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NAS CECIL FIELD, FL
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TECHNICAL MEMORANDUM FOR NO FURTHER ACTION AT POTENTIAL SOURCE OF CONTAMINATION 18 NAS CECIL FIELD FL

10/1/1998

HARDING LAWSON ASSOCIATES

TECHNICAL MEMORANDUM FOR NO FURTHER ACTION

POTENTIAL SOURCE OF CONTAMINATION 18

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

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

OCTOBER 1998

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

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TECHNICAL MEMORANDUM
FOR NO FURTHER ACTION

POTENTIAL SOURCE OF CONTAMINATION 18

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Unit Identification Code: N60200

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

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October 1998

04383

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: October 28, 1998

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Project Technical Lead

(DFAR 252.227-7036)

CECPSC18.TM
FGW.09.98

This document that describes the field screening investigation of Potential Source of Contamination 18, 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.

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Professional Geologist No.: 1695
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Date: 10-30-98

CECPSC18.TM
FGW.09.98

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) 18 at Naval Air Station Cecil Field.

PSC 18, Ammunition Disposal Area, is located in the southeastern part of the main base, at the intersection of an old service road and a small unnamed tributary that empties into Sal Taylor Creek. PSC 18 is surrounded by woodlands, parts of which are swampy. PSC 18 is approximately 0.5 acre in size. Ordnance disposal activities occurred from the late 1940s through the 1950s. The materials disposed of include ammunition crates, unidentified canisters, and paint cans.

Investigation of PSC 18 began in 1984 with the Initial Assessment Study (IAS) conducted by Envirodyne Engineers, Inc. Prior to the IAS, PSC 18 was inspected by explosive ordnance detonation (EOD) personnel to assess potential danger from ordnance. The IAS reported debris to be restricted to a small area of the stream and along the south stream bank. No signs of stressed vegetation were observed during the IAS at PSC 18.

In 1987, Harding Lawson Associates conducted the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI). During the RFI site inspection, two or three crates were observed beneath the water east of the wooden bridge. Magnetometer and very low frequency (VLF) electromagnetic surveys were conducted on 50-foot-grid intervals. Magnetometer data indicated one anomaly, just north of the bridge. The VLF data were at or below background values.

In December 1993, HLA collected surface water and sediment samples from two locations. Surface water samples did not indicate the presence of organic contaminants. Sediment sample data indicated the presence of polynuclear aromatic hydrocarbons and total recoverable petroleum hydrocarbons at both locations. Dinitrotoluene, a chemical associated with ordnance, was detected in one of the sediment samples.

In October 1994, EODT Services, Inc., conducted a multicomponent geophysical survey of PSC 18. Interpretation of the survey results by EODT Services, Inc., indicated 16 anomalies. During the survey numerous ordnance related items were encountered.

In 1995, Navy EOD personnel excavated and removed ordnance items from the 16 anomalous areas. Ordnance was turned over to base EOD authorities for disposal.

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

Based on the results of the field screening investigation, the conclusions summarized below can be made.

- Surface and near surface soil is relatively permeable fine-grained sand, with some silt and clay.

- Groundwater in the surficial aquifer is interpreted to discharge to the unnamed tributary that crosses PSC 18.

- Two inorganics, arsenic and beryllium, detected in surface soil exceeded Florida Department of Environmental Protection residential land-use soil cleanup goals. However, arsenic was detected at concentrations below the NAS Cecil Field screening criterion and beryllium was detected at a concentration below the FDEP soil cleanup target level.

- Eight inorganics including aluminum, beryllium, chromium, iron, lead, nickel, vanadium, and zinc that were detected in surface soil exceeded biological technical assistance group criteria.

- Aluminum and iron were detected in groundwater above State and Federal secondary (not health-based) drinking water standards. Thallium was detected in groundwater above State and Federal primary drinking water standards. However, iron and thallium were detected at concentrations below NAS Cecil Field screening criteria. Aluminum was detected below the NAS Cecil Field screening value in filtered groundwater samples.

- No adverse human health or ecological effects are expected in human or ecological receptors that come into contact with either the surface soil, subsurface soil, surface water, sediment, or groundwater at PSC 18.

In accordance with the preliminary risk evaluation methodology in Appendix D, evaluation of the data gathered during the field investigation at PSC 18 indicates that significant human health or ecological risks are not expected at the site; therefore, no further action is warranted.

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Jacksonville, Florida

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
AQUIRE	Aquatic Information Retrieval
AWQC	ambient water quality criteria
BCT	Base Realignment and Closure (BRAC) cleanup team
bls	below land surface
BTAG	biological technical assistance groups
DDT	dichlorodiphenyltrichloroethane
EOD	explosive ordnance detonation
FDEP	Florida Department of Environmental Protection
FQAG	Florida quality assessment guidelines
FWQS	Florida water quality standards
HLA	Harding Lawson Associates
IAS	initial assessment study
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
SCTL	soil cleanup target level
SVOC	semivolatile organic compound
TAL	target analyte list
TCL	target compound list
TRPH	total recoverable petroleum hydrocarbons
USEPA	U.S. Environmental Protection Agency
VLF	very low frequency
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) 18 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 program.

The purpose of this technical memorandum is to present all available information to support a No Further Action decision at PSC 18. This technical memorandum summarizes the related field operations, results, conclusions, and recommendations of the PSC 18 field screening investigation and the results of the preliminary risk evaluation (PRE).

The goals of the PSC field screening investigation were to assess the presence of contamination and provide information for a PRE. The PRE used the investigative results to assess the nature, pathway, and extent of contamination and to identify potential risks to human and ecological receptors.

2.0 SITE DESCRIPTION AND HISTORY

2.1 PHYSICAL SETTING. PSC 18, Ammunition Disposal Area, is located in the southeastern part of the main base, at the intersection of an old service road and a small unnamed tributary that empties into Sal Taylor Creek, which is approximately 2,000 feet southwest of the site (Figure 2-1). Perimeter Road lies approximately 1,600 feet to the east and to the south of the site. PSC 18 is surrounded by woodlands, parts of which are swampy. Much of the site area is heavily wooded, being composed of mature pine and hardwood trees and sparse to dense understory and palmettos. PSC 18 consists of a small unnamed tributary, approximately 10 to 30 feet wide and greater than 5 feet deep; a wooden bridge; an unpaved service road; and the woodlands immediately adjacent to the unnamed tributary (Figure 2-2). The bridge is no longer functional. A surface depression is present at the southern end of the bridge. PSC 18 is approximately 100 feet by 200 feet or approximately 0.5 acre.

2.2 SITE HISTORY. The history of PSC 18 is presented in the Field Investigation Plan (ABB Environmental Services, Inc. [ABB-ES], 1995). PSC 18 was used as a dumping site for ordnance and other material collected from a nearby magazine area. Materials were collected from the magazine area, hauled to the site by truck, and dumped from the small, wooden bridge into the unnamed tributary and along the south bank. Known wastes include ammunition crates, unidentified canisters, furniture, and paint cans. Some materials are submerged. Materials were disposed of at the site from the late 1940s through the 1950s. It has been reported that a truck turned over at the bridge, dumping ordnance onto the south bank and into the tributary.

2.3 SITE GEOLOGY. A full description of the regional geology at NAS Cecil Field is presented in the General Information Report (ABB-ES, 1996).

The subsurface geologic materials recovered during installation of two monitoring wells at PSC 18 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 C.

2.4 SITE HYDROGEOLOGY. The surficial aquifer system in the area of PSC 18 is located in the undifferentiated geologic deposits. These unconsolidated deposits overlie 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 was the only aquifer encountered in this investigation.

Water-level measurement data collected from the two monitoring wells from April to September 1997 indicate that the water table is generally 3 to 4 feet below land surface (bls) and is interpreted to discharge to the unnamed tributary that crosses PSC 18. Groundwater elevation data for the surficial aquifer have been plotted on Figure 2-3. Water-level measurements are presented in Appendix B. Groundwater flow is toward the tributary as it is a discharge point for groundwater in the unconfined surficial aquifer.

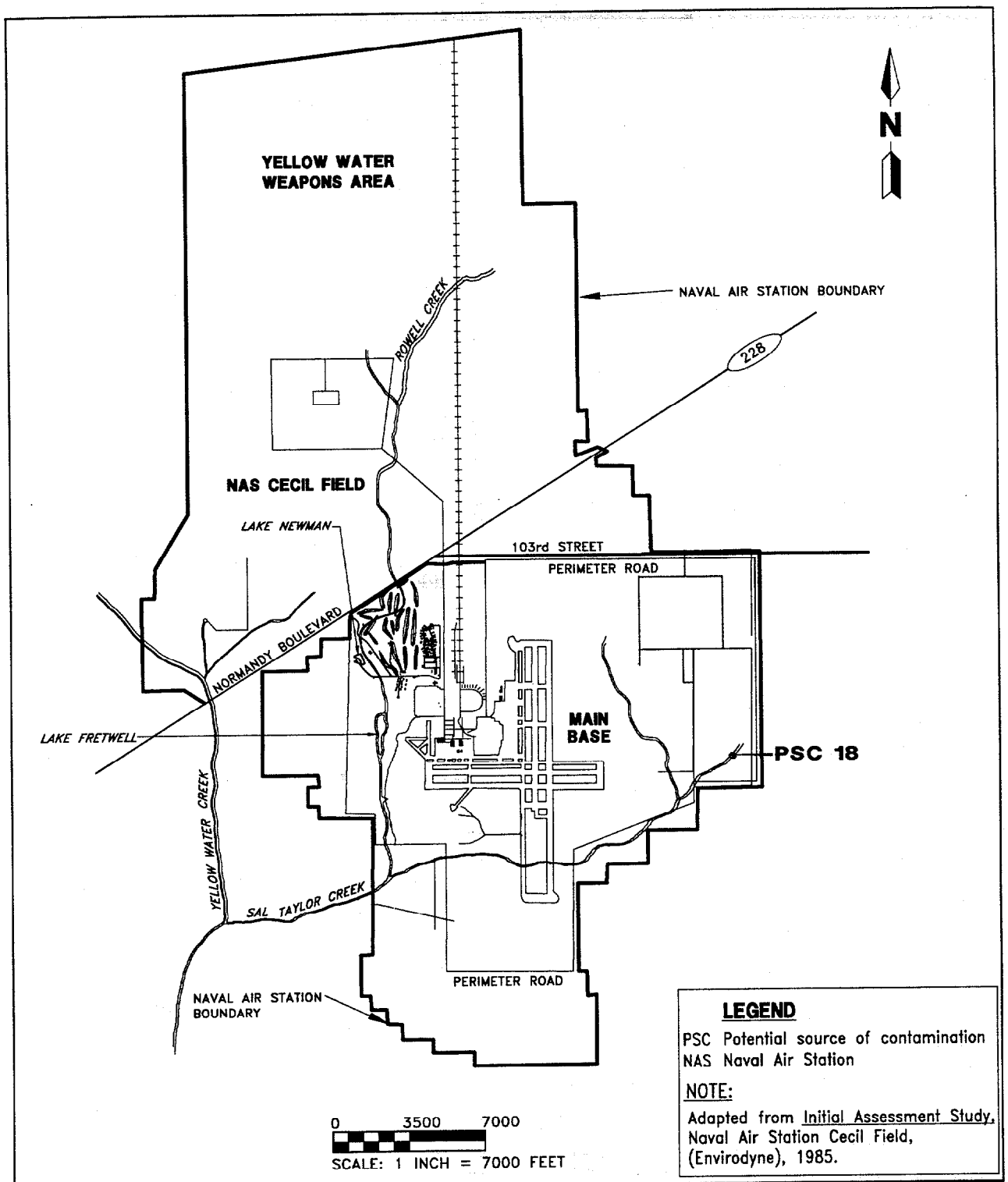

FIGURE 2-1
SITE LOCATION MAP

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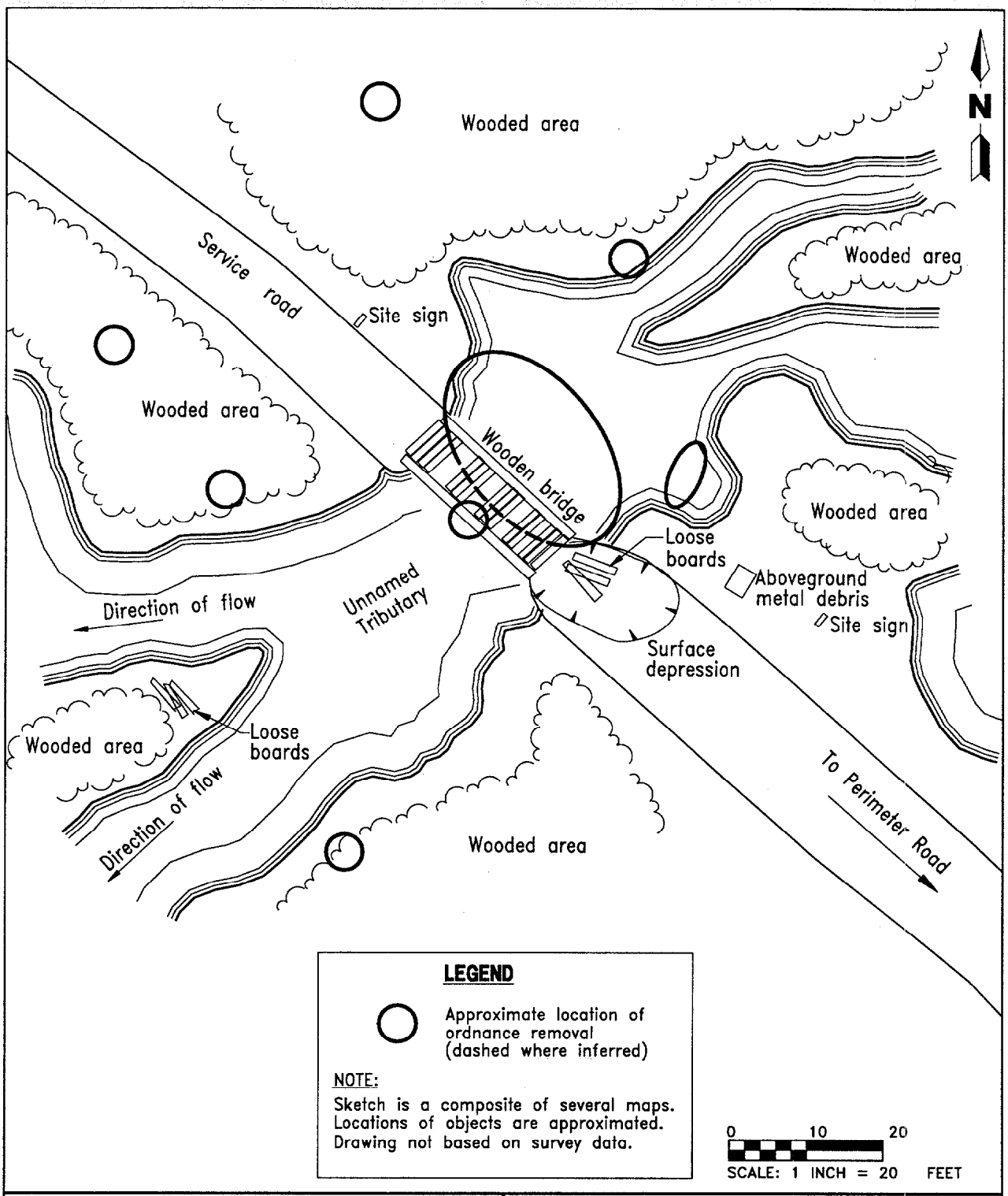

FIGURE 2-2
SITE MAP

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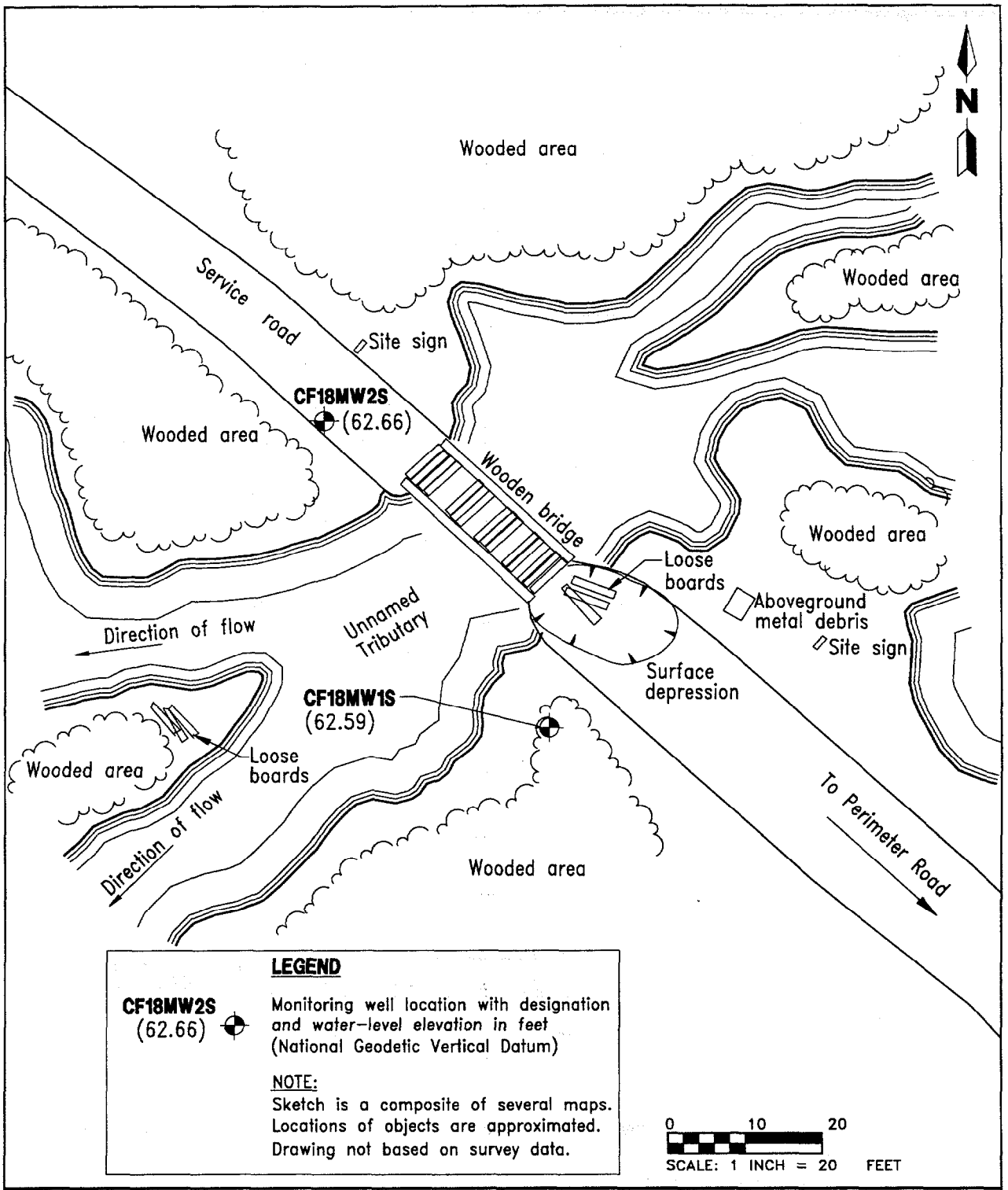

FIGURE 2-3
SEPTEMBER 1997 MONITORING WELL WATER-LEVEL ELEVATIONS

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TECHNICAL MEMORANDUM FOR NO FURTHER ACTION POTENTIAL SOURCE OF CONTAMINATION 18
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

3.0 PREVIOUS INVESTIGATIONS

The investigation of PSC 18 began in 1984, with the Initial Assessment Study (IAS) conducted by Envirodyne Engineers, Inc. (1985). Prior to the IAS site inspection, PSC 18 was inspected by explosive ordnance detonation (EOD) personnel to assess potential danger from ordnance. The EOD survey results concluded that ordnance materials along the stream banks posed no danger. Some ordnance was removed from the site. EOD personnel determined that some ordnance was present in the stream below the water surface. The type and condition of the submerged ordnance was not assessed.

