G.N., M.B. Wise and E.R. Barrick. 1966. "Effect of High Dietary Levels of Manganese on the Performance and Blood Constituents of Calves." *J. Animal Sci*. 25:532.

CZR Incorporated. 1994. Cecil Field Gopher Tortoise Survey and Management Plan. Contract No. N62467-92-D-0581. Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina (November).

Davis, B.N.K. 1968. "The Soil Macrofauna and Organochlorine Insectice Residues at Twelve Agricultural Sites near Huntingdon." *Annals of Applied Biology* 61:29-45.

Davis, B.N.K., and R.B. Harrison. 1966. *Nature, Lond*. 211, 1424.

DeGraaf, R.M., and D.D. Rudis. 1986. "New England Wildlife: Habitat, Natural History, and Distribution". General Technical Report NE-108. U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. Washington, D.C.

Demayo, A., M.C. Taylor, and K.W. Taylor. 1982. "Effects of Copper on Humans, Laboratory and Farm Animals, Terrestrial Plants, and Aquatic Life"; *CRC Critical Reviews in Environmental Control*: pp. 183-255 (August).

Diercxsens, P., D. deWeck, N. Borsinger, B. Rosset, and J. Tarradellas. 1985. "Earthworm Contamination by PCBs and Heavy Metals." *Chemosphere* 14:511-522.

Dietz, D.D., D.E. McMilland, and P. Mushak. 1979. "Effects of Chronic Lead Administration on Acquisition and Performance of Serial Position Sequences by Pigeons." *Toxicol. Appl. Pharmacol*. 47:377-384.

Dimond, J.B., G.Y. Belyea, R.E. Kadunce, S.A. Getchell, and J.A. Blease. 1970. "DDT Residues in Robins and Earthworms Associated with Contaminated Forest Soils." *The Canadian Entomologist* 102:1122-1130.

Domingo, J.L., J.L. Paternain, J.M. Llobet, and J. Corbella. 1986. "Effects of Vanadium on Reproduction, Gestation, Parturition, and Lactation in Rats upon Oral Administration." *Life Sciences* 39:819-824.

Donahue, R.L., R.W. Miller, and J.C. Skickluna. 1977. *Soils: An Introduction to Soils and Plant Growth*. 4th ed. New Jersey: Prentice-Hall.

Dunning, J.B., 1984. *Body Weights of 686 Species of North American Birds*. Monograph No. 1. Cave Creek, Arizona. Western Bird Banding Association (May).

Edwards, C.A. and A.R. Thompson. 1973. "Pesticides and the Soil Fauna." *Residue Reviews* 45:1-79.

Eisler, R. 1985a. "Cadmium Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review." Biological Report 85(1.2). 46 pp. U.S. Fish and Wildlife Service. Washington, D.C.

Eisler, R. 1985b. "Selenium Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review". U.S. Fish and Wildlife Service.

Eisler, R. 1986. "Polychlorinated Biphenyl Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review." Biological Report 85(1.7). 72 pp. U.S. Fish and Wildlife Service. Washington, D.C.

Eisler, R. 1987a. "Polycyclic Aromatic Hydrocarbon Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review." Biological Report 85 (1.11). 81 pp. U.S. Fish and Wildlife Service. Washington, D.C.

Eisler, R. 1987b. "Mercury Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review." Biological Report 85 (1.10). 90 pp. U.S. Fish and Wildlife Service. Washington, D.C.

Eisler, R. 1988a. "Arsenic Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review." Biological Report 85 (1.12). 92 pp. U.S. Fish and Wildlife Service. Washington, D.C.

Eisler, R. 1988b. "Lead Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review." Biological Report 85 (1.14). 134 pp. U.S. Fish and Wildlife Service. Washington, D.C.

Eisler, R. 1990. "Chlordane Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review." Biological Report 85(1.21). 49 pp. U.S. Fish and Wildlife Service. Washington, D.C.

Elzubeir, E.A., and R.H. Davis. 1988. "Sodium Nitroprusside, a Convenient Source of Dietary Cyanide for the Study of Chronic Cyanide Toxicity." *Br. Poult. Sci.* 29:779-783.

Eno, C.F., and P.H. Everett. 1958. "Effects of Soil Applications of 10 Chlorinated Hydrocarbon Insecticides on Soil Microorganisms and the Growth of Stringless Black Valentine Beans." In *Proceedings: Soil. Sci. Soc. Am.* 22:235-238.

Envirodyne Engineers. 1985. *Initial Assessment Study of Naval Air Station Cecil Field, Jacksonville, Florida.* Prepared for Naval Energy and Environmental Support Activity (NEESA), NEESA 13-073, Port Hueneme, California (July).

Environmental Services & Permitting, Inc. 1990. *Endangered Species Survey at the Jacksonville, Florida, Naval Complex.* Submitted to SOUTHNAVFACENGCOM, North Charleston, South Carolina (August).

Fimreite, N. 1979. "Accumulation and Effects of Mercury on Birds." In *The Biogeochemistry of Mercury in the Environment*, ed. J.O. Nriagu. New York: Elsevier/North Holland Biomedical Press. pp 601-626.

Florida Department of Environmental Protection. 1995. Memorandum from John Ruddell, Director, Waste Management Division. Subject: "Soil Cleanup Goals for Florida." Tallahassee, Florida (September 29).

FDEP. 1996. "Drinking Water Standards Monitoring and Reporting Florida Administrative Code. Section 62-550 (December 9).

Florida Legislature. 1995. "Surface Water Quality Standards". Chapter 62-302, *Florida Administrative Code*. Tallahassee, Florida, January.

Forsyth, D.J. and T.J. Peterle. 1984. "Species and Age Differences in Accumulation of ^{36} Cl-DDT by Voles and Shrews in the Field." *Env. Poll.* (series A): 33(1984):327-340.

Frakes, R.A., R.P. Sharma, C.C. Willhite, et al. 1986. "Effect of Cyanogenic Glycosides and Protein Content in Cassava Diets on Hamster Prenatal Development." *Fundam. Appl. Toxicol.* 7:191-198.

Garten, C.T. and J.R. Trabalka, 1983. "Evaluation of Models for Predicting Terrestrial Food Chain Behavior of Xenobiotics." *Environ. Sci. Technol.* 17(10):590-595.

Gianutsos, G., and M.T. Murray. 1982. "Alterations in Brain Dopamine and GABA Following Inorganic or Organic Manganese Administration." *Neurotoxicology* 3:75-81.

Gish, C.D. 1970. "Organochlorine Insecticide Residues in Soils and Soil Invertebrates from Agricultural Lands." *Pesticides Monit. J.* 3(71).

Grant, L.D., C.A. Kimmel, G.L. West, C.M. Martinez-Vargas, and J.L. Howard. 1980. "Chronic Low-level Lead Toxicity in the Rat: II. Effects on Postnatal Physical and Behavioral Development." *Toxicol. Appl. Pharmacol.* 56:42-58.

Hansch, C.H. and A. Leo. 1979. "Substituent Constants for Correlation Analysis." In *Chemistry and Biology*. John Wiley and Sons, Inc. 330 pp.

Harris, S.J., H.C. Eceil, and J. Bitman. 1975. "Effect of Several Dietary Levels of Technical Methoxychlor on Reproduction in Rats." *J. Agr. Food Chem.* 22:969-973.

Heinz, G.H., D.J. Hoffman, and L.G. Gold. 1988. "Toxicity of Organic and Inorganic Selenium to Mallard Ducklings." *Arch. Env. Contam. Toxicol.* (17):561-568.

Hermayer, K.L., P.E. Stake, and R.L. Shippe. 1977. "Evaluation of Dietary Zinc, Cadmium, Tin, Lead, Bismuth and Arsenic Toxicity in Hens." *Poult. Sci.* (56):1721 (Abstr.).