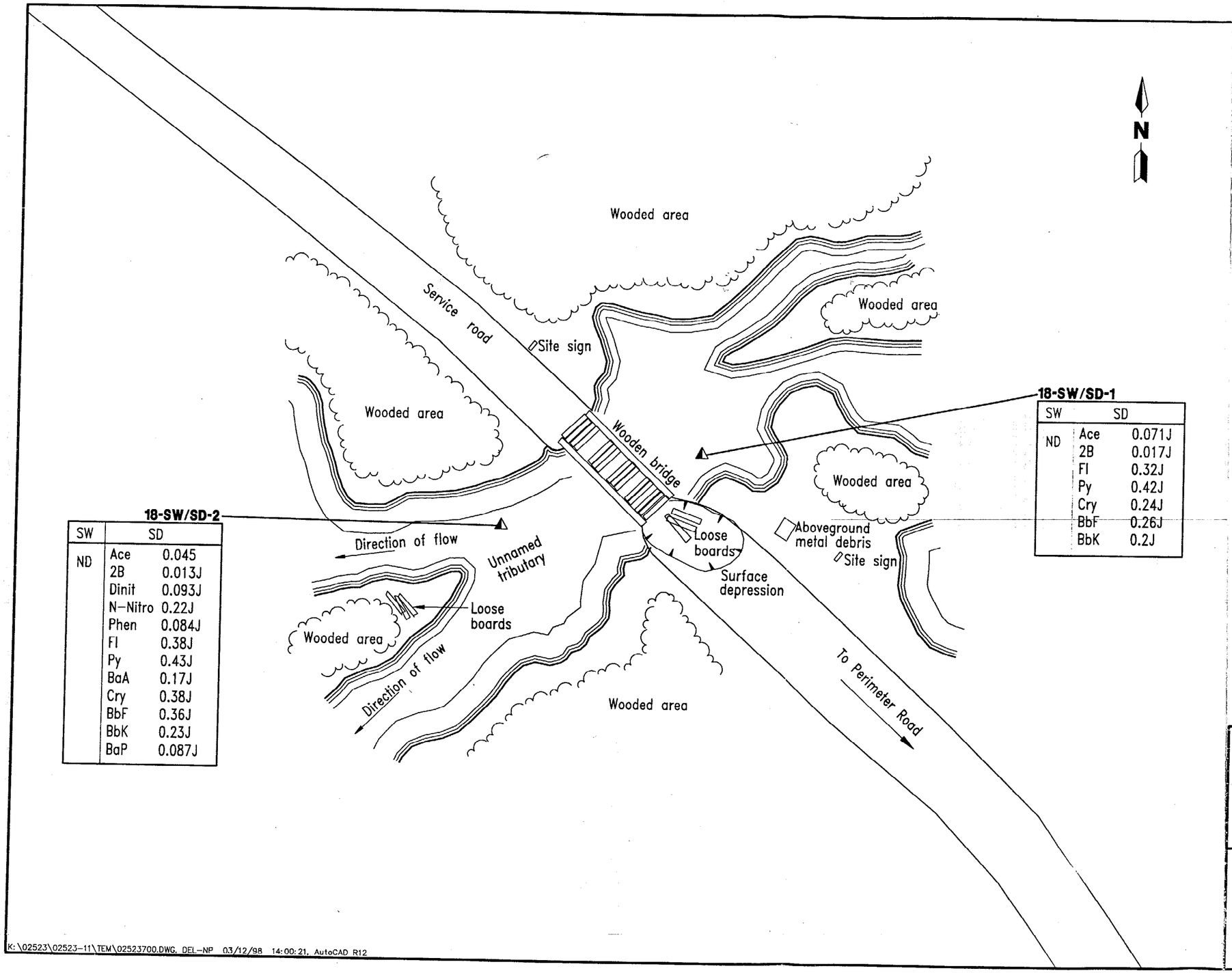
During the IAS, debris was reported to be restricted to a small area of the tributary and along the south bank, next to the bridge. No signs of stressed vegetation were observed at PSC 18. No samples were collected during the IAS.

In 1987, HLA conducted the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) (Harding Lawson Associates, 1988). During the RFI site inspection, two or three crates were observed beneath the water east of the wooden bridge. Magnetometer and very-low frequency (VLF) electromagnetic surveys were conducted on 50-foot-grid intervals. Magnetometer data indicated one anomaly, just north of the bridge. The VLF data were at or below background values.

In December 1993, HLA collected surface water and sediment samples from two locations: 18-SW/SD1, located approximately 10 feet east and upstream of the bridge; and 18-SW/SD2, located approximately 20 feet west and downstream of the bridge (Figures 3-1 and 3-2). Surface water and sediment samples were analyzed for target compound list (TCL) organic parameters and target analyte list (TAL) inorganic parameters, total recoverable petroleum hydrocarbons (TRPH), and total organic carbon. Surface water samples did not indicate the presence of organic contaminants. Sediment sample data indicated the presence of polynuclear aromatic hydrocarbons and TRPH at both locations. Dinitrotoluene, a chemical associated with ordnance, was only detected in sample 18-SW/SD2 at a concentration of 0.093 J milligrams per kilogram (mg/kg). Organic analytical data results from the 1993 surface water and sediment sampling are shown on Figure 3-1. The concentrations of inorganics detected in surface water and sediment at PSC 18 were compared to NAS Cecil Field screening criteria for inorganics established by the NAS Cecil Field partnering team. Only the inorganics exceeding these criteria are shown on Figure 3-2. A complete analytical data set for the 1993 surface water and sediment sampling is presented in Appendix A.

In October 1994, EODT Services, Inc., conducted a multicomponent geophysical survey of PSC 18. The results of this survey are presented in the Final Report of DANS® Geophysical Survey at NAS Cecil Field (EODT Services, Inc., 1995). Interpretation of the magnetometer results by EODT Services, Inc., indicated 16 anomalies. Locations and descriptions of these anomalies are presented in Appendix A.

In 1996, the 16 anomalies were excavated. Two hundred and thirty-one ordnance items were recovered, including 150 20-millimeter rounds, 76 2.75-rocket warheads, two unknown cartridges, one flare, one MK 4 cartridge, and one 50-caliber round. All ordnance items were turned over to NAS Cecil Field base EOD authorities for disposal. Approximately 1 ton of assorted scrap metal was also recovered and turned over to the base Defense Reutilization Marketing Operation for recycling.



SW	SD	
ND	Ace	0.071J
	2B	0.017J
	Fl	0.32J
	Py	0.42J
	Cry	0.24J
	BbF	0.26J
	BbK	0.2J

SW	SD	
ND	Ace	0.045
	2B	0.013J
	Dinit	0.093J
	N-Nitro	0.22J
	Phen	0.084J
	Fl	0.38J
	Py	0.43J
	BaA	0.17J
	Cry	0.38J
	BbF	0.36J
	BbK	0.23J
	BaP	0.087J

LEGEND

18-SW/SD-2 ▲	Surface water and sediment sample location and designation
Ace	Acetone
2B	2-Butanone
Dinit	2,4-Dinitrotoluene
N-Nitro	N-Nitrosodiphenylamine
Phen	Phenanthrene
Fl	Fluoranthene
Py	Pyrene
BaA	Benzo(a)anthracene
Cry	Chrysene
BbF	Benzo(b)fluoranthene
BbK	Benzo(k)fluoranthene
BaP	Benzo(a)pyrene
SW	Surface water
SD	Sediment
J	Estimated value
ND	Not detected

NOTES:

1. Sketch is a composite of several maps. Locations of objects are approximated. Drawing not based on survey data.
2. Values are presented in milligrams per kilogram.

0 10 20
SCALE: 1 INCH = 20 FEET

FIGURE 3-1
ORGANICS IN SURFACE WATER AND SEDIMENT 1993 INVESTIGATION

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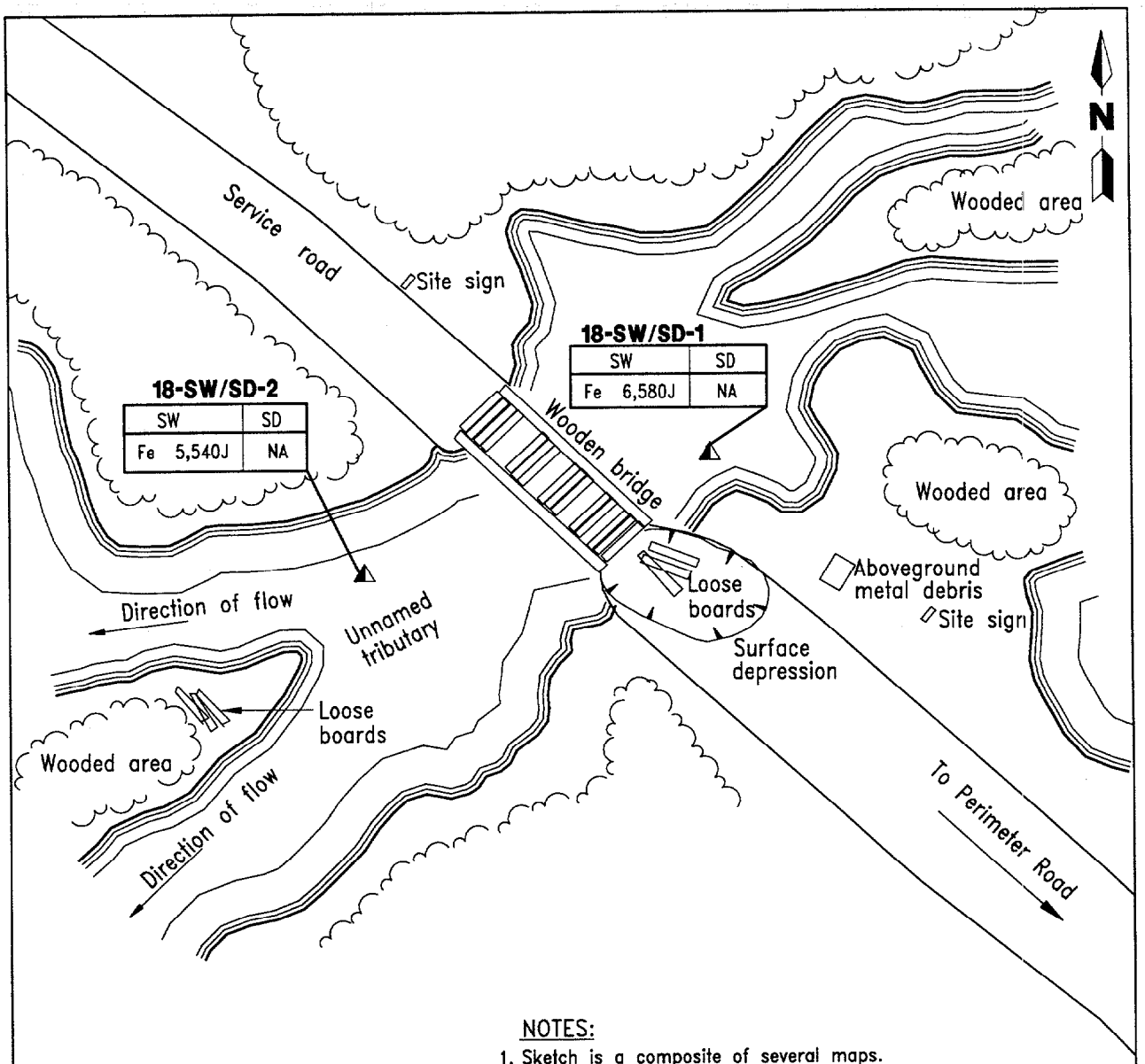

NOTES:

1. Sketch is a composite of several maps. Locations of objects are approximated. Drawing not based on survey data.
2. Inorganics presented exceed NAS Cecil Field screening criteria. For all other inorganics detected in surface water and sediment, see Appendix A.
3. Values for surface water are reported in micrograms per liter.

0 10 20
SCALE: 1 INCH = 20 FEET

LEGEND

18-SW/SD-2 ▲	Surface water and sediment sample location and designation
Fe	Iron
SD	Sediment
SW	Surface water
J	Estimated value
NA	Value is less than NAS Cecil Field screeening criteria
NAS	Naval Air Staion

FIGURE 3-2
INORGANICS IN SURFACE WATER AND SEDIMENT EXCEEDING NAS CECIL FIELD SCREENING CRITERIA 1993 INVESTIGATION

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TECHNICAL MEMORANDUM FOR NO FURTHER ACTION POTENTIAL SOURCE OF CONTAMINATION 18 NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

4.0 FIELD INVESTIGATION

As specified in the Field Investigation Plan (ABB-ES, 1995), surface soil, subsurface soil, groundwater, surface soil, and sediment samples were collected to assess the presence of contamination at PSC 18.

4.1 MONITORING WELL INSTALLATION AND GROUNDWATER SAMPLING. Groundwater quality in the upper part of the surficial aquifer were assessed by installing two shallow monitoring wells at PSC 18 in August 1997. The two monitoring wells (CF18MW1S and CF18MW2S) were installed to depths of approximately 15 feet bls. One monitoring well, CF18MW1S, was installed approximately 15 feet south of the bridge and west of the collapse feature created from the truck that allegedly turned over. The second monitoring well, CF18MW2S, was installed approximately 10 feet north of the bridge and south of Anomaly 3. Monitoring well locations are presented on Figure 2-3. Groundwater samples were collected from two monitoring wells at PSC 18 during August and December 1997. The groundwater samples were analyzed for TCL organics and TAL inorganics. Analytical results are included in Appendix B and are discussed in Chapter 5.0.

4.2 SOIL SAMPLING. Five surface soil and three subsurface soil samples were collected at PSC 18 in February 1997. Four additional surface soil samples were collected in December 1997. The surface soil samples were collected at the magnetic anomalies identified during the EODT Services, Inc., geophysical survey in 1994. The subsurface soil samples were collected from areas where the highest magnetometer readings were recorded. (Soil sample locations are presented on Figures 5-1 and 5-3 in Chapter 5.0). The samples were analyzed by an approved analytical laboratory for TCL organics, TAL inorganics, and nitroaromatic parameters. Analytical results are included in Appendix B and are discussed in Chapter 5.0.

4.3 SURFACE WATER AND SEDIMENT SAMPLING. Four surface water and sediment samples were collected. Two samples were collected from locations upstream and two from locations downstream of the bridge (see Figure 5-5, Chapter 5.0). The surface water and sediment samples were analyzed for TCL organics, TAL inorganics, and nitroaromatic parameters. Analytical results are included in Appendix B and are discussed in Chapter 5.0.

5.0 NATURE AND EXTENT OF CONTAMINATION

5.1 SURFACE SOIL. Nine surface soil samples (CF18SS1 through CF18SS5, CF18SS1A, CF18SS1B, CF18SS2A, and CF18SS2B) were collected between 0 and 1 foot bls. 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 is presented in Appendix B.