Hill, E.F., et al. 1975. "Lethal Dietary Toxicities of Environmental Pollutants to Birds." Wildlife No. 191. U.S. Fish and Wildlife Service Special Scientific Report. Washington, D.C.

Hill, E.F., and M.B. Camardese. 1986. "Lethal Dietary Toxicities of Environmental Contaminants and Pesticides to Coturnix." Tech. Rep. No. 2. U.S. Fish and Wildlife Service. Washington, D.C.

Hulzebos, E.M., D.M.M. Adema, E.M. Dirven-van Breemen, L. Henzen, W.A. van Dis, H.A. Herbold, J.A. Hoekstra, R. Baerselman, and C.A.M. van Gestel. 1993. "Phytotoxicity Studies with *Lactuca sativa* in Soil and Nutrient Solution." *Environ. Toxicol. and Chem.* 12:1079-1094.

Hunt, L.B., and R.J. Sacho. 1969. *Journal of Wildlife Management* 33, 336.

Integrated Risk Information System (IRIS). 1988-1993. *Chemical Files*. Volumes I and II. U.S. Environmental Protection Agency.

Ivankovic, S., and R. Prenssmann. 1975. "Absence of Toxic and Carcinogenic Effects After Administration of High Doses of Chromium Oxide Pigment in Sub-acute and Long-term Feeding Experiments in Rats." *Food Cosmetics and Toxicology* 13:347-51.

Jeffries, D.J. and B.N.K. Davis. 1968. "Dynamics of Dieldrin in Soil, Earthworms, and Song Thrushes." *Journal of Wildlife Management* 32:441-456.

Kenaga, E.E.. 1973. "Factors to be Considered in the Evaluation of Pesticides to Birds in Their Environment." In *Environmental Quality and Safety. Global Aspects of Chemistry, Toxicology and Technology as Applied to the Environment*. Vol. 2, 166-181. New York: Academic Press.

Kendall, R.J., and P.F. Scanlon. 1985. "Histology and Ultrastructure of Kidney Tissue from Ringed Turtle Doves that Ingested Lead." *J. Environ. Pathol. Toxicol. Oncol.* 6:85-96.

Khera, K.S., C. Whalen and G. Trivett. 1978. "Teratogenicity Studies on Linuron, Malathion, and Methoxychlor on Reproduction in Rats." *Toxicol. Appl. Pharmacol.* 45:435-444.

Kimmel, C.A., L.D. Grant, C.S. Sloan, and B.C. Gladen. 1980. "Chronic Low-level Lead Toxicity on the Rat." *Toxicol. Appl. Pharmacol.* 56:28-41.

Lecyk, M.. 1980. "Toxicity of Cupric Sulfate in Mice Embryonic Development." *Zool. Pol.* 28(2):101-105.

Levine, M.B., A.T. Hall, G.W. Barrett, and D.H. Taylor. 1989. "Heavy Metal Concentrations During Ten Years of Sludge Treatment to an Old-Field Community." *J. Environ. Qual.* 18:411-418.

Lindquist, O., K. Johansson, M. Aastrup, A. Andersson, L. Bringmark, G. Housenius, L. Håkanson, Å. Iverfeldt, M. Meili, and B. Timm. 1991. "Mercury in the Swedish Environment: Recent Research on Causes, Consequences and Corrective Measures." *Water, Air, and Soil Pollution* (55):xi-xiii.

Llobet, J.M., et al. 1988. "Subchronic Oral Toxicity of Zinc in Rats." *Bulletin of Environmental Contamination and Toxicology* 41:36-43.

Long, E.R., and L.G. Morgan. 1990. "The Potential for Biological Effects of Sediment-sorbed Contaminants Tested in the National Status and Trends Program." Technical Memorandum NOS OMA 52. National Oceanic and Atmospheric Administration

Long, E.R., D.D. MacDonald, S.L. Smith, F.D. Calder. 1995. "Incidence of Adverse Biological Effects Within Ranges of Chemical Concentrations in Marine and Estuarine Sediments." *Environmental Management* 19(1):81-97.