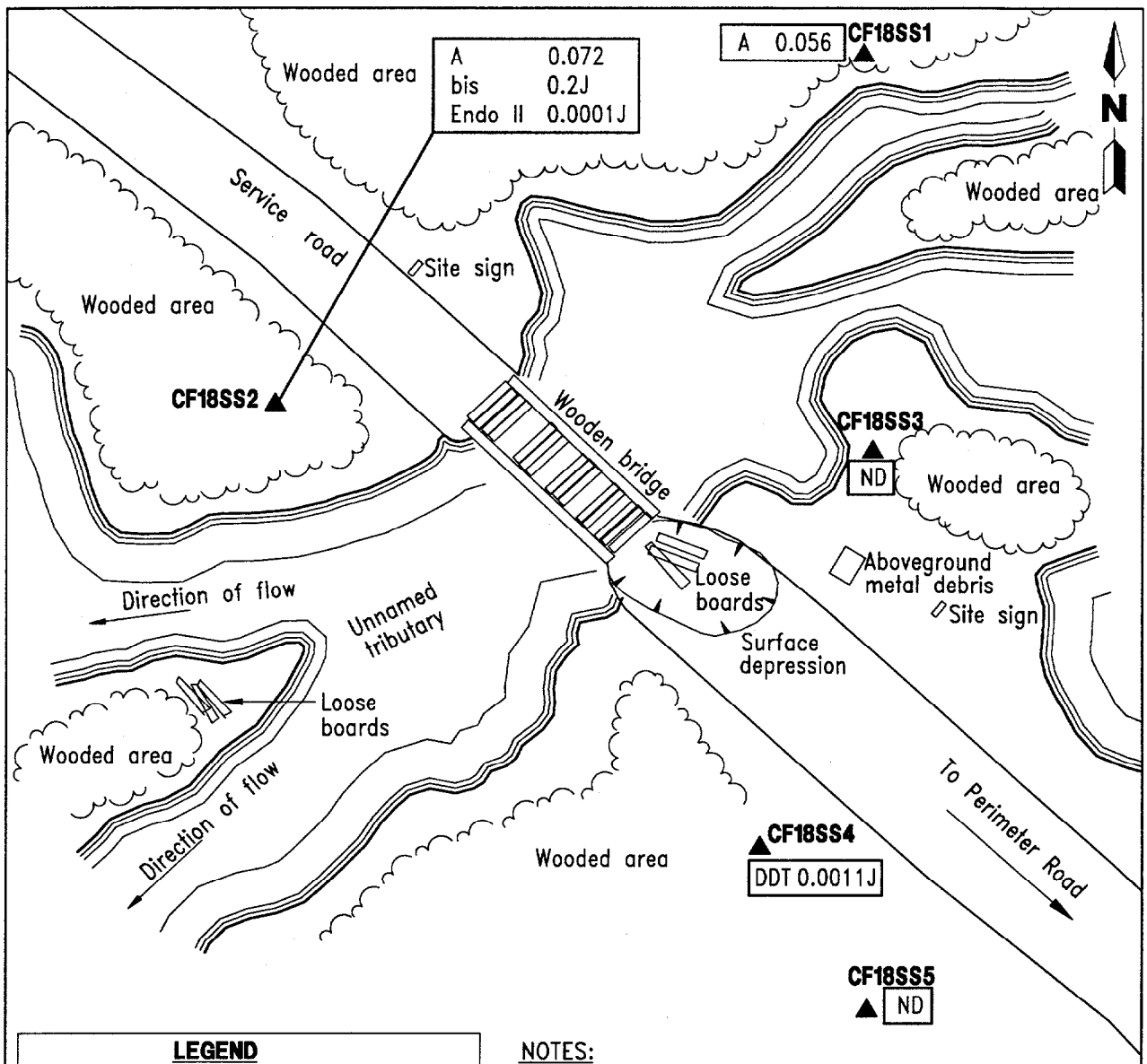
Surface soil analytical results were compared to guidance criteria from the following sources: (1) the most conservative soil cleanup goals for Florida, as listed in a memorandum dated September 29, 1995 (Florida Department of Environmental Protection [FDEP], 1995a); (2) background concentrations in soil or detection limits soil criteria for evaluating the severity of contamination under the Dutch Soil Cleanup (Interim) Act (Richardson, 1987); (3) U.S. Environmental Protection Agency (USEPA) Region III biological technical assistance group (BTAG) screening levels, (USEPA, 1995a); and (4) NAS Cecil Field screening criteria for inorganics as established by the NAS Cecil Field partnering team. The NAS Cecil Field screening values were determined by using the nonparametic upper outside value cutoffs, as described in *Understanding Robust and Exploratory Data Analysis* (Hoaglin et al., 1983). These screening values were developed from data collected throughout NAS Cecil Field.

Organics in Surface Soil. No nitroaromatics were detected in the surface soil samples collected at PSC 18. One volatile organic compound (VOC), acetone, was detected in PSC 18 surface soil samples. Acetone, a common environmental sampling and analysis contaminant, was detected in two samples (CF18SS1 and CF18SS2) at concentrations of 0.056 and 0.072 mg/kg, respectively. These concentrations are below FDEP residential soil cleanup criterion for acetone of 260 mg/kg. No Dutch or BTAG screening criteria are given for acetone.

One semivolatile organic compound (SVOC), bis(2-ethylhexyl)phthalate, was detected in PSC 18 surface soil samples. Bis(2-ethylhexyl)phthalate, a common environmental sampling and analysis contaminant, was detected in the sample collected from CF18SS3 at a concentration of 0.2 J mg/kg. This concentration is below the residential soil cleanup criterion of 48 mg/kg. No Dutch or BTAG screening criteria are given for bis(2-ethylhexyl)phthalate.

Two pesticides, endosulfan II and 4,4'-dichlorodiphenyltrichloroethane (DDT), were detected in surface soil samples at PSC 18. Both of these analytical parameters were detected in concentrations below the FDEP residential soil cleanup goal, Dutch screening, and BTAG criteria. The pesticides detected at PSC 18 are shown on Figure 5-1. Endosulfan II was detected in only one sample, CF18SS2, at a concentration of 0.0001 J mg/kg. DDT was detected in only one sample, CF18SS4, at a concentration of 0.0011 J mg/kg.

Inorganics in Surface Soil. Sixteen inorganic analytical parameters were detected in surface soil samples collected at PSC 18: aluminum, arsenic, barium, beryllium, calcium, chromium, copper, iron, lead, magnesium, manganese, nickel, potassium, sodium, vanadium, and zinc. The analytical results are summarized in Table 5-2. Aluminum, barium, beryllium, calcium, iron, magnesium, potassium, and vanadium were detected at concentrations that exceeded NAS Cecil Field screening criteria.



LEGEND

CF18SS2 ▲	Surface soil sample location and designation
A	Acetone
bis	bis(2-Ethylhexyl)phthalate
Endo II	Endosulfan II
DDT	4,4'-dichlorodiphenyltrichloroethane
J	Estimated value
ND	Not detected

NOTES:

1. Sketch is a composite of several maps. Locations of objects are approximated. Drawing not based on survey data.
2. Values are reported in milligrams per kilogram.

Florida Department of Environmental Protection Soil Cleanup Goals

Parameter	Screening value
A	260
bis	48
Endo	390
DDT	3.1

0 10 20

SCALE: 1 INCH = 20 FEET

FIGURE 5-1
ORGANICS IN SURFACE SOIL

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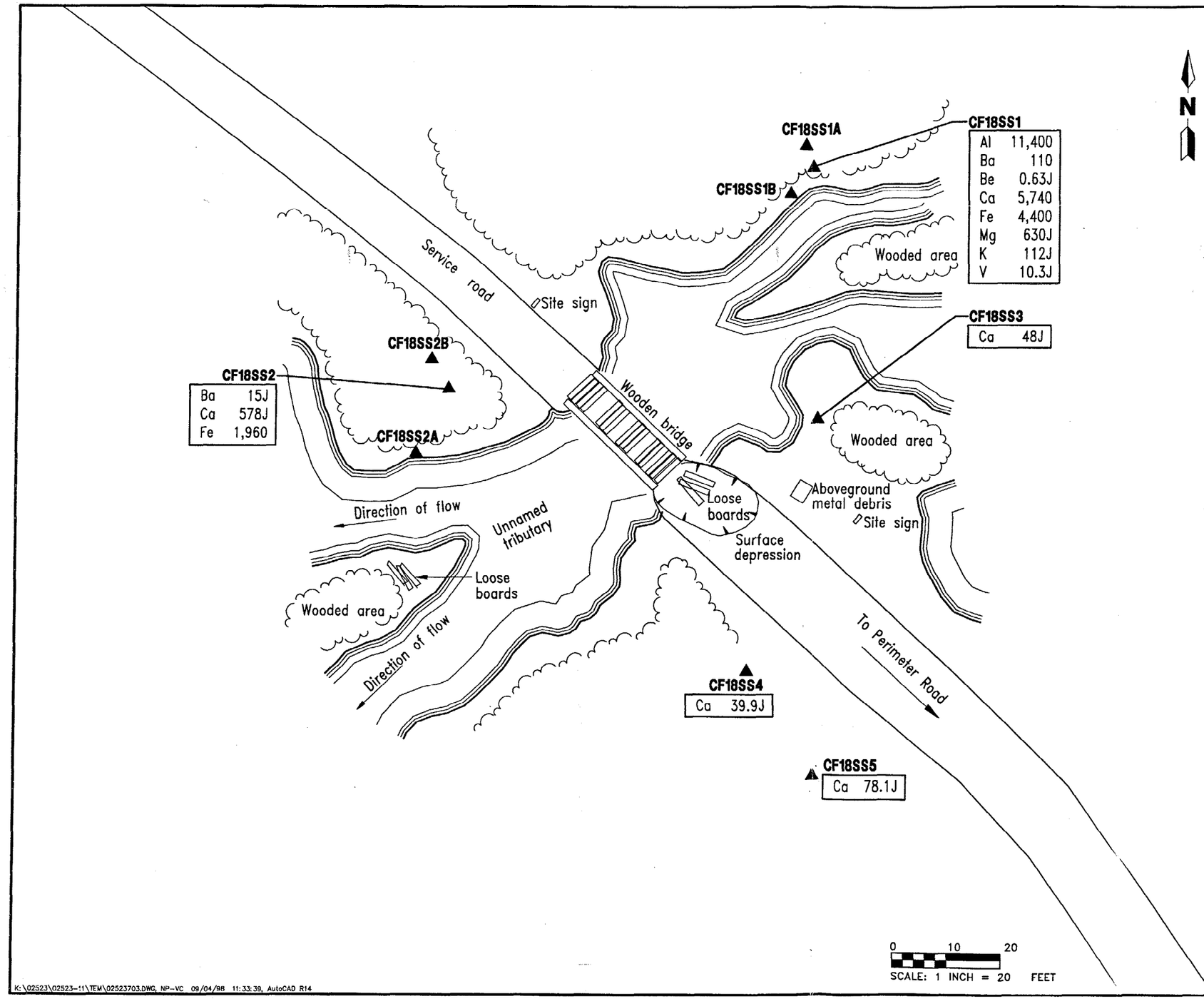
TECHNICAL MEMORANDUM FOR NO FURTHER ACTION POTENTIAL SOURCE OF CONTAMINATION 18 NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA



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LEGEND

CF18SS2 ▲	Surface soil sample location and designation
Al	Aluminum
Ba	Barium
Be	Beryllium
Ca	Calcium
Fe	Iron
Mg	Magnesium
K	Potassium
V	Vanadium
J	Estimated value
NAS	Naval Air Station

NOTES:

1. Sketch is a composite of several maps. Locations of objects are approximated. Drawing not based on survey data.
2. Values are reported in milligrams per kilogram.
3. Inorganics presented are those which exceed NAS Cecil Field screening criteria. For all other inorganics detected in surface soil, see Table 5-2 and Appendix B.

NAS Cecil Field Screening Criteria

Parameter	Value
Al	4,432
Ba	14.4
Be	0.34
Ca	9.44
Fe	1,486
Mg	329
K	102
V	6.3

FIGURE 5-2
INORGANICS IN SURFACE SOIL

TECHNICAL MEMORANDUM FOR NO FURTHER ACTION POTENTIAL SOURCE OF CONTAMINATION 18 NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

04383J022

Table 5-1
Organics in Surface Soil

Technical Memorandum For No Further Action
Potential Source of Contamination 18
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						
Volatile Organic Compounds (mg/kg)						
Acetone	2/5	0.027 to 0.017	0.056 to 0.072	260	NG	NG/NG
Semivolatile Organic Compounds (mg/kg)						
bis(2-Ethylhexyl)phthalate	1/5	0.42	0.2 J	48	NG	NG/NG
Pesticides and PCBs (mg/kg)						
Endosulfan II	1/5	0.005	0.0001 J	[5]390	[5]0.1	[5]0.1/[5]0.1
4,4'-DDT	1/5	0.004	0.0011 J	3.1	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 (CF18SS1, CF18SS2, CF18SS3, CF18SS4, and CF18SS5).
[2] FDEP memorandum dated September 29, 1995. Values presented are the lesser of the cleanup goals based on a residential land-use scenario (FDEP, 1995a).
[3] Dutch Soil Cleanup (Interim) Act from Richardson, G.M., 1987, as reported in the U.S. Fish and Wildlife Service's "Evaluating Soil Contamination" (Beyer, 1990). 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] The presented is for endosulfan; no value is given for endosulfan II.

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

Table 5-2
Inorganics in Surface Soil

Technical Memorandum For No Further Action
Potential Source of Contamination 18
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	24.5J to 11,400	4,432	75,000	NGz	1/NG
Arsenic	1/5	2	1.2J	2.04	0.8	20	328/NG
Arsenic[5]	2/2	2	1.2J to 1.8J	2.04	0.8	20	328/NG
Barium	5/5	40	0.42J to 110	14.4	5,200	200	440/440
Beryllium	1/5	1	0.63J	0.34	0.2+[6]	NG	0.02/0.0075
Beryllium[5]	0/2	1	ND	0.34	0.2+[6]	NG	0.02/0.0075
Calcium	5/5	1,000	39.9J to 5,740	9.44	NG	NG	NG/NG
Chromium	4/5	2	0.39J to 6	7.75	290	100	0.02/0.0075
Copper	4/5	5	0.39J to 2.8J	5.96	NG	50	15/NG
Iron	5/5	20	23J to 4,400	1,486	NG	NG	3,260/12
Lead	5/5	0.6	1.5 to 32	197	500	50	2/0.01
Magnesium	5/5	1,000	10.4J to 630J	329	NG	NG	4,400/4,400
Manganese	5/5	3	0.45J to 5.6J	22	370	NG	330/330
Nickel	2/5	8	0.55J to 3.7J	3.89	1,500	50	2/NG
Potassium	2/5	1,000	44.3J to 112J	102	NG	NG	NG/NG
Sodium	1/5	1,000	39.6J	343	NG	NG	NG/NG
Vanadium	4/5	10	0.82J to 10.3J	6.3	490	NG	0.5/58
Zinc	5/5	4	1.1J to 16.2	36.5	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 (CF18SS1, CF18SS2, CF18SS3, CF18SS4, and CF18SS5).
[2] FDEP memorandum dated September 29, 1995. Values presented are the lesser of the cleanup goals based on a residential land-use scenario (FDEP, 1995a).
[3] Dutch Soil Cleanup (Interim) Act from Richardson, G.M., 1987, as reported in the U.S. Fish and Wildlife Service's "Evaluating Soil Contamination" (Beyer, 1990). 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] Two additional samples (CF18SS2A and CF18SS2B) were collected on December 11, 1997, for arsenic. Two additional samples (CF18SS1A and CF18SS1B) were collected on December 11, 1997, for beryllium.
[6] FDEP soil cleanup target level for beryllium is 120 mg/kg.

Notes: Bold indicates at least one sample exceeds the NAS Cecil Field screening criteria.

NAS = Naval Air Station.
FDEP = Florida Department of Environmental Protection.
BTAG = biological technical assistance group.
mg/kg = milligrams per kilogram.
J = estimated value.
NG = none given.
+ = based on dermal absorption of 0.0001.

Beryllium was the only inorganic detected at PSC 18 that exceeded both NAS Cecil Field screening and FDEP residential soil cleanup criteria.

Beryllium was detected in surface soil sample CF18SS1 collected in February 1997 at a concentration of 0.63 J mg/kg. This concentration exceeds the FDEP soil cleanup criterion for beryllium of 0.2 mg/kg, which is based on a dermal absorption value of 0.0001. However, this concentration is below the soil cleanup target level (SCTL) criterion for beryllium at 120 mg/kg. Two additional samples were collected in the vicinity of CF18SS1 (CF18SS1A and CF18SS1B) in December 1997 to delineate the concentration detected in February 1997. Beryllium was not detected in the two additional samples.

Arsenic was detected in surface soil sample CF18SS2 collected in February 1997 at a concentration of 1.2 J mg/kg. This concentration exceeds the FDEP residential soil cleanup criterion for arsenic of 0.8 mg/kg. Two additional samples were collected in the vicinity of CF18SS2 (CF18SS2A and CF18SS2B) in December 1997 to delineate the concentration detected in February 1997. Arsenic was detected in these two samples, CF18SS2A and CF18SS2B, at concentrations of 1.2 J and 1.8 J mg/kg, respectively. These concentrations exceed the FDEP soil cleanup criterion of 0.8 mg/kg for arsenic. Arsenic, however, was detected at concentrations below the NAS Cecil Field screening criterion of 2.04 mg/kg.

Eight inorganics (aluminum, beryllium, chromium, iron, lead, nickel, 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 24.5 J to 11,400 mg/kg. The BTAG flora criterion for aluminum is 1 mg/kg. Beryllium was detected in one sample, CF18SS1, at a concentration of 0.63 J mg/kg. This concentration exceeds the beryllium BTAG flora and fauna criteria of 0.02 and 0.0075 mg/kg, respectively. Resampling failed to confirm the presence of beryllium. Chromium was detected in four of the five samples at concentrations ranging from 0.39 J to 6 mg/kg. These concentrations exceed the chromium BTAG flora and fauna criteria of 0.02 and 0.0075 mg/kg, respectively. Iron was detected in all five samples at concentrations ranging from 23 J to 4,400 mg/kg. These concentrations exceed the BTAG fauna criterion of 12 mg/kg for iron. Lead was detected in all five samples at concentrations ranging from 1.5 to 32 mg/kg. Both flora and fauna BTAG criteria (2 and 0.01 mg/kg, respectively) for lead are exceeded. Nickel was detected in one of the five samples (3.7 J mg/kg at CF18SS1) at a concentration above the BTAG flora criterion of 2 mg/kg. Vanadium was detected in four of the five samples at concentrations ranging from 0.82 J to 10.3 J mg/kg. These concentrations exceed the flora BTAG criterion for vanadium of 0.5 mg/kg. Zinc was detected in all five samples at concentrations ranging from 1.1 J to 16.2 mg/kg. The flora BTAG criterion for zinc is 10 mg/kg.

5.2 SUBSURFACE SOIL. Three subsurface soil samples (CF18SB1 through CF18SB3) were collected at PSC 18. Summaries of the analytical results for subsurface soil samples are presented in Table 5-3. A complete analytical data set is presented in Appendix A.