Longcore, J.R., and R.C. Stendell. 1977. "Shell Thinning and Reproductive Impairment in Black Ducks After Cessation of DDE Dosage." *Arch. Environm. Contam.*

MacDonald Environmental Sciences Ltd. 1994. "Approach to the Assessment of Sediment Quality in Florida Coastal Waters." Vols. I and II. Prepared for Florida Department of Environmental Protection. Tallahassee, Florida (November).

MacFadyen, A. 1980. *Advances in Ecological Research*. Vol. 11. Academic Press. pp. 218-327.

Machener, L. and D. Lorke. 1981. "Embryotoxic Effect of Cadmium on Rats upon Oral Administration." *Toxicology and Applied Pharmacology* 58:438-443.

MacKenzie, K.M. and D.M. Angevine. 1981. "Infertility in Mice Exposed in Utero to Benzo(a)pyrene." *Biol. Repro.* 24:183-191.

Malecki, M.R., E.F. Neuhauser and R.C. Loehr. 1982. "The Effect of Metals on the Growth and Reproduction of *Eisenia foetida*." *Pedobiologia* 24:129-137.

Maughan, J.T.. 1993. *Ecological Assessment of Hazardous Waste Sites*. New York: Van Nostrand Reinhold.

McClain, R.M., and B.A. Becker. 1972. "Effects of Organo-lead Compounds on Rat Embryonic and Fetal Development." *Toxicology and Applied Pharmacology* 21:265-274.

McClain, M.A.R., and L.C. Hall. 1972. "DDE Thins Screech Owl Eggshells." *Bull. Environ. Contam. Toxicol.* 8:65.

Merry, R.H., K.G. Tiller, and A.M. Alston. 1986. "The Effects of Contamination of Soil with Copper, Lead, and Arsenic on the Growth and Composition of Plants. I. Effects of Season, Genotype, Soil Temperature and Fertilizers." *Plant Soil* 91:115-128.

Molnar, L., E. Fischr, and M. Kallay. 1989. "Laboratory Studies on the Effect, Uptake and Distribution of Chromium in *Eisenia foetida* (*Annelida, Oligochaeta*)." *Zool Anz.* 223(1/2):57-77.

National Cancer Institute. 1978. "Bioassays of Aldrin and Dieldrin for Possible Carcinogenicity." Publication No. 78-821. National Institutes of Health, National Cancer Institute, Division of Cancer Cause and Prevention, Carcinogenesis Program, U.S. Department of Health, Education, and Welfare. Bethesda, Maryland.

National Institute for Occupational Safety and Health. 1985. *Registry of Toxic Effects of Chemical Substances*. NIOSH Publication No. 86-103. U.S. Department of Health and Human Services.

National Research Council. 1984. *Nutrient Requirements of Poultry*. Subcommittee on Poultry Nutrition. Washington, D.C.: National Academy Press.

National Toxicology Program. 1987. "Toxicology and Carcinogenesis Studies of Dichlorobenzene in Rats and Mice." Technical Report Series No. 319. U.S. Department of Health and Human Services (January).

Neuhauser, E.F., R.C. Loehr, M.R. Malecki, D.L. Milligan, and P.R. Durkin. 1985a. "The Toxicity of Selected Organic Chemicals to the Earthworm *Eisenia fetida*." *J. Environ. Qual.* 14:383-388.

Neuhauser, E.F., R.C. Loehn, D.L. Milligan, and M.R. Malecki. 1985b. "Toxicity of Metals to the Earthworm *Eisenia fetida*." *Bio. Fert. Soils* 1:149-152.