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, 1995a), (2) soil leaching values for Florida, as listed in a memorandum dated September 29, 1995, (FDEP, 1995a), and (3)

Table 5-3
Organics in Subsurface Soil

Technical Memorandum For No Further Action
Potential Source of Contamination 18
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)						
Acetone	1/3	0.016	0.13	1,800	1.4	NG
Pesticides and PCBs (mg/kg)						
DDT	1/3	0.004	0.00045 J	12	0.5	0.1
Methoxychlor	1/3	0.022	0.0033 J	7,800	62	0.1

[1] Frequency of detection is the number of samples in which the analyte was detected over the total number of samples analyzed (CF18SB1, CF18SB2, and CF18SB3).
[2] FDEP memorandum dated September 29, 1995. Values presented are based on an industrial land-use scenario (FDEP, 1995a).
[3] FDEP memorandum dated September 29, 1995. Values presented are based on soil leaching (FDEP, 1995a).
[4] Dutch Soil Cleanup (Interim) Act from Richardson, G.M., 1987, 1987, as reported in the U.S. Fish and Wildlife Service's "Evaluating Soil Contamination" (Beyer, 1990). 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.
NG = none given.
PCB = polychlorinated biphenyl.
DDT = dichlorodiphenyltrichloroethane.
J = estimated value.

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. No SVOCs or nitroaromatics were detected in subsurface soil samples collected at PSC 18. One VOC, acetone (a common environmental sampling and analysis contaminant) was detected in PSC 18 subsurface soil samples. Acetone was detected in one sample (CF18SS1) at a concentration of 0.13 mg/kg. This concentration is below the FDEP industrial land- use soil cleanup criterion for acetone of 1,800 mg/kg. No Dutch or BTAG screening criteria are given for acetone.

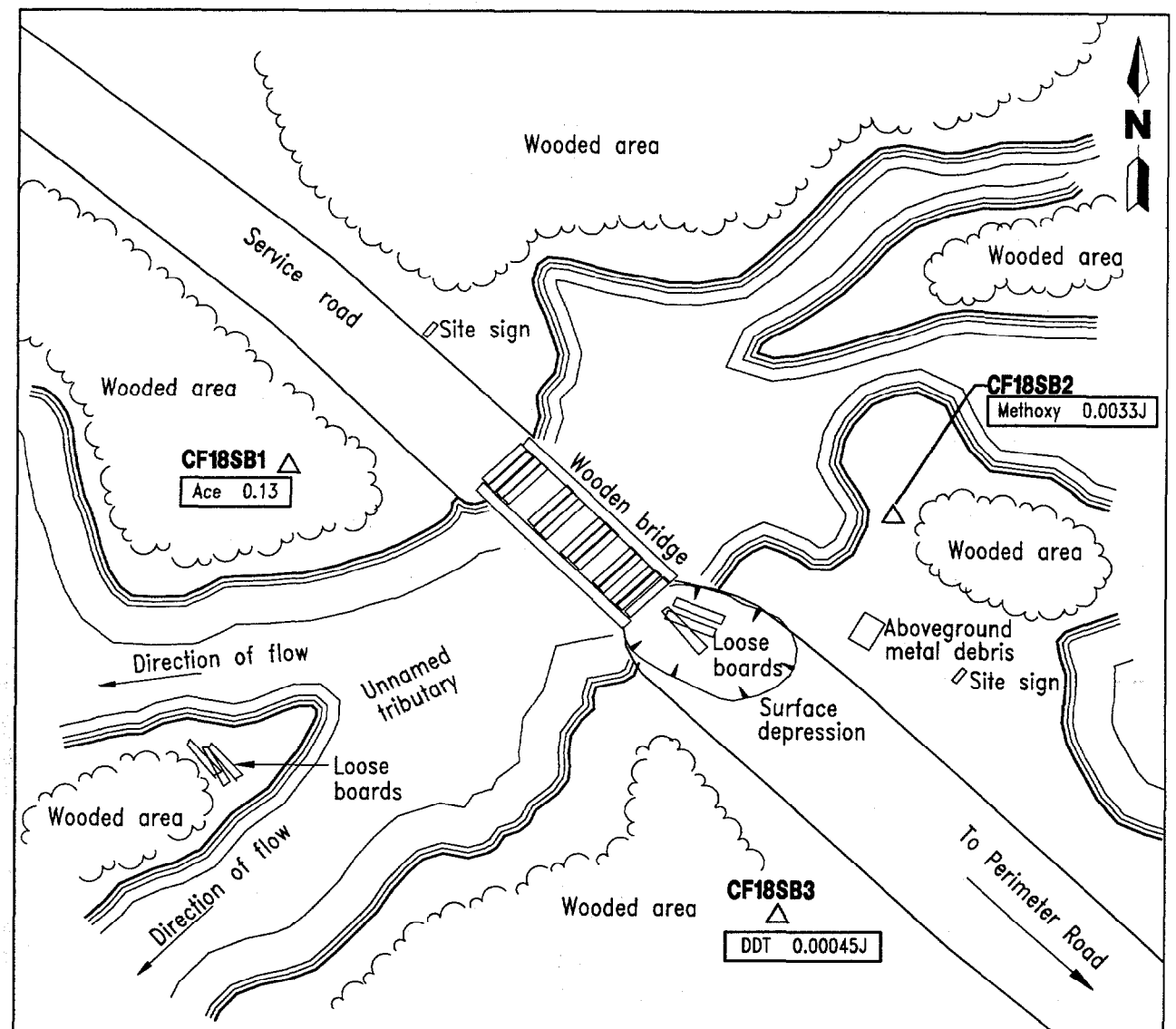
Two pesticides were detected in PSC 18 subsurface soil samples: DDT and methoxychlor. DDT was detected in sample CF18SB3 at a concentration of 0.00045 J mg/kg. This concentration is below the FDEP industrial land-use soil cleanup goal, leaching value, and the Dutch soil cleanup criteria for DDT of 12, 0.5, and 0.1 mg/kg, respectively. Methoxychlor was also detected in sample CF18SB2 at a concentration of 0.0033 J mg/kg. This value is below the FDEP industrial land-use soil cleanup goal, leaching value, and the Dutch soil cleanup criterion for methoxychlor of 7,800, 62, and 0.1 mg/kg, respectively. Concentrations are presented on Figure 5-3.

Inorganics in Subsurface Soil. Thirteen inorganic analytical parameters were detected in the confirmatory subsurface soil samples collected at PSC 18: aluminum, barium, calcium, chromium, copper, cyanide, iron, lead, magnesium, manganese, sodium, vanadium, and zinc. None of these inorganic concentrations were greater than FDEP industrial land-use soil cleanup goals or Dutch screening criteria. Inorganic concentrations are shown in Table 5-4.

5.3 GROUNDWATER. Two groundwater samples (CF18MW1S and CF182MW2S) were collected at PSC 18 in August 1997. Two additional samples were collected from the monitoring wells in December 1997 and analyzed for TAL inorganics. The groundwater data were compared to (1) State and Federal drinking water standards, (2) BTAG freshwater flora and fauna screening criteria, and (3) inorganic screening criteria for NAS Cecil Field as established by the Base Closure Partnering Team. The NAS Cecil Field screening 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 screening values were developed from data collected throughout NAS Cecil Field.

Summaries of the organic analytical results for groundwater samples are shown on Figure 5-4 and in Table 5-5. A complete analytical data set is presented in Appendix B.

Organics in Groundwater. No VOCs or SVOCs were detected in the groundwater samples at PSC 18. One polychlorinated biphenyl (PCB), Aroclor-1232, was detected in the groundwater sample CF18MW1S at a concentration of 0.34 micrograms per liter ($\mu g/\ell$). This concentration is below the State and Federal primary drinking water standard for Aroclor-1232 of 0.5 $\mu g/\ell$; however, this concentration exceeds the BTAG freshwater flora and fauna criteria for Aroclor-1232 of 0.1 and 0.014 $\mu g/\ell$, respectively.



LEGEND

CF18SB1 △	Subsurface soil sample location and designation
Ace	Acetone
Methoxy	Methoxychlor
DDT	4,4'-Dichlorodiphenyltrichloroethane
J	Estimated value

NOTES:

1. Sketch is a composite of several maps. Locations of objects are approximated. Drawing not based on survey data.
2. Values are reported in milligrams per kilogram.

Florida Department of Environmental Protection

Parameter	Leaching Number	Industrial value
Ace	1.4	1,800
DDT	0.5	12
Methoxy	62	7,800

0 10 20

SCALE: 1 INCH = 20 FEET

FIGURE 5-3
ORGANICS IN SUBSURFACE SOIL

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TECHNICAL MEMORANDUM FOR NO FURTHER ACTION POTENTIAL SOURCE OF CONTAMINATION 18 NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

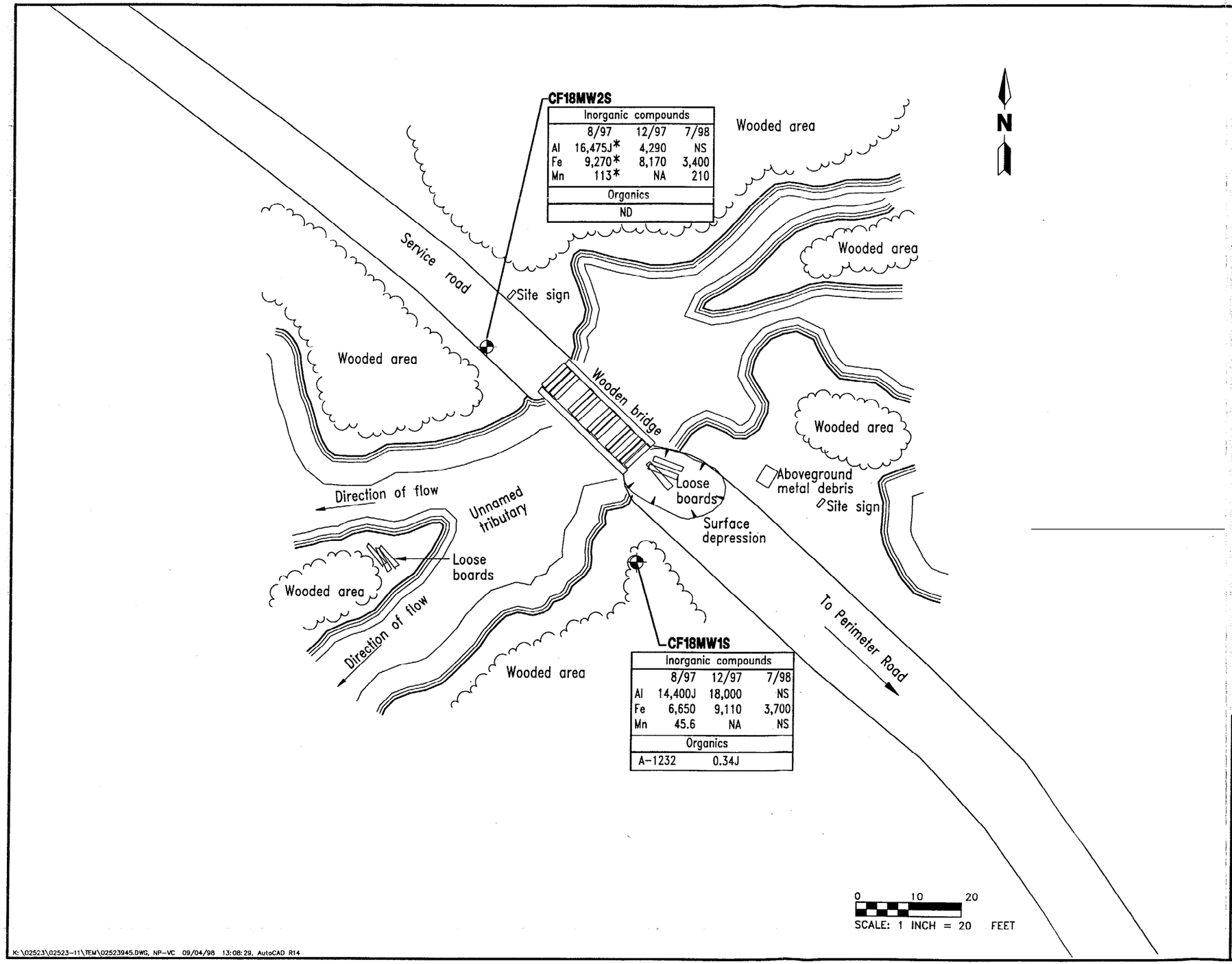
Table 5-4
Inorganics in Subsurface Soil

Technical Memorandum For No Further Action
Potential Source of Contamination 18
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	3/3	40	55.4 to 599	1E+06	NC	NG
Barium	3/3	40	0.53J to 10.4J	84,000	NC	200
Calcium	3/3	1,000	53.6J to 214J	NG	NG	NG
Chromium	2/3	2	0.35J to 0.74J	430	NC	100
Copper	3/3	5	0.32J to 1J	NG	NG	50
Cyanide	1/3	0.5	0.54J	40,000	NC	NG
Iron	3/3	20	29.4 to 713	NG	NG	NG
Lead	3/3	0.6	1.9 to 4	1,000	NC	50
Magnesium	3/3	1,000	10.5J to 44J	NG	NG	NG
Manganese	3/3	3	0.32J to 0.81J	5,500	NC	NG
Sodium	1/3	1,000	69.7J	NG	NG	NG
Vanadium	2/3	10	0.55J to 0.97J	4,800	NC	NG
Zinc	3/3	4	1.5J to 2.5J	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 (CF18SB1, CF18SB2, and CF18SB3).
[2] FDEP memorandum dated September 29, 1995. Values presented are based on an industrial land-use scenario (FDEP, 1995a).
[3] FDEP memorandum dated September 29, 1995. Values presented are based on soil leaching (FDEP, 1995a).
[4] Dutch Soil Cleanup (Interim) Act from Richardson, G.M., 1987, 1987, as reported in the U.S. Fish and Wildlife Service's "Evaluating Soil Contamination" (Beyer, 1990). Values presented are the lesser of the cleanup goals based on background concentrations in Dutch soil or detection limits.

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



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LEGEND

CF18MW2S	Monitoring well location and designation
Al	Aluminum
Fe	Iron
Mn	Manganese
A-1232	Aroclor-1232
NS	Not sampled
NA	Value is less than NAS Cecil Field screening criteria or was not detected
J	Estimated value
P	Primary drinking water standard
S	Secondary drinking water standard
*	Average of sample and duplicate
ND	Not detected
NAS	Naval Air Station

NOTES:

1. Sketch is a composite of several maps. Locations of objects are approximated. Drawing not based on survey data.
2. Values are reported in micrograms per liter.
3. Inorganic values presented exceed NAS Cecil Field screeing criteria.

Florida Department of Environmental Protection
Groundwater Guidance Concentration

Parameter	Regulatory Value and Type	
Al	200	S
Fe	300	S
Mn	50	S
A-1232	0.5	P
Tl	2	P

FIGURE 5-4
ORGANICS AND INORGANICS IN GROUNDWATER

TECHNICAL MEMORANDUM FOR NO FURTHER ACTION POTENTIAL SOURCE OF CONTAMINATION 18 NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

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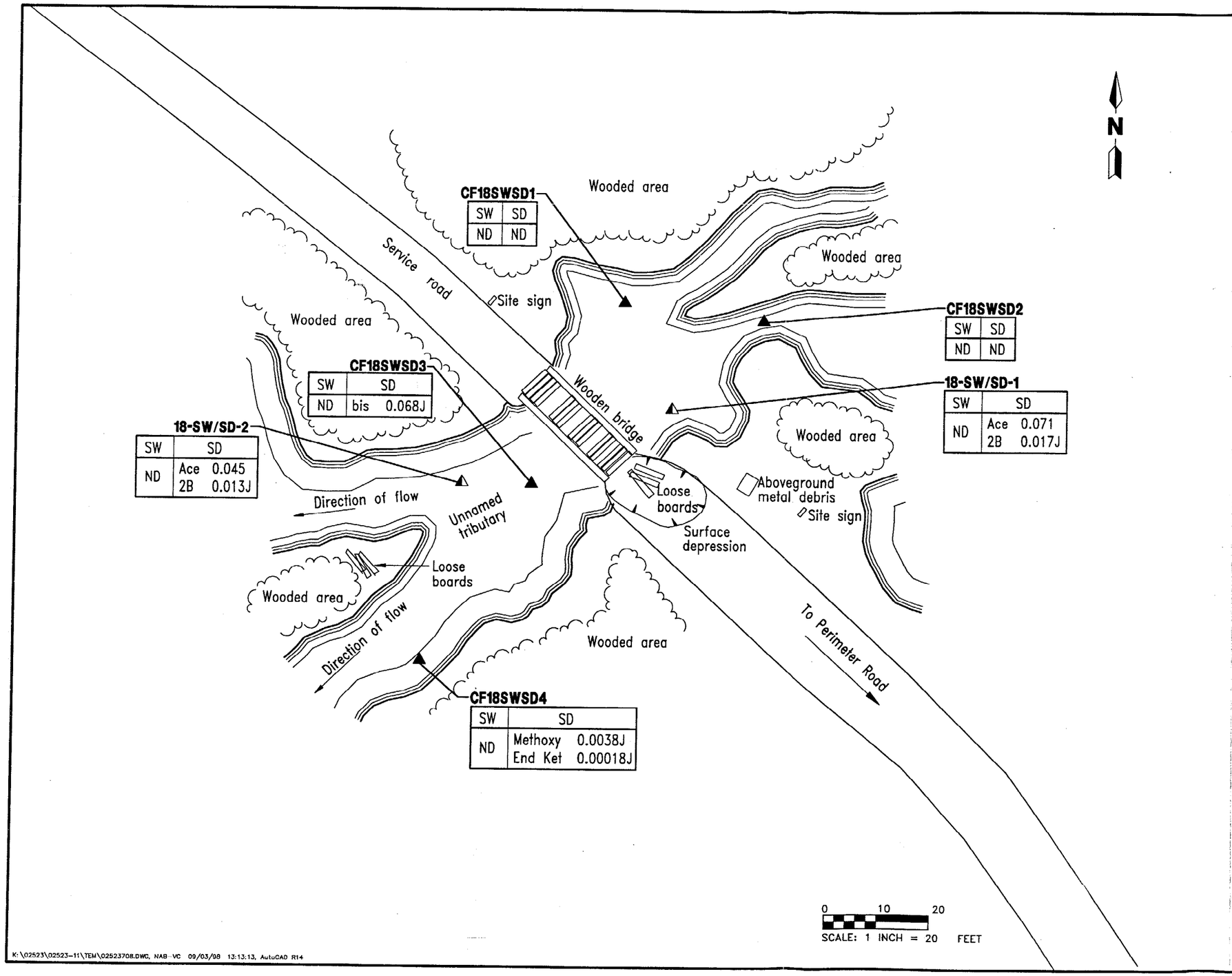

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LEGEND

CF18SWSD1 ▲	1997 Surface water and sediment sample location and designation
18-SW/SD-2 ◭	1993 Surface water and sediment sample location and designation
Ace	Acetone
bis	bis(2-Ethylhexyl)phthalate
Methoxy	Methoxychlor
End Ket	Endrin ketone
2B	2-Butanone
ND	Not detected
NG	Not given
SD	Sediment
SW	Surface water
TEL	Threshold effect level
PEL	Probable effect level
BTAG	Biological technical assistance group
J	Estimated value

NOTES:

1. Sketch is a composite of several maps. Locations of objects are approximated. Drawing not based on survey data.
2. Values for sediment are reported in milligrams per kilogram.
3. No organic compounds were detected in surface water samples.

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

Parameter	Value Flora	Value Fauna
bis	NG	1.3
Methoxy	NG	NG
End Ket	NG	NG

Florida Department of Environmental Protection
Quality Assessment Guidelines for Sediment

Parameter	Value TEL	Value PEL
bis	0.182	2.647
Methoxy	NG	NG
End Ket	NG	NG

FIGURE 5-5
ORGANICS IN SURFACE WATER AND SEDIMENT

TECHNICAL MEMORANDUM FOR NO FURTHER ACTION POTENTIAL SOURCE OF CONTAMINATION 18 NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

Table 5-5
Organics in Groundwater

Technical Memorandum For No Further Action
Potential Source of Contamination 18
Naval Air Station Cecil Field
Jacksonville, Florida

Analytical Parameter	Frequency of Detection[1]	Range of Reporting Limits	Range of Detected Concentrations	BTAG Criteria[2] Freshwater Flora/Fauna	FDEP Regulatory Value[3]
Groundwater					
Pesticides and PCBs (μg/ℓ)					
Aroclor-1232	1/2	1	0.34 J	0.1/0.014	0.5 P

[1] Frequency of detection is the number of samples in which the analyte was detected over the total number of samples analyzed (CF18MW1S and CF18MW2S, including a duplicate at CF18MW2S).
[2] U.S. Environmental Protection Agency Region III BTAG Screening Levels (USEPA, 1995a).
[3] Regulatory values represent values for drinking water standards or guidance values from either State or Federal agencies.

Notes: BTAG = biological technical assistance group.
FDEP = Florida Department of Environmental Protection.
PCB = polychlorinated biphenyl.
μg/ℓ = micrograms per liter.
J = estimated value.
P= primary drinking water standard.

Inorganics in Groundwater. Nineteen inorganic analytical parameters were detected in the groundwater samples collected at PSC 18 in August 1997: aluminum, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, sodium, vanadium, and zinc. The monitoring wells were resampled in December 1997 to confirm the August 1997 results. The December results indicated the same inorganic detections excluding beryllium and mercury. Arsenic and thallium were detected in December, but had not been detected in the August 1997 sampling. The inorganic analytical results for groundwater are shown on Figure 5-4 and in Table 5-6.

Aluminum, iron, and manganese were detected in the August 1997 groundwater samples at concentrations above State or Federal drinking water standards, which are not health based. Aluminum, iron, and thallium were detected in the December 1997 groundwater samples at concentrations above State or Federal drinking water standards; manganese was not detected. Barium and vanadium were detected above NAS Cecil Field screening criteria but below the regulatory values. Aluminum concentrations ranged from 14,400 J to 16,500 J $\mu g/\ell$ (average of sample and duplicate) in the August samples. Concentrations of aluminum ranged from 4,290 to 18,000 $\mu g/\ell$ in the December samples. These concentrations are above the secondary drinking water standard of 200 $\mu g/\ell$ and NAS Cecil Field screening criterion of 13,100 $\mu g/\ell$. However, filtered groundwater sample results were below NAS Cecil Field Screening criterion for aluminum. Iron concentrations exceed the secondary drinking water standard for iron of 300 $\mu g/\ell$. Concentrations of iron ranged from 6,650 to 9,270 $\mu g/\ell$ in the August samples and from 8,170 to 9,110 $\mu g/\ell$ in the December samples. During the August sampling, manganese was detected above the secondary drinking water standard for manganese of 50 $\mu g/\ell$ in only one sample, CF18MW2S, at a concentration of 113 $\mu g/\ell$ (average of sample and duplicate). The December sampling found manganese at concentrations below the secondary drinking water standard and the NAS Cecil Field screening criteria of 96.2 $\mu g/\ell$. CF18MW2S was resampled for manganese in July 1998 and detected at a concentration of 210 $\mu g/\ell$, which exceeds both the secondary drinking water standard and the NAS Cecil Field screening criteria. Although the manganese concentration has fluctuated during each sampling event, the December 1997 data demonstrated that the concentration of manganese in sample CF18MW2S was below all screening criteria. Thallium was only detected during the December sampling. Thallium was detected in only one sample, CF18MW1S, at a concentration of 5.3 J $\mu g/\ell$. This concentration is above the primary drinking water standard for thallium of 2 $\mu g/\ell$. The aluminum, manganese, and thallium concentrations were below the NAS Cecil Field screening criteria of 13,100 $\mu g/\ell$ for aluminum, 96.2 $\mu g/\ell$ for manganese, and 13.3 $\mu g/\ell$ for thallium. During the December 1997 sampling, both groundwater samples (CF18MW1S at 9,110 $\mu g/\ell$ and CF18MW2S at 8,170 $\mu g/\ell$) exceeded the NAS Cecil Field screening criterion of 7,760 $\mu g/\ell$ for iron. However, results from the August 1997 sampling event were below the NAS Cecil Field screening criterion for iron. CF18MW1S and CF18MW2S were resampled for iron in July 1998. Concentrations were detected at 3,700 $\mu g/\ell$ in CF18MW1S and 3,400 $\mu g/\ell$ in CF18MW2S. The distributions of inorganic concentrations in groundwater above screening criteria are presented on Figure 5-4.

Groundwater analytical data were compared to freshwater BTAG flora and fauna data due to the proximity of the creek. Inorganic analytical parameters that exceed BTAG freshwater flora and/or fauna screening criteria include aluminum, chromium, copper, iron, lead, mercury, and zinc. The August 1997 and the December 1997 groundwater analytical results are presented in Table 5-6. August and December analytical results for aluminum exceed both flora and fauna BTAG criteria for

Table 5-6
Inorganics in Groundwater

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Analytical Parameter	Frequency of Detection[1]			Range of Reporting Limits			Range of Detected Concentrations			NAS Cecil Field Screening Criteria	BTAG Criteria[2] Freshwater Flora/Fauna	FDEP Regulatory Value[3]
	8/97	12/97	7/98	7/97	12/97	7/98	8/97	12/97	7/98			
Groundwater												
Inorganic Analytes (μg/ℓ)												
Aluminum	2/2	2/2		200	200		14,400J to [4]16,500J	4,290 to 18,000		13,100	460pH/25pH	200 SD
Aluminum[5]	2/2	NA		200			[4]3,785J to 8,660J			13,100	460pH/25pH	200 SD
Antimony	ND	1/2		ND	60		ND	3.9J		44.5	NG/30 C	6 PD
Arsenic	1/2	1/2		10	10		4.3J	3.8J		7.10	NG/874 C	50 PD
Barium	2/2	NA		200	200		[4]48.8J to 67.9J	79.3J to 111J		88.2	10,000A/10,000A	2,000 PD
Barium[5]	2/2	NA		200			[4]27.75J to 61.2J			88.2	10,000A/10,000A	2,000 PD
Beryllium	2/2	ND		5	ND		0.43J to 0.5J	ND		3.50	NG/5.3 H C	4 PD
Cadmium	1/2	ND		5	ND		0.24J	ND		6.00	1.1 H/0.53 H C	5 PD
Calcium	2/2	2/2		5,000	5,000		[4]12,300J to 19,000J	20,700 to 32,600		81,100	NG/NG	NG
Chromium	2/2	2/2		10	10		[4]11.5J to 14.5	3.7J to 15.7		18.0	2 C/11 C	100 PD
Cobalt	2/2	1/2		50	50		1.7J to 2J	2.2J		12.8	NG/35,000	NG
Copper	2/2	1/2		25	25		5.9J to 8.5J	2.6J		12.5	NG/6.5 C	1,000 SD
Iron	2/2	2/2	2/2	100	100	100	6,650 to [4]9,270	8,170 to 9,110	3,400 to	7,760	NG/320 C	300 SD
Iron[5]	2/2	NA	NA	100			5,220 to [4]8,265		3,700	7,760	NG/320 C	300 SD
Lead	2/2	1/2		3	3		4.5 to [4]5.4J	6		5.35	NG/3.2pH C	15 PD
Lead[5]	2/2	NA		3			[4]2.2 to 5.3			5.35	NG/3.2pH C	
Magnesium	2/2	2/2		5,000	5,000		[4]3,145J to 4,640J	5,580 to 7,340		10,000	NG/NG	NG
Manganese	2/2	2/2	1/1	15	15	15	45.6 to [4]113	30.8 to 48.4	210	96.2	NG/14,500pH C	50 SD
Manganese[5]	2/2	NA	NA	15			40.8 to 48.4			96.2	NG/14,500pH C	50 SD

See notes at end of table.

Table 5-6 (Continued)
Inorganics in Groundwater

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Analytical Parameter	Frequency of Detection[1]			Range of Reporting Limits			Range of Detected Concentrations			NAS Cecil Field Screening Criteria	BTAG Criteria[2] Freshwater Flora/Fauna	FDEP Regulatory Value[3]
	8/97	12/97	7/98	7/97	12/97	7/98	8/97	12/97	7/98			
Mercury	2/2	ND		0.2	ND		0.13J to [4]0.17J	ND		0.34	0.012pH H C/ 0.012pH	2 PD
Nickel	2/2	1/2		40	40		3.7J to [4]7.9J	4J		24.5	340/160 H C	100 PD
Potassium	2/2	2/2		5,000	5,000		[4]568J to 691J	581J to 947J		4,330	NG/NG	NG
Selenium	ND	1/2		ND	5		ND	3.3J		7.00	522 A/5 C	50 PD
Sodium	2/2	2/2		5,000	5,000		[4]4,090J to 5,910J	7,210 to 8,340		16,500	NG/NG	160,000 PD
Thallium	ND	1/2		ND	10		ND	5.3J		13.3	NG/40 C	2 PD
Vanadium	2/2	2/2		50	50		[4]19.1 to 25J	6.4J to 26.3J		20.2	NG/<10,000	49 G
Vanadium[5]	2/2	NA		50			[4]7.4J to 16.1J			20.2	NG/<10,000	49 G
Zinc	2/2	2/2		20	20		13.4J to 19J	27.7 to 50.2		76.8	30 H C/110 H C	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 (CF18MW1S and CF18MW2S, including a duplicate at CF18MW2S).
[2] U.S. Environmental Protection Agency Region III BTAG Screening Levels (USEPA, 1995a).
[3] Values represent regulatory drinking water standards or guidance values from either State or Federal agencies.
[4] Average of sample and duplicate.
[5] Filtered data.

Notes: Bold indicates at least one sample exceeds the NAS Cecil Field screening criteria.

NAS = Naval Air Station.
BTAG = biological technical assistance group.
FDEP = Florida Department of Environmental Protection.
$\mu g/\ell$ = micrograms per liter.
J = estimated value.
pH = value is dependent on pH.
SD = secondary drinking water standard, not a health-based criterion.
ND = not detected.
NG = none given.
C = chronic.
PD = primary drinking water standard.
A = acute.
H = value is dependent on hardness.
< = less than.
G = guidance value.
NA = not analyzed.

aluminum of 460 and 25 $\mu g/\ell$, respectively. August and December analytical results for chromium also exceed both flora and fauna BTAG criteria for chromium of 2 and 11 $\mu g/\ell$, respectively. Copper was only detected in one sample, CF18MW2D (the duplicate sample of CF18MW2), during the August sampling event at a concentration above the BTAG fauna criterion of 6.5 $\mu g/\ell$. Copper was not detected in the original sample, CF18MW2S, which was sampled in August and did not exceed the BTAG fauna criterion in the December sampling. Iron and lead exceeded the BTAG fauna criteria for iron and lead of 320 and 3.2 $\mu g/\ell$, respectively, during both sampling events. Mercury was detected in the August samples, but was not detected in the December samples. Mercury was detected in both samples during August at concentrations above the BTAG flora and fauna criterion for mercury of 0.012 $\mu g/\ell$. Zinc was detected in both samples during August and December sampling; however, only one sample, CF18MW1S, at a concentration of 50.2 $\mu g/\ell$ detected in December, is above the BTAG flora criterion for zinc of 30 $\mu g/\ell$.

5.4 SURFACE WATER AND SEDIMENT. Four surface water and sediment samples (CF18SW/SD1 through CF18SW/SD4) were collected at PSC 18 during the 1997 investigation. Surface water analytical results were compared to (1) the State of Florida water quality standards (FWQS), "Florida Surface Water Standards and Drinking Water Standards" (FDEP, 1995b), (2) BTAG freshwater flora and fauna screening criteria, and (3) NAS Cecil Field screening criteria for inorganics. Sediment analytical results were compared to (1) the State of Florida quality assessment guidelines (FQAG), FDEP's "Development of an Approach to the Assessment of Sediment Quality of Florida Coastal Waters" (FDEP, 1994), (2) BTAG sediment flora and fauna screening criteria, and (3) NAS Cecil Field screening criteria for inorganics. A complete analytical data set is presented in Appendix B.

Organics in Surface Water. No VOCs, SVOCs, pesticides, PCBs, or nitroaromatics were detected in the surface water samples collected at PSC 18 during the 1993 and 1997 investigations.

Inorganics in Surface Water. Thirteen inorganics were detected in the four surface water samples collected at PSC 18 during the 1997 investigation: aluminum, arsenic, barium, calcium, copper, cyanide, iron, magnesium, manganese, potassium, sodium, thallium, and zinc. None of these inorganics detected at PSC 18 were above NAS Cecil Field screening criteria. The inorganic analytical results for surface water are presented in Table 5-7.

Thallium was the only inorganic detected above FWQS guidelines. Thallium was detected in the surface water sample CF18SW4 at a concentration of 6.6 J $\mu g/\ell$. This value slightly exceeds the FWQS guideline for thallium of 6.3 $\mu g/\ell$.

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 four of the samples at concentrations ranging from 227 to 257 $\mu g/\ell$ (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 four of the samples at concentrations ranging from 481 to 576 $\mu g/\ell$ (average of sample and duplicate). These values are above the BTAG freshwater flora criterion for iron of 320 $\mu g/\ell$. Zinc was detected in all four of the samples at concentrations ranging from 6.8 J (average of sample and

Table 5-7
Inorganics in Surface Water

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Analytical Parameter	Frequency of Detection[1]	Range of Reporting Limits	Range of Detected Concentrations	NAS Cecil Field Screening	FWQS[2] Guidelines Class III Freshwater	BTAG Criteria[3] Freshwater Flora/Fauna
Surface Water						
Inorganic Analytes (µg/ℓ)						
Aluminum	4/4	200	227 to [4]257	1,040	NG	460pH/25pH
Arsenic	1/4	10	3.4J	5.45	50	874
Barium	4/4	200	11.2J to 13.2J	43.7	NG	10,000/10,000
Calcium	4/4	5,000	3,230J to 3,610	43,000	NG	NG/NG
Copper	2/4	25	1.4J to 1.7J	7.35	41.9	NG/6.5
Cyanide	1/4	10	1.4J	3.75	5.2	5.2/5.2
Iron	4/4	100	481 to [4]576	3,030	1,000	320/900 I
Magnesium	4/4	5,000	1,040J to [4]1,115J	5,580	NG	NG/NG
Manganese	4/4	15	9.4J to 10.8J	49.3	NG	NG/14,500pH-H
Potassium	3/4	5,000	65.9J to [4]81.3J	2,060	NG	NG/NG
Sodium	4/4	5,000	4,970J to [4]5,430	12,200	NG	NG/NG
Thallium	2/4	10	3.5J to 6.6J	10.1	6.3	NG/40
Zinc	4/4	20	[4]6.8J to 44.1	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 (CF18SW1, CF18SW2, CF18SW3 and CF18SW4, including a duplicate at CF18SW3).
[2] "Florida Surface Water Standards and Drinking Water Standards" (*Florida Administrative Code* 17-302.530) (Amended April 25, 1995) (FDEP, 1995b).
[3] U.S. Environmental Protection Agency Region III BTAG Screening Levels (USEPA, 1995a).
[4] Average of sample and duplicate.

Notes: NAS = Naval Air Station.
FWQS = Florida water quality standards.
BTAG = biological technical assistance group.
µg/ℓ = micrograms per liter.
NG = none given.
pH = value is dependent on pH.
J = estimated value.
I = invertebrate.
H = value is dependent on hardness.

duplicate) to 44.1 μg/ℓ. The concentration at CF18SW4 (44.1 μg/ℓ) is above the BTAG freshwater flora criterion for zinc of 30 μg/ℓ. The distribution of aluminum, iron, thallium, and zinc in surface water samples greater than screening criteria is presented on Figure 5-5.