Newell, A.J., D.W. Johnson, and L.K. Allen. 1987. "Niagara River Biota Contamination Project: Fish Flesh Criteria for Piscivorous Wildlife." Technical Report 87-3. Division of Fish and Wildlife.

Outridge, P.M., and A.M. Scheuhammer. 1993. "Bioaccumulation and Toxicology of Chromium: Implications for Wildlife." *Rev. Environ. Contam. Toxicol.* 130:31-77

Peakall, D.B., and M.C. Peakall. 1973. "Effect of Polychlorinated Biphenyl on the Reproduction of Artificially Incubated Dove Eggs." *Journal of Applied Ecology* 10:863-868.

Persaud, D., R. Jaagumagi, and A. Hayton. 1996. *Guidelines for the Protection and Management of Aquatic Sediment Quality in Ontario*. Ontario Ministry of the Environment. Queen's Printer for Ontario. 23 pp.

Pimentel, D.D., M.N. Culliney, G.S. Stoewsand, J.L. Anderson, C.A. Bache, W.H. Gutenmann, and D.J. Lisk. 1984. "Cadmium in Japanese Quail Red Earthworms Inhabiting a Golf Course." *Nutr. Rep. Int.* 30:475-481.

Potter et al. 1974. "Total ^{14}C Residues and Dieldrin Residues in Milk and Tissues of Cows Fed Dieldrin-^{14}C." *J. Agr. Food Chem.* 22(5):889-899.

Registry of Toxic Effects of Chemical Substances. 1993, 1994. On-line Database Search.

Richardson, G.M. 1987. Inventory of Cleanup Criteria and Methods to Select Criteria. Unpublished manuscript.

Sax, N.I. 1984. *Dangerous Properties of Industrial Material*. 6th ed. New York: Van Nostrand Reinhold Company.

Schlicker, S.A., and D.H. Cox. 1968. "Maternal Dietary Zinc, and Development and Zinc, Iron, and Copper Content of the Rat Fetus." *J. Nutrition* 95:287-294.

Sheppard, M.I., D.H. Thibault, and S.C. Sheppard. 1985. "Concentrations and Concentration Ratios of U, As, and Co in Scots Pine Grown in a Waste-Site Soil and an Experimentally Contaminated Soil." *Water Air Soil Pollut.* . Vol. 26.

Smith, R.M, W.L. Cunningham Jr., and G.A. Van Gelder. 1976. "Dieldrin Toxicity and Successive Discrimination Reversal in Squirrel Monkeys, *Saimiri sciureus*." *J. Toxicol. Environ. Health.* 1:747.

Smith, G.J., G.H. Heinz, D.J. Hoffman, J.W. Spann, and A.J. Krynitsky. 1988. "Reproduction in Black-Crowned Night Herons Fed Selenium." *Lake and Reservoir Management* 4(2):175-180.

Stoewsand, G.S., W.H. Gutenmann, and D.J. Lisk. 1978. "Wheat Grown on Fly Ash: High Selenium Uptake and Response When Fed to Japanese Quail." *J. Agric. Food Chem.* 26(3).

Straube, E.F., N.H. Schuster, and A.J. Sinclair. 1980. "Zinc Toxicity in the Ferret." *J. Comp. Pathol.* 90:355-361.

Susic, D., and D. Kentera. 1986. "Effect of Chronic Vanadate Administration on Pulmonary Circulation in the Rat." *Respiration* 49:68-72.

Suter, Glen W.. 1993. Ecological Risk Assessment. Chelsea, Michigan: Lewis Publishers.

Suter, G.W., M.E. Will, and C. Evans. 1993b. *Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Terrestrial Plants*. ES/ER/TM-85 Oak Ridge National Laboratory Environmental Restoration Program (September).

Suzuki, T. 1979. "Dose-Effect and Dose-Response Relationships of Mercury and Its Derivatives." In *The Biogeochemistry of Mercury in the Environment*. Ed. J.O. Nriagu, 399-431. New York: Elsevier/North Holland Biomedical Press.