Aluminum, iron, and zinc were detected in the surface water samples collected during the 1993 sampling event at concentrations above BTAG freshwater flora and/or fauna criteria. In general, the 1993 inorganic analytical results were higher than the 1997 results. Aluminum was detected in both of the 1993 surface water samples (18-SW1 and 18-SW2) at concentrations of 530 J and 487 J μg/ℓ, respectively. BTAG freshwater flora and fauna criteria for aluminum are 450 and 25 μg/ℓ, respectively. Iron was detected in both 1993 surface water samples at concentrations of 6,580 J μg/ℓ (18-SW1) and 5,540 J μg/ℓ (18-SW2), which are above the BTAG freshwater fauna criterion for iron of 320 μg/ℓ. Zinc was detected in only one 1993 sample (18-SW1 at 32.8 μg/ℓ) above the BTAG freshwater flora criterion for zinc of 30 μg/ℓ.

Organics in Sediment. No VOCs or nitroaromatics were detected in the sediment samples collected at PSC 18 during the 1997 investigation. One SVOC, bis(2-ethylhexyl)phthalate, a common environmental laboratory contaminant, was detected in one sediment sample, CF18SD3D (the duplicate of CF18SD3), at a concentration of 0.068 J mg/kg. Bis(2-ethylhexyl)phthalate was not detected in the original sample, CF18SD3. This concentration is below FQAG guidelines and BTAG flora and fauna criteria.

Two pesticides, methoxychlor and endrin ketone, were detected in the sediment samples. Methoxychlor and endrin ketone were detected in sample CF18SD4 at concentrations of 0.0038 J and 0.0018 J mg/kg, respectively. No FQAG guidelines or BTAG criteria are given for methoxychlor and endrin ketone. The organic analytical results for sediment are shown on Figure 5-5 and in Table 5-8.

Inorganics in Sediment. Fifteen inorganics were detected in the four sediment samples collected at PSC 18 during the 1997 investigation: aluminum, barium, beryllium, calcium, chromium, copper, iron, lead, magnesium, manganese, nickel, potassium, sodium, vanadium, and zinc. None of these inorganics detected at PSC 18 were above NAS Cecil Field screening criteria. The confirmatory inorganic analytical results for sediment are shown in Table 5-9.

Chromium was the only inorganic parameter detected above FQAG guidelines or BTAG flora and fauna criteria. Chromium was detected in three of the four sediment samples collected at concentrations ranging from 0.29 J to 7 mg/kg (average of sample and duplicate). These values are above the BTAG flora criterion for chromium of 0.005 mg/kg.

Chromium was detected in the sediment samples collected during the 1993 sampling event at concentrations above BTAG flora criteria. The 1993 chromium detections were higher than the 1997 results. Chromium was detected in both of the 1993 sediment samples (18-SD1 and 18-SD2) at concentrations of 2.6 J and 3.3 mg/kg, respectively. The BTAG flora criterion for chromium is 0.005 mg/kg.

Table 5-8
Organics in Sediment

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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)					
bis(2-ethylhexyl)phthalate	1/4	0.47	0.068 J	0.182/2.647	NG/1.3 AET
Pesticides and PCBs (mg/kg)					
Methoxychlor	1/4	0.002	0.0038 J	NG/NG	NG/NG
Endrin ketone	1/4	0.004	0.0018 J	NG/NG	NG/NG

[1] Frequency of detection is the number of samples in which the analyte was detected over the total number of samples analyzed (CF18SD1, CF18SD2, CF18SD3 and CF18SD4, including a duplicate at CF18SD3).
[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 (USEPA, 1995a).

Notes: FQAG = Florida Quality Assessment Guidelines.
TEL = threshold effects level.
PEL = probable effects level.
BTAG = biological technical assistance group.
mg/kg = milligrams per kilogram.
J = estimated value.
NG = none given.
AET = apparent effect threshold.
PCB = polychlorinated biphenyl.

Table 5-9
Inorganics in Sediment

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Analytical Parameter	Frequency of Detection[1]	Range of Reporting Limits	Range of Detected Concentrations	NAS Cecil Field Screening	FQAG[2] Guidelines TEL/PEL	BTAG Criteria[3] Flora/Fauna
Sediment						
Inorganic Analytes (mg/kg)						
Aluminum	4/4	40	33.7J to [4]6,550	10,200	NG/NG	NG/NG
Barium	4/4	40	0.66J to [4]18.05J	36.1	NG/NG	NG/NG
Beryllium	1/4	1	0.[4]35J	0.625	NG/NG	NG/NG
Calcium	4/4	1,000	64.1J to [4]1,340J	5,920	NG/NG	NG/NG
Chromium	3/4	2	0.29J to [4]7	16	52.3/160	0.005/260
Copper	2/4	5	0.41J to [4]0.59J	12.5	18.7/108	NG/34
Iron	4/4	20	40.4J to [4]2,960	3,330	NG/NG	NG/NG
Lead	4/4	0.6	1 to [4]4.3	44.6	30.2/112	NG/46.7
Magnesium	4/4	1,000	12.3J to [4]350J	379	NG/NG	NG/NG
Manganese	4/4	3	0.59J to [4]3.2J	17	NG/NG	NG/NG
Nickel	1/4	8	[4]1.2J	7	15.9/42.8	20.9/20.9
Potassium	1/4	1,000	[4]31.8	289	NG/NG	NG/NG
Sodium	1/4	1,000	42.4J	388	NG/NG	NG/NG
Vanadium	3/4	10	0.29J to [4]10.2J	15	NG/NG	NG/NG
Zinc	2/4	4	2.5J to [4]2.5J	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 (CF18SD1, CF18SD2, CF18SD3, and CF18SD4 including a duplicate at CF18SD3).
[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 (USEPA, 1995a).
[4] Average of sample and duplicate.

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

6.0 PRELIMINARY RISK EVALUATION

6.1 PUBLIC HEALTH PRE. A human health PRE was conducted to evaluate the potential risks to human receptors at PSC 18. The PRE assumed residential exposures to surface soil, groundwater, sediment, and surface water. It assumed an industrial exposure to the subsurface soil at PSC 18. The basic human health PRE methodology is described in Appendix D. The data are complete and adequate for the needs of the PRE methodology as defined in Appendix D.

6.1.1 Site Description and Human Exposure Pathways Presently, Site 18 is not developed as a residential area. Potential receptors include trespassers, site maintenance workers, and excavation workers. However, it is possible that residential development could occur in the future.

6.1.2 Surface and Subsurface Soil The analytes detected in surface soil above NAS Cecil Field screening criteria and the FDEP soil cleanup goals (FDEP, 1995b) are presented in Table 6-1. No VOCs, SVOCs, pesticides, or PCBs were detected above FDEP soil cleanup goals. The only inorganic analyte detected in surface soil above both NAS Cecil Field screening criteria and FDEP cleanup goals is beryllium. The human health risk ratio for this analyte is presented in Table 6-1.

Beryllium is considered a class B2 carcinogen (convincing carcinogenic data in two animal species, no convincing in humans) by the USEPA. The risk ratio calculated for this analyte is 3, assuming the very conservative exposure methodology used in calculating the FDEP cleanup goals. This ratio can be viewed as corresponding to an excess lifetime cancer risk of $3x10^{-6}$, which is above Florida's action level but within the USEPA National Oil and Hazardous Substances Pollution Contingency Plan risk range of $1x10^{-6}$ to $1x10^{-4}$.

Aluminum is not considered a carcinogen by the USEPA. The calculated risk ratio for this analyte is 0.2, again assuming the very conservative exposure methodology used in calculating the FDEP cleanup goals. This ratio can be viewed as corresponding to hazard quotient of 0.2, which is well below both Florida's and the USEPA's action level.

No analytes were detected in subsurface soil above NAS Cecil Field screening criteria. Therefore, no PRE was conducted on this media.

6.1.3 Groundwater The analytes detected in groundwater above regulatory levels and NAS Cecil Field screening criteria are presented in Table 6-2. No VOCs, SVOCs, or pesticides were detected in groundwater above regulatory levels. Only the inorganic analytes aluminum, iron, and manganese were detected above NAS Cecil Field screening criteria. A human health PRE, as described in Appendix D, was conducted for these analytes.

No analytes were detected in the groundwater above primary, health-based drinking water standards. Those analytes detected above NAS Cecil Field screening criteria have only secondary drinking water standards that are not health based. As noted in Appendix D, it is inappropriate to use secondary drinking water standards to calculate a health-based risk ratio. However, as a risk management tool it can be useful to present a ratio of maximum detected groundwater concentration of an analyte to the secondary drinking water standards. This is

Table 6-1
Surface Soil Analytes Detected Above Human Health Screening Criteria or NAS Cecil Field Screening Criteria

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Analyte	Detection Frequency[1]	Screening Concentration[2]	NAS Cecil Field Screening Criteria[3]	FDEP Soil Cleanup Goals[4]	Human Health Risk Ratio	C or N[5]
Volatile Organic Compounds (mg/kg)						
None detected above screening values.						
Semivolatile Organic Compounds (mg/kg)						
None detected above screening values.						
Pesticides and PCBs (mg/kg)						
None detected above screening values.						
Inorganic Analytes (mg/kg)						
Aluminum	5/5	11,400	4,432	75,000	0.2	N
Beryllium	[6]1/7	0.63	0.3	0.2	3	C

[1] Frequency of detection is the number of samples in which the analyte was detected over the total number of samples analyzed. Samples collected at this site were CF18SS1, CF18SS2, CF18SS3, CF18SS4, and CF18SS5.
[2] Maximum detected concentration selected for screening criteria.
[3] NAS Cecil Field screening criteria values established by the Cecil Field Base Realignment and Closure cleanup team.
[4] FDEP memorandum dated September 29, 1995 (FDEP, 1995a). Values presented are based on a residential land-use scenario.
[5] C analyte is considered a carcinogen by the U.S. Environmental Protection Agency (USEPA); N analyte considered a noncarcinogen by the USEPA.
[6] Samples CF18SS1A and CF18SS1B were collected and analyzed only for beryllium only.

Notes: NAS = Naval Air Station.
FDEP = Florida Department of Environmental Protection.
mg/kg = milligrams per kilogram.
PCB = polychlorinated biphenyls.

Table 6-2
Groundwater Analytes Detected Above Human Health Screening Criteria or NAS Cecil Field Screening Criteria

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Analyte	Detection Frequency[1]	Screening Concentration[2]	NAS Cecil Field Screening Criteria[3]	Regulatory Level[4]	Exceedance Ratio[5]	C or N[6]
Volatile Organic Compounds (μg/ℓ)						
None detected above screening values.						
Semivolatile Organic Compounds (μg/ℓ)						
None detected above screening values.						
Pesticides and PCBs (μg/ℓ)						
None detected above screening values.						
Inorganic Analytes (μg/ℓ)						
Aluminum	4/4	18,000	13,100	200 SD	90	N
Iron	4/4	11,800	7,760	300 SD	39	N
Iron[7]	4/4	3,700	7,760	300 SD	12	N
Manganese	4/4	121	96.2	50 SD	2	N
Manganese[8]	1/1	210	96.2	50 SD	4	N

[1] Frequency of detection is the number of samples in which the analyte was detected over the total number of samples analyzed. Wells sampled were CF18MW1S and CF18MW2S, including a duplicate at CF18MW2S. Both wells were sampled twice, in August 1997 for target compound list (TCL) and target analyte list (TAL) analytes and December 1997 for TAL analytes only.
[2] Maximum detected concentration selected for screening criteria.
[3] NAS Cecil Field screening criteria values established by the Cecil Field Base Realignment and Closure cleanup team.
[4] Primary or secondary drinking water standards from Federal or State standards.
[5] Ratio of exceedance over regulatory standard. This is not a risk ratio because secondary groundwater standards, and some primary standards, are not risk based.
[6] C analyte is considered a carcinogen by the U.S. Environmental Protection Agency (USEPA); N analyte considered a noncarcinogen by the USEPA.
[7] CF18MW1S and CF18MW1S were resampled for iron in July 1998.
[8] CF18MW2S was resampled for manganese in July 1998.

Notes: NAS = Naval Air Station.
μg/ℓ = micrograms per liter.
PCBs = polychlorinated biphenyls.
SD = secondary drinking water standard.

described in Table 6-2 as the exceedance ratio. Table 6-2 also states whether or not the USEPA considers the analyte a carcinogen or a noncarcinogen.

The exceedance ratio for aluminum is 90, for iron is 39 (July 12, 1998, sampling), and for manganese is 2 (Table 6-2). All three analytes are considered noncarcinogens by the USEPA. For the NAS Cecil Field screening criteria, the risk ratios for aluminum, iron, and manganese are 66, 26, and 1.9, respectively. These data indicate that although there are exceedances well above the secondary drinking water standards, NAS Cecil Field screening criteria are also well above these standards; thus, no clear evidence of contamination exists at this site.

6.1.4 Surface Water and Sediment No analytes were detected in either surface water or sediment above NAS Cecil Field screening criteria. As discussed in Appendix D, no further PRE analysis was conducted for either of these media.

6.1.5 Human Health PRE Conclusions This PRE analysis indicates that no adverse health effects would be expected in human receptors who come into contact with either the surface soil, subsurface soil, surface water, sediment, or groundwater at PSC 18. This conclusion is based on conservative exposure assumptions that should be protective of all receptors, including sensitive subpopulations.

6.2 PRELIMINARY ECOLOGICAL RISK EVALUATION. An ecological PRE was conducted to evaluate potential risks to ecological receptors at PSC 18. Ecological habitats, receptors, and exposure pathways were characterized during site walkovers conducted by HLA ecological risk assessors in September 1995 and October 1997. The PRE was conducted following the methodology presented in Appendix D.

6.2.1 Study Area Characterization The Ammunition Disposal Area is located in a forested area in the eastern and central portion of NAS Cecil Field. Three ecological communities were identified at PSC 18 including a planted pine flatwoods, floodplain forest, and floodplain swamp/braided blackwater stream. These habitats would likely be of high value to terrestrial and semiaquatic wildlife, as well as a variety of plants and invertebrates. The receptors most likely to utilize the site include terrestrial species such as the American robin (*Turdus migratorius*) and cotton mouse (*Peromyscus gossypinus*). Additional wildlife species that may use the site would include the short-tailed shrew (*Blarina brevicauda*), and red fox (*Vulpes vulpes*). In addition, invertebrates (aquatic and terrestrial) and plants (aquatic and terrestrial) may also be present.

6.2.2 Identification of Potential Exposure Pathways Surface soil, subsurface soil, surface water, sediment, and groundwater samples were collected to support the PRE at PSC 18. All of these media were evaluated in this PRE except subsurface soil. Ecological receptors that would likely use this site would not burrow into subsurface soil, eliminating any chance of exposure. Exposure pathways for terrestrial wildlife include ingestion of prey items that have bioaccumulated contaminants in tissue, and direct contact and incidental ingestion of surface soil, surface water, sediment and groundwater. Exposure pathways for soil invertebrates include direct contact and incidental ingestion of surface soil. Exposure pathways for plants include direct contact with surface soil. Exposure pathways for aquatic receptors include direct contact with and incidental ingestion of sediment, surface water, and groundwater. For this PRE, groundwater is assumed to be directly discharging to surface water;

therefore, the direct contact and incidental exposure pathways are being evaluated.

6.2.3 **Contaminant Evaluation** Tables 5-1 to 5-8 summarize the analytes detected in surface soil, groundwater, sediment, and surface water. Maximum detected concentrations were compared to NAS Cecil Field screening criteria established by the Cecil Field Base Realignment and Closure (BRAC) cleanup team (BCT), the Dutch Criteria A Soil Cleanup values (Richardson, 1987), and USEPA Region III BTAG criteria for flora and fauna (USEPA, 1995). This Tier I evaluation is consistent with methodology outlined in Appendix D.

A Tier II evaluation, as outlined in Appendix D, was conducted for analytes that were lacking any Tier I screening values, or were detected above the Tier I screening values and were above the NAS Cecil Field screening criteria established by the Cecil Field BCT. As part of the Tier II evaluation, risk ratios were calculated for each of the screening criteria provided.

6.2.3.1 **Surface Soil** Tier I screening values were lacking for the only VOC (acetone) and SVOC (bis(2-ethylhexyl)phthalate) detected in surface soil. No pesticides or PCBs were detected above their Tier I screening values. Only four inorganic analytes were detected above the NAS Cecil Field screening criteria established by the Cecil Field BCT. These were aluminum, beryllium, iron, and vanadium. Table 6-3 presents the Tier II risk ratios for these organic and inorganic analytes.

No invertebrate screening values were identified for analytes in the Tier II evaluation for surface soil at PSC 18. No calculated risk ratios for wildlife were above 1, indicating no potential for toxicity to these receptors. The plant risk ratio for beryllium was well below 1 and no screening values were identified for iron. The plant risk ratio for aluminum, detected in all 5 samples, was 230. The plant risk ratio for vanadium was 5. For comparison, the risk ratios between NAS Cecil Field screening criteria and the plant screening values for aluminum and vanadium were 90 and 3, respectively. Because aluminum and vanadium plant screening values were based on the results of a single study, Will and Suter reported a low confidence in the accuracy of these values (Will and Suter, 1994). The low confidence in the plant screening values (Will and Suter, 1994). The low confidence in the plant screening values and lack of stressed vegetation at the site indicate that it is unlikely that plant receptors would be at risk from exposure to inorganics present in surface soil at PSC 18.

6.2.3.2 **Groundwater** No VOCs or SVOCs were detected in groundwater at PSC 18. Aroclor-1232 was detected above its Tier I screening value. The inorganic analytes detected above NAS Cecil Field screening criteria included aluminum, iron, lead, manganese, and vanadium. Table 6-4 presents the Tier II risk ratios for these organic and inorganic analytes.