Terres, J.K. 1990. *The Audubon Society Encyclopedia of North American Birds*. Avenel, New Jersey: Wings Books.

Tewe, O.O. and J.H. Maner. 1981. "Performance and Pathophysiological Changes in Pregnant Pigs Fed Cassava Diets Containing Different Levels of Cyanide." *Res. Vet. Sci.* 30:147-151.

Toxicology Data Bank. 1984. National Library of Medicine.

Travis, C.C., and A.D. Arms. 1988. "Bioconcentration of Organics in Beef, Milk, and Vegetation." *Environ. Sci. Tech.* 22:271-274.

United States Environmental Protection Agency (USEPA). 1976. *Conference Proceedings*. National Conference on Polychlorinated Biphenyls. USEPA Office of Toxic Substances. EPA-560/6-75-004. p. 471.

USEPA. 1980a. "Ambient Water Quality Criteria for Phenol." USEPA Report No. 440/5-80-066. Office of Water Regulations and Standards Criteria and Standards Division. Washington, D.C. (October).

USEPA. 1980b. "Ambient Water Quality Criteria for Endosulfan." USEpA Report No. 440/5-80-043. Washington, D.C.

USEPA. 1984a. "Health Effects Assessment for Methylene Chloride." Environmental Criteria and Assessment Office (September).

USEPA. 1984b. "Health Effects Assessment for Acenaphthylene." Environmental Criteria and Assessment Office (September).

USEPA. 1984c. "Health Effects Assessment for Benzo(a)pyrene." ECAO-CIN-H)22. Office of Emergency and Remedial Response (September).

USEPA. 1984d. "Health Assessment Document for Manganese." EPA-600/8-83-013F. Environmental Criteria and Assessment Office. Cincinnati, Ohio (August).

USEPA. 1984e. "Health Effects Assessment for Carbon Disulfide". Environmental criteria and Assessment Office (September).

USEPA. 1985a. "Environmental Profiles and Hazard Indices for Constituents of Municipal Sludge: Beryllium." Office of Water Regulations and Standards. Washington, D.C.

USEPA. 1985b. "Environmental Profiles and Hazard Indices for Constituents of Municipal Sludge: DDT/DDE/DDD." Office of Water Regulations and Standards. Washington, D.C.

USEPA. 1985c. "Environmental Profiles and Hazard Indices for Constituents of Municipal Sludge: Polychlorinated Biphenyls." Office of Water Regulations and Standards. Washington, D.C.

USEPA. 1985d. "Environmental Profiles and Hazard Indices for Constituents of Municipal Sludge: Beryllium." Office of Water Regulations and Standards. Washington, D.C.

USEPA. 1985e. "Environmental Profiles and Hazard Indices for Constituents of Municipal Sludge: Nickel." Office of Water Regulations and Standards. Washington, D.C.

USEPA. 1986. "Ecological Risk Assessment." Hazard Evaluation Division Standard Evaluation Procedure. EPA 540/9-85-001. Office of Pesticide Programs. , Washington, D.C.

USEPA. 1988a and 1991. Federal Ambient Water Quality Criteria.

USEPA. 1988b. "Health Effects Advisory for Chlordane." Office of Drinking Water. Washington, D.C.

USEPA. 1988c. *Recommendations for and Documentation of Biological Values for Use in Risk Assessment*. PB 88-179874. EPA 600/6-87-008. Washington, D.C.

USEPA. 1988d. "Ambient Water Quality Criteria for Aluminum". EPA-440/5-88-008. p. 47.

USEPA. 1988e. "Interim Sediment Criteria Values for Nonpolar Hydrophobic Organic Chemicals". SCD No. 17. Office of Water Regulations and Standards. Washington, D.C.

USEPA. 1989. Health Effects Assessment Summary Tables, Forth Quarter FY 1989". OERR 9200.6-303-(89-4)

USEPA. 1990a. "Basics of Pump-and-Treat Ground Water Remediation Technology". EPA-600/8-90/003. Office of Research and Development.