Aroclor-1232, detected in one of two samples, had risk ratios for USEPA Region IV, ambient water quality criteria (AWQC), and Florida of 24. No Aquatic Information Retrieval (AQUIRE) value was identified. The risk ratio for aluminum, detected in all four samples, was 207 for the USEPA Region IV value, AWQC, and Florida standard, and 360 for the AQUIRE screening value. The risk ratio for iron, detected at all four samples, was 12 for USEPA Region IV value, AWQC, and Florida standard, and 3 for the AQUIRE screening value. The risk ratio for lead, detected in three of four samples, was 4 for USEPA Region IV value,

Table 6-3
Tier II Ecological Risk Ratios for Surface Soil Analytes Detected Above Ecological Tier I Screening Values and NAS Cecil Field Screening Criteria

Technical Memorandum for No Further Action
Potential Source of Contamination 18
Naval Air Station Cecil Field
Jacksonville, Florida

Analyte[1]	Frequency of Detection[1]	Maximum Detected Concentration	NAS Cecil Field Screening Criteria[2]	Plant Screening Value (mg/kg)[3]	Invertebrate Screening Value (mg/kg)[4]	Wildlife Screening Value (mg/kg)[5]	Risk Ratios (P, I, W)[6]
Volatile Organic Compounds (mg/kg)							
Acetone	2/5	0.072		200	NA	35,000,000	0.00036 P 0.0000002 W
Semivolatile Organic Compounds (mg/kg)							
bis(2-Ethylhexyl)phthalate	1/5	0.2		1,000	NA	500,000	0.0002 P 0.000004 W
Pesticides and PCBs (mg/kg)							
None detected above screening values.							
Inorganic Analytes (mg/kg)							
Aluminum	5/5	11,400	4,440	50	NA	54,000	230 P 0.2 W
Beryllium	[7]1/7	0.63	0.35	10	NA	110	0.06 P 0.006 W
Iron	5/5	4,400	1,490	NA	NA	NA	NA
Vanadium	4/5	10.3	6	2	NA	1,100	5 P 0.009 W

[1] Frequency of detection is the number of samples in which the analyte was detected over the total number of samples analyzed. Samples collected at this site were CF18SS1, CF18SS2, CF18SS3, CF18SS4, and CF18SS5.
[2] NAS Cecil Field screening criteria values established by the Cecil Field Base Realignment and Closure cleanup team.
[3] Phytotoxicity screening values are from Will and Suter, 1994. The screening value is the lowest observed effect concentration from among plant growth studies conducted in solid media. (See Appendix D, Table D-2 for further information).
[4] Invertebrate screening values are from Neuhauser et al., 1985a and 1985b and others (See Appendix D, Table D-2).
[5] Wildlife screening values are protective contaminant levels (PCLs) from Table D-2 and are derived as described in Appendix D. The value presented represents the lowest PCL for the short-tailed shrew, cotton mouse, American robin, red-tailed hawk, or red fox.
[6] The screening value is exceeded for receptor group, as represented by the following letter code:
P = plant screening value I = Invertebrate screening value W = Wildlife screening value
[7] Samples CF18SS1A and CF18SS1B were collected and analyzed only for beryllium only.

Notes: See Appendix D for methods and assumptions used in calculation of screening values and a list of references cited in this table.

NAS = Naval Air Station. NA = not available.
mg/kg = milligrams per kilogram. PCBs = polychlorinated biphenyls.

Table 6-4
Tier II Ecological Risk Ratios for Groundwater Analytes Detected Above Ecological Tier I Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 18
Naval Air Station Cecil Field
Jacksonville, Florida

Analyte	Frequency of Detection[1]	Maximum Detected Concentration	NAS Cecil Field Screening Criteria[2]	Region IV Chronic Water Quality Screening Value[3]	Ambient Water Quality Criteria[4]	Florida Class Surface Water Quality Standards[5]	AQUIRE LOAEC[6]	Risk Ratios (a, b, c, d)[7]
Pesticides and PCBs (mg/ℓ)								
Aroclor-1232	1/2	0.34		0.014	0.014	0.014	NA	24 a,b,c
Inorganic Analytes (mg/ℓ)								
Aluminum	4/4	18,000	13,100	87	87	87	50	207 a,b,c, 360 d
Iron	4/4	11,800	7,764	1,000	1,000	1,000	3,700	12 a,b,c 3 d
Lead	3/4	7.8	5.4	2	2	2	NA	4 a,b,c
Manganese	4/4	113	96.2	NA	NA	NA	280	0.4 d
Vanadium	4/4	26.3	20.2	NA	NA	NA	128	0.2 d

[1] Frequency of detection is the number of samples in which the analyte was detected over the total number of samples analyzed. Wells sampled were CF18MW1S and CF18MW2S, including a duplicate at CF18MW2S. Both wells were sampled twice, in August 1997 for target compound list (TCL) and target analyte list (TAL) analytes and December 1997 for TAL analytes only.
[2] NAS Cecil Field screening criteria values established by the Cecil Field Base Realignment and Closure (BRAC) cleanup team.
[3] U.S. Environmental Protection Agency (USEPA) Region IV Waste Management Division Chronic Freshwater Surface Water Screening Values for Hazardous Waste Sites, (USEPA, 1995b).
[4] Federal Ambient Water Criteria (USEPA, 1988a and 1991).
[5] Surface Water Quality Standards, (FDEP, 1995b).
[6] Reported toxicity values are from the USEPA AQUIRE database.
[7] The screening value is exceeded as represented by the following letter code:
- a = Region IV screening value
- b = ambient water quality criteria screening value
- c = Florida screening value
- d = AQUIRE screening value

Notes: See Table D-3 and text in Appendix D for screening values, methods, and assumptions used to calculate screening values and a list of references cited in this table.

NAS = Naval Air Station.
AQUIRE = Aquatic Information Retrieval.
LOAEC = lowest observed adverse effect concentration.
PCB = polychlorinated biphenyl.
mg/ℓ = milligrams per liter.
NA = not available.

AWQC, and Florida standard. The risk ratios for manganese and vanadium, both detected in all four samples, were less than 1.

Based on the comparison to ecological screening benchmarks aluminum, iron, and lead detected in groundwater may present a risk to ecological receptors. However, the estimated risks are based on a comparison of maximum detected concentrations in groundwater to surface water screening benchmarks, which assumes the analytes detected in groundwater discharge to surface water without any dilution and attenuation of analytes, and would therefore overestimate risks.

6.2.3.3 **Sediment** No VOCs or SVOCs were detected in the sediment at PSC 18. No Tier I screening values were available for either methoxychlor or endrin ketone. No other analytes detected were above Tier I screening criteria. Table 6-5 presents the Tier II risk ratios for the two pesticides.

No Tier II screening criteria were identified for methoxychlor. The risk ratios for endrin ketone were all well below 1, indicating no potential for toxicity associated with exposure. Although screening values were lacking for some of the analytes detected in sediment, it is unlikely that the presence of these analytes would have an adverse impact on aquatic receptors at this site.

6.2.3.4 **Surface Water** No analytes were detected in surface water above Tier I screening values and NAS Cecil Field screening criteria. Therefore, no Tier II analysis of this media will be conducted.

6.2.4 Ecological PRE Conclusions The ecological PRE analysis indicates that no adverse ecological effects would be expected in ecological receptors found in, or that may come in contact with, either the surface soil, subsurface soil, surface water, sediment, or groundwater.

Table 6-5
Tier II Ecological Risk Ratios for Sediment Analytes Detected Above Ecological Tier I Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 18
Naval Air Station Cecil Field
Jacksonville, Florida

Analytes	Frequency of Detection[1]	Maximum Detected Concentration	Region IV Chronic Sediment Quality Screening Value[2]	NOAA[3]		OME LEL[4]	USEPA SQCs[5]	MacDonald SQAGs[6]		Risk Ratio (a, b, c, d, e, f, g)[7]
				ER-L	ER-M			TEL	PEL	
Pesticides and PCBs (mg/kg)										
Methoxychlor	1/4	0.0038	NA	NA	NA	NA	NA	NA	NA	NA
Endrin ketone	1/4	0.0016	0.02	45	3	42	NA	NA	NA	0.08 a 0.00004 b 0.0005 c 0.0003 d

[1] Frequency of detection is the number of samples in which the analyte was detected over the total number of samples analyzed.
[2] Draft Region IV Waste Management Division Sediment Screening Values (USEPA, 1995c).
[3] 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 Rang-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).
[4] 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.
[5] Mean Sediment Quality Criteria Values (SQC) (USEPA, 1988b), a default value of 1 percent total organic carbon was assumed. The lower of the available Final Residue Values and Final Chronic Values is presented.
[6] Values from MacDonald Environmental Sciences, Ltd., 1994, *Approach to the Assessment of Sediment Quality in Florida Coastal Waters*. Threshold effect level (TEL) corresponds to concentrations of contaminants in coastal and estuarine water below which biological effects are not expected, and probable effect level (PEL) corresponds to concentrations above which biological effects are likely.
[7] The screening value is exceeded, as represented by the following letter code:

a = Region IV screening value
b = NOAA ER-L
c = NOAA ER-M
d = OME screening value
e = USEPA SQG screening value
f = SQAG TEL
g = SQAG PEL

Notes: See Table D-2 and text in Appendix D for screening values, methods, and assumptions used to calculate screening values and a list of references cited in this table.

USEPA = U.S. Environmental Protection Agency.
SQAGs = sediment quality assessment guidelines.
PCB = polychlorinated biphenyl.
mg/kg = milligrams per kilogram.
NA = not available.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 CONCLUSIONS. The period of disposal activities at PSC 18, Ammunition Disposal Area, was from the late 1940s through the 1950s. Known wastes include ammunition crates, unidentified canisters, furniture, and paint cans. PSC 18 is approximately 100 feet by 200 feet or approximately 0.5 acre.

Conclusions pertaining to PSC 18 are listed below.

- Surface and near surface soil is relatively permeable fine-grained sand, with some silt and clay.
- Groundwater in the surficial aquifer is interpreted to discharge to the creek that crosses PSC 18.
- Two inorganics, arsenic and beryllium, detected in surface soil exceeded FDEP residential land-use soil cleanup goals. However, arsenic was detected at concentrations below the NAS Cecil Field screening criterion and beryllium was detected at a concentration below the FDEP SCTL.
- Eight inorganics (aluminum, beryllium, chromium, iron, lead, nickel, vanadium, and zinc) detected in surface soil exceeded BTAG criteria.
- Aluminum and iron were detected in groundwater above State and Federal secondary (not health-based) drinking water standards. Thallium was detected in groundwater above State and Federal primary drinking water standards. However, iron and thallium were detected at concentrations below NAS Cecil Field screening criteria. Aluminum was detected below the NAS Cecil Field screening value in filtered groundwater samples.
- No adverse human health or ecological effects are expected in human or ecological receptors that come into contact with either the surface soil, subsurface soil, surface water, sediment, or groundwater at PSC 18.

7.2 RECOMMENDATIONS. In accordance with the PRE methodology in Appendix D, evaluation of the data gathered during the field investigation at PSC 18 indicates that significant ecological and human health risks are not expected at the site; therefore, no further action is warranted.

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APPENDIX A

DATA FROM PREVIOUS INVESTIGATIONS

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 18
SEDIMENT -- VOLATILES -- REPORT REQUEST NO. 9672

Lab Sample Number:	90058012				90091001				90058014				90091003			
Site	CECIL				CECIL				CECIL				CECIL			
Locator	18-SD1				18SD1				18-SD2				18SD2			
Collect Date:	29-JUN-93				16-AUG-93				29-JUN-93				16-AUG-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW																
Chloromethane	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
Bromomethane	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
Vinyl chloride	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
Chloroethane	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
Methylene chloride	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
Acetone	17	U	ug/kg	17	71		ug/kg	18	33	U	ug/kg	33	45		ug/kg	14
Carbon disulfide	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
1,1-Dichloroethene	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
1,1-Dichloroethane	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
1,2-Dichloroethene (total)	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
Chloroform	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
1,2-Dichloroethane	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
2-Butanone	17	U	ug/kg	17	17	J	ug/kg	18	18	U	ug/kg	18	13	J	ug/kg	14
1,1,1-Trichloroethane	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
Carbon tetrachloride	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
Bromodichloromethane	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
1,2-Dichloropropane	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
cis-1,3-Dichloropropene	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
Trichloroethene	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
Dibromochloromethane	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
1,1,2-Trichloroethane	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
Benzene	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
trans-1,3-Dichloropropene	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
Bromoform	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
4-Methyl-2-pentanone	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
2-Hexanone	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
Tetrachloroethene	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
Toluene	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
1,1,2,2-Tetrachloroethane	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
Chlorobenzene	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
Ethylbenzene	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
Styrene	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	14	U	ug/kg	14
Xylenes (total)	17	U	ug/kg	17	18	U	ug/kg	18	18	U	ug/kg	18	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) 18
SEDIMENT -- SEMIVOLATILES -- REPORT REQUEST NO. 9673

Lab Sample Number:	90091002				90091004			
Site	CECIL				CECIL			
Locator	18SD1				18SD2			
Collect Date:	16-AUG-93				16-AUG-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW								
Phenol	600	U	ug/kg	600	430	U	ug/kg	430
bis(2-Chloroethyl) ether	600	U	ug/kg	600	430	U	ug/kg	430
2-Chlorophenol	600	U	ug/kg	600	430	U	ug/kg	430
1,3-Dichlorobenzene	600	U	ug/kg	600	430	U	ug/kg	430
1,4-Dichlorobenzene	600	U	ug/kg	600	430	U	ug/kg	430
1,2-Dichlorobenzene	600	U	ug/kg	600	430	U	ug/kg	430
2-Methylphenol	600	U	ug/kg	600	430	U	ug/kg	430
2,2-oxybis(1-Chloropropane)	600	U	ug/kg	600	430	U	ug/kg	430
4-Methylphenol	600	U	ug/kg	600	430	U	ug/kg	430
N-Nitroso-di-n-propylamine	600	U	ug/kg	600	430	U	ug/kg	430
Hexachloroethane	600	U	ug/kg	600	430	U	ug/kg	430
Nitrobenzene	600	U	ug/kg	600	430	U	ug/kg	430
Isophorone	600	U	ug/kg	600	430	U	ug/kg	430
2-Nitrophenol	600	U	ug/kg	600	430	U	ug/kg	430
2,4-Dimethylphenol	600	U	ug/kg	600	430	U	ug/kg	430
bis(2-Chloroethoxy) methane	600	U	ug/kg	600	430	U	ug/kg	430
2,4-Dichlorophenol	600	U	ug/kg	600	430	U	ug/kg	430
1,2,4-Trichlorobenzene	600	U	ug/kg	600	430	U	ug/kg	430
Naphthalene	600	U	ug/kg	600	430	U	ug/kg	430
4-Chloroaniline	600	U	ug/kg	600	430	U	ug/kg	430
Hexachlorobutadiene	600	U	ug/kg	600	430	U	ug/kg	430
4-Chloro-3-methylphenol	600	U	ug/kg	600	430	U	ug/kg	430
2-Methylnaphthalene	600	U	ug/kg	600	430	U	ug/kg	430
Hexachlorocyclopentadiene	600	U	ug/kg	600	430	U	ug/kg	430
2,4,6-Trichlorophenol	600	U	ug/kg	600	430	U	ug/kg	430
2,4,5-Trichlorophenol	1500	U	ug/kg	1500	1100	U	ug/kg	1100
2-Chloronaphthalene	600	U	ug/kg	600	430	U	ug/kg	430
2-Nitroaniline	1500	U	ug/kg	1500	1100	U	ug/kg	1100
Dimethylphthalate	600	U	ug/kg	600	430	U	ug/kg	430
Acenaphthylene	600	U	ug/kg	600	430	U	ug/kg	430
2,6-Dinitrotoluene	600	U	ug/kg	600	430	U	ug/kg	430
3-Nitroaniline	1500	U	ug/kg	1500	1100	U	ug/kg	1100
Acenaphthene	600	U	ug/kg	600	430	U	ug/kg	430
2,4-Dinitrophenol	1500	U	ug/kg	1500	1100	U	ug/kg	1100
4-Nitrophenol	1500	U	ug/kg	1500	1100	U	ug/kg	1100
Dibenzofuran	600	U	ug/kg	600	430	U	ug/kg	430
2,4-Dinitrotoluene	600	U	ug/kg	600	93	J	ug/kg	430
Diethylphthalate	600	U	ug/kg	600	430	U	ug/kg	430
4-Chlorophenyl-phenylether	600	U	ug/kg	600	430	U	ug/kg	430
Fluorene	600	U	ug/kg	600	430	U	ug/kg	430
4-Nitroaniline	1500	U	ug/kg	1500	1100	U	ug/kg	1100
4,6-Dinitro-2-methylphenol	1500	U	ug/kg	1500	1100	U	ug/kg	1100
N-Nitrosodiphenylamine	600	U	ug/kg	600	220	J	ug/kg	430
4-Bromophenyl-phenylether	600	U	ug/kg	600	430	U	ug/kg	430
Hexachlorobenzene	600	U	ug/kg	600	430	U	ug/kg	430
Pentachlorophenol	1500	U	ug/kg	1500	1100	U	ug/kg	1100
Phenanthrene	600	U	ug/kg	600	84	J	ug/kg	430
Anthracene	600	U	ug/kg	600	430	U	ug/kg	430
Carbazole	600	U	ug/kg	600	430	U	ug/kg	430
Di-n-butylphthalate	760	U	ug/kg	760	1600	U	ug/kg	1600

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 18
SEDIMENT -- SEMIVOLATILES -- REPORT REQUEST NO. 9673

Lab Sample Number:	90091002				90091004			
Site	CECIL				CECIL			
Locator	18SD1				18SD2			
Collect Date:	16-AUG-93				16-AUG-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluoranthene	320	J	ug/kg	600	380	J	ug/kg	430
Pyrene	420	J	ug/kg	600	430	J	ug/kg	430
Butylbenzylphthalate	600	U	ug/kg	600	430	U	ug/kg	430
3,3-Dichlorobenzidine	600	U	ug/kg	600	430	U	ug/kg	430
Benzo (a) anthracene	600	U	ug/kg	600	170	J	ug/kg	430
Chrysene	240	J	ug/kg	600	380	J	ug/kg	430
bis(2-Ethylhexyl) phthalate	600	U	ug/kg	600	430	U	ug/kg	430
Di-n-octylphthalate	600	U	ug/kg	600	430	U	ug/kg	430
Benzo (b) fluoranthene	260	J	ug/kg	600	360	J	ug/kg	430
Benzo (k) fluoranthene	200	J	ug/kg	600	230	J	ug/kg	430
Benzo (a) pyrene	600	U	ug/kg	600	87	J	ug/kg	430
Indeno (1,2,3-cd) pyrene	600	U	ug/kg	600	430	U	ug/kg	430
Dibenzo (a,h) anthracene	600	U	ug/kg	600	430	U	ug/kg	430
Benzo (g,h,i) perylene	600	U	ug/kg	600	430	U	ug/kg	430