USEPA. 1990b. "Health Effects Advisory for Naphthalene." Office of Drinking Water. Washington, D.C.

USEPA. 1992. "Dermal Exposure Assessment: Principals and Applications Interim Report". EPA/600/8-91/011B. Office of Research and Development (January).

USEPA. 1993a. *Wildlife Exposure Factors Handbook*. Vols. 1 and 2. EPA/600/R-93/187a, b. Office of Research and Development. Washington D.C. (December).

USEPA. 1993b. *Superfund Chemical Data Matrix*. Washington, D.C. (March).

USEPA. 1993c. "Great Lakes Quality Initiative Criteria Documents for the Protection of Wildlife (Proposal)". EPA-822-R-93-007. Office of Water, Office of Science and Technology. Washington, D.C. (April).

USEPA. 1993d. "Sediment Quality Criteria" EPA-822-R-93-01D-016 (September) Office of Water and Office of Research and Development. Washington, D.C.

USEPA. 1995a. "Preliminary Risk Evaluation, Ecological Risk Assessment". *Supplemental Guidance to RAGS: Region IV Bulletin* (No. 1, November). USEPA Region IV Waste Management Division, Atlanta, Georgia.

USEPA. 1995b. "Chronic Freshwater Surface Water Screening Values for Hazardous Waste Sites". *Supplemental Guidance to RAGS: Region IV Bulletin* (No. 2, November). USEPA Region IV Waste Management Division, Atlanta, Georgia.

USEPA. 1995c. "Sediment Screening Values for Hazardous Waste Sites". *Supplemental Guidance to RAGS: Region IV Bulletin* (No. 2, November). USEPA Region IV Waste Management Division, Atlanta, Georgia.

USEPA. 1996. "Drinking Water Standards and Health Advisories" (October).

United States Fish and Wildlife Service. 1984. *Handbook of Toxicity of Pesticides to Wildlife*. Resource Publication 153. U.S. Department of the Interior. Washington, D.C.

van Gestel, C.A.M., and W.A. Dis. 1988. "The Influence of Soil Characteristics on the Toxicity of Four Chemicals to the Earthworm *Eisenia fetida andrei* (Oligochaeta)." *Biol. Fertil. Soils* 6:262-265.

Verschueren, Karel. 1983. *Handbook of Environmental Data on Organic Chemicals*. 2nd ed. New York: Van Nostrand Reinhold. 1310 pp.

Virgo, B.B., and G.D. Bellward. 1975. "Effects of Dietary Dieldrin on Reproduction in the Swiss-Vancouver (SWV) Mouse." *Environ. Physiol. Biochem* 5:440-450.

Wang, D.S., R.W. Weaver, and J.R. Melton. 1984. "Microbial Decomposition of Plant Tissue Contaminated with Arsenic and Mercury." *Environ. Pollut.* 43a:275-282.

Webber, M.D., H.D. Monteith, and D.G.M. Corneau. 1983. "Assessment of Heavy Metals and PCBs at Sludge Application Sites." *J. WPCF* 55(2):187-195.

Weimeyer, S.N. et al. 1986. *Residues in American Kestrels and Relations to Reproduction*. U.S. Fish and Wildlife Service Technical Report No. 6. Washington, D.C.

Wheatley, G.A. and J.A. Hardman. 1968. "Organochlorine Insecticide Residues in Earthworms from Arable Soils." *J. Sci. Fd Agric.* Vol. 19. April.

Will, M.E., and G.W. Suter II. 1994. *Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Terrestrial Plants*. 1994 Revision. Oak Ridge National Laboratory Environmental Restoration Program ES/ER/TM-85/RI (September).

Wood, Don A. 1994. Official Lists of Endangered & Potentially Endangered Fauna and Flora in Florida. Florida Game and Fresh Water Fish Commission. Tallahassee, Florida (June 1).