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

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 18
SEDIMENT -- PESTICIDES AND PCBs -- REPORT REQUEST NO. 9674

Lab Sample Number:	90058013				90091002				90058015				90091004			
Site	CECIL				CECIL				CECIL				CECIL			
Locator	18-SD1				18SD1				18-SD2				18SD2			
Collect Date:	29-JUN-93				16-AUG-93				29-JUN-93				16-AUG-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	2.9	U	ug/kg	2.9	3.3	U	ug/kg	3.3	2.7	U	ug/kg	2.7	2.3	U	ug/kg	2.3
beta-BHC	2.9	U	ug/kg	2.9	3.3	U	ug/kg	3.3	2.7	U	ug/kg	2.7	2.3	U	ug/kg	2.3
delta-BHC	2.9	U	ug/kg	2.9	3.3	U	ug/kg	3.3	2.7	U	ug/kg	2.7	2.3	U	ug/kg	2.3
gamma-BHC (Lindane)	2.9	U	ug/kg	2.9	3.3	U	ug/kg	3.3	2.7	U	ug/kg	2.7	2.3	U	ug/kg	2.3
Heptachlor	2.9	U	ug/kg	2.9	3.3	U	ug/kg	3.3	2.7	U	ug/kg	2.7	2.3	U	ug/kg	2.3
Aldrin	2.9	U	ug/kg	2.9	3.3	U	ug/kg	3.3	2.7	U	ug/kg	2.7	2.3	U	ug/kg	2.3
Heptachlor epoxide	2.9	U	ug/kg	2.9	3.3	U	ug/kg	3.3	2.7	U	ug/kg	2.7	2.3	U	ug/kg	2.3
Endosulfan I	2.9	U	ug/kg	2.9	3.3	U	ug/kg	3.3	2.7	U	ug/kg	2.7	2.3	U	ug/kg	2.3
Dieldrin	5.7	U	ug/kg	5.7	6.3	U	ug/kg	6.3	5.2	U	ug/kg	5.2	4.5	U	ug/kg	4.5
4,4-DDE	5.7	U	ug/kg	5.7	6.3	U	ug/kg	6.3	5.2	U	ug/kg	5.2	4.5	U	ug/kg	4.5
Endrin	5.7	U	ug/kg	5.7	6.3	U	ug/kg	6.3	5.2	U	ug/kg	5.2	4.5	U	ug/kg	4.5
Endosulfan II	5.7	U	ug/kg	5.7	6.3	U	ug/kg	6.3	5.2	U	ug/kg	5.2	4.5	U	ug/kg	4.5
4,4-DDD	5.7	U	ug/kg	5.7	6.3	U	ug/kg	6.3	5.2	U	ug/kg	5.2	4.5	U	ug/kg	4.5
Endosulfan sulfate	5.7	U	ug/kg	5.7	6.3	U	ug/kg	6.3	5.2	U	ug/kg	5.2	4.5	U	ug/kg	4.5
4,4-DDT	5.7	U	ug/kg	5.7	6.3	U	ug/kg	6.3	5.2	U	ug/kg	5.2	4.5	U	ug/kg	4.5
Methoxychlor	29	U	ug/kg	29	33	U	ug/kg	33	27	U	ug/kg	27	23	U	ug/kg	23
Endrin ketone	5.7	U	ug/kg	5.7	6.3	U	ug/kg	6.3	5.2	U	ug/kg	5.2	4.5	U	ug/kg	4.5
Endrin aldehyde	5.7	U	ug/kg	5.7	6.3	U	ug/kg	6.3	5.2	U	ug/kg	5.2	4.5	U	ug/kg	4.5
alpha-Chlordane	2.9	U	ug/kg	2.9	3.3	U	ug/kg	3.3	2.7	U	ug/kg	2.7	2.3	U	ug/kg	2.3
gamma-Chlordane	2.9	U	ug/kg	2.9	3.3	U	ug/kg	3.3	2.7	U	ug/kg	2.7	2.3	U	ug/kg	2.3
Toxaphene	290	U	ug/kg	290	330	U	ug/kg	330	270	U	ug/kg	270	230	U	ug/kg	230
Aroclor-1016	57	U	ug/kg	57	63	U	ug/kg	63	52	U	ug/kg	52	45	U	ug/kg	45
Aroclor-1221	120	U	ug/kg	120	130	U	ug/kg	130	110	U	ug/kg	110	92	U	ug/kg	92
Aroclor-1232	57	U	ug/kg	57	63	U	ug/kg	63	52	U	ug/kg	52	45	U	ug/kg	45
Aroclor-1242	57	U	ug/kg	57	63	U	ug/kg	63	52	U	ug/kg	52	45	U	ug/kg	45
Aroclor-1248	57	U	ug/kg	57	63	U	ug/kg	63	52	U	ug/kg	52	45	U	ug/kg	45
Aroclor-1254	57	U	ug/kg	57	130	U	ug/kg	130	52	U	ug/kg	52	90	U	ug/kg	90
Aroclor-1260	57	U	ug/kg	57	130	U	ug/kg	130	52	U	ug/kg	52	90	U	ug/kg	90

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 18
SEDIMENT -- INORGANICS -- REPORT REQUEST NO. 9675

Lab Sample Number:	90058013				90091002				90058015				90091004			
Site	CECIL				CECIL				CECIL				CECIL			
Locator	18-SD1				18SD1				18-SD2				18SD2			
Collect Date:	29-JUN-93				16-AUG-93				29-JUN-93				16-AUG-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	786		mg/kg	40	452		mg/kg	40	736		mg/kg	40	172		mg/kg	40
Antimony	6.7	U	mg/kg	12	6.4	U	mg/kg	12	7.2	U	mg/kg	12	4.8	U	mg/kg	12
Arsenic	.55	U	mg/kg	2	1.2	J	mg/kg	2	.59	U	mg/kg	2	.99	J	mg/kg	2
Barium	9.4	J	mg/kg	40	12.1	J	mg/kg	40	40	J	mg/kg	40	2.6	J	mg/kg	40
Beryllium	.09	U	mg/kg	1	.16	U	mg/kg	1	.1	U	mg/kg	1	.12	U	mg/kg	1
Cadmium	.87	U	mg/kg	1	1.2	U	mg/kg	1	.93	U	mg/kg	1	.94	U	mg/kg	1
Calcium	699	J	mg/kg	1000	1540	J	mg/kg	1000	398	J	mg/kg	1000	175	J	mg/kg	1000
Chromium	2.6	J	mg/kg	2	.88	U	mg/kg	2	3	U	mg/kg	2	3.3		mg/kg	2
Cobalt	1.6	U	mg/kg	10	1.2	U	mg/kg	10	1.7	U	mg/kg	10	.94	U	mg/kg	10
Copper	4.6	J	mg/kg	5	5.3	J	mg/kg	5	3.7	J	mg/kg	5	2	J	mg/kg	5
Iron	4060		mg/kg	20	3520		mg/kg	20	1030		mg/kg	20	1010		mg/kg	20
Lead	8.3		mg/kg	1	7.7	J	mg/kg	1	4.2		mg/kg	1	7.3	J	mg/kg	1
Magnesium	68	U	mg/kg	1000	112	J	mg/kg	1000	64.4	U	mg/kg	1000	19.5	J	mg/kg	1000
Manganese	10.4		mg/kg	3	8.6		mg/kg	3	3.3	U	mg/kg	3	4	J	mg/kg	3
Mercury	.02	U	mg/kg	.1	.04	U	mg/kg	.1	.03	U	mg/kg	.1	.03	U	mg/kg	.1
Nickel	3.1	U	mg/kg	8	4.6	U	mg/kg	8	3.3	U	mg/kg	8	3.5	U	mg/kg	8
Potassium	131	U	mg/kg	1000	159	U	mg/kg	1000	140	U	mg/kg	1000	120	U	mg/kg	1000
Selenium	.54	UJ	mg/kg	1	.61	U	mg/kg	1	.58	UJ	mg/kg	1	.46	U	mg/kg	1
Silver	.81	U	mg/kg	2	1.5	U	mg/kg	2	.87	U	mg/kg	2	1.2	U	mg/kg	2
Sodium	94.5	J	mg/kg	1000	14.9	U	mg/kg	1000	11.2	U	mg/kg	1000	6.1	U	mg/kg	1000
Thallium	.45	U	mg/kg	2	.32	U	mg/kg	2	.48	U	mg/kg	2	.25	U	mg/kg	2
Vanadium	1.7	U	mg/kg	10	.92	U	mg/kg	10	2	U	mg/kg	10	.71	U	mg/kg	10
Zinc	6.8		mg/kg	4	10.8		mg/kg	4	58.5		mg/kg	4	5.1	J	mg/kg	4
Cyanide	.51	U	mg/kg	1	.45	U	mg/kg	1	.54	U	mg/kg	1	.29	U	mg/kg	1

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 18
SURFACE WATER -- VOLATILES -- REPORT REQUEST NO. 9677

Lab Sample Number:	90058002				90058003			
Site	CECIL				CECIL			
Locator	18-SW1				18-SW2			
Collect Date:	29-JUN-93				29-JUN-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW								
Chloromethane	10	U	ug/l	10	10	U	ug/l	10
Bromomethane	10	U	ug/l	10	10	U	ug/l	10
Vinyl chloride	10	U	ug/l	10	10	U	ug/l	10
Chloroethane	10	U	ug/l	10	10	U	ug/l	10
Methylene chloride	10	U	ug/l	10	10	U	ug/l	10
Acetone	11	U	ug/l	11	14	U	ug/l	14
Carbon disulfide	10	U	ug/l	10	10	U	ug/l	10
1,1-Dichloroethene	10	U	ug/l	10	10	U	ug/l	10
1,1-Dichloroethane	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloroethene (total)	10	U	ug/l	10	10	U	ug/l	10
Chloroform	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloroethane	10	U	ug/l	10	10	U	ug/l	10
2-Butanone	10	U	ug/l	10	10	U	ug/l	10
1,1,1-Trichloroethane	10	U	ug/l	10	10	U	ug/l	10
Carbon tetrachloride	10	U	ug/l	10	10	U	ug/l	10
Bromodichloromethane	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloropropane	10	U	ug/l	10	10	U	ug/l	10
cis-1,3-Dichloropropene	10	U	ug/l	10	10	U	ug/l	10
Trichloroethene	10	U	ug/l	10	10	U	ug/l	10
Dibromochloromethane	10	U	ug/l	10	10	U	ug/l	10
1,1,2-Trichloroethane	10	U	ug/l	10	10	U	ug/l	10
Benzene	10	U	ug/l	10	10	U	ug/l	10
trans-1,3-Dichloropropene	10	U	ug/l	10	10	U	ug/l	10
Bromoform	10	U	ug/l	10	10	U	ug/l	10
4-Methyl-2-pentanone	10	U	ug/l	10	10	U	ug/l	10
2-Hexanone	10	U	ug/l	10	10	U	ug/l	10
Tetrachloroethene	10	U	ug/l	10	10	U	ug/l	10
Toluene	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
Chlorobenzene	10	U	ug/l	10	10	U	ug/l	10
Ethylbenzene	10	U	ug/l	10	10	U	ug/l	10
Styrene	10	U	ug/l	10	10	U	ug/l	10
Xylenes (total)	10	U	ug/l	10	10	U	ug/l	10

U = NOT DETECTED J = ESTIMATED VALUE
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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 18
SURFACE WATER -- SEMIVOLATILES -- REPORT REQUEST NO. 9678

Lab Sample Number:	90058002			90058003		
Site	CECIL			CECIL		
Locator	18-SW1			18-SW2		
Collect Date:	29-JUN-93			29-JUN-93		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW						
Phenol	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	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
4-Methylphenol	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
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	25 U	ug/l	25	25 U	ug/l	25
4-Nitrophenol	25 U	ug/l	25	25 U	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10
4-Nitroaniline	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
N-Nitrosodiphenylamine	10 U	ug/l	10	10 U	ug/l	10
4-Bromophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobenzene	10 U	ug/l	10	10 U	ug/l	10
Pentachlorophenol	25 U	ug/l	25	25 U	ug/l	25
Phenanthrene	10 U	ug/l	10	10 U	ug/l	10
Anthracene	10 U	ug/l	10	10 U	ug/l	10
Carbazole	10 U	ug/l	10	10 U	ug/l	10
Di-n-butylphthalate	10 U	ug/l	10	10 U	ug/l	10

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 18
SURFACE WATER -- SEMIVOLATILES -- REPORT REQUEST NO. 9678

Lab Sample Number:	90058002				90058003			
Site	CECIL				CECIL			
Locator	18-SW1				18-SW2			
Collect Date:	29-JUN-93				29-JUN-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10
Pyrene	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	10	U	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	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
Dibenzo (a,h) anthracene	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

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) 18
SEDIMENT -- PESTICIDES AND PCBs -- REPORT REQUEST NO. 9679

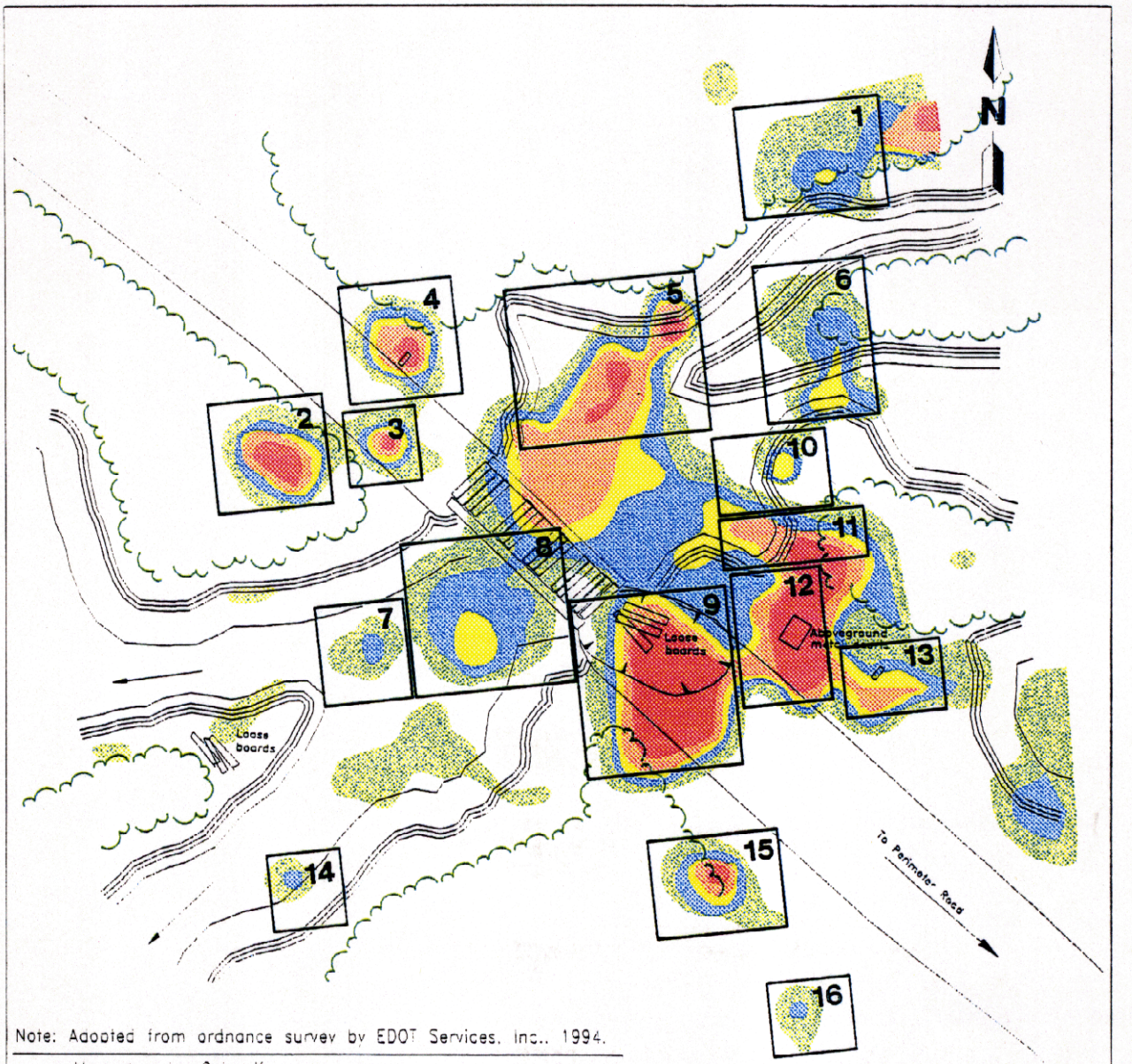
Lab Sample Number:	90058002				90058003			
Site	CECIL				CECIL			
Locator	18-SW1				18-SW2			
Collect Date:	29-JUN-93				29-JUN-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW								
alpha-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	UJ	ug/l	1

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) 18
SURFACE WATER -- INORGANICS -- REPORT REQUEST NO. 9676

Lab Sample Number:	90058002				90058003			
Site	CECIL				CECIL			
Locator	18-SW1				18-SW2			
Collect Date:	29-JUN-93				29-JUN-93			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE								
Aluminum	530	J	ug/l	200	487	J	ug/l	200
Antimony	20.2	U	ug/l	60	20.2	U	ug/l	60
Arsenic	1.9	U	ug/l	10	1.7	U	ug/l	10
Barium	18.3	J	ug/l	200	16.8	U	ug/l	200
Beryllium	.23	U	ug/l	5	.23	U	ug/l	5
Cadmium	.17	U	ug/l	5	.17	U	ug/l	5
Calcium	5980		ug/l	5000	4100	J	ug/l	5000
Chromium	2.5	U	ug/l	10	2.5	U	ug/l	10
Cobalt	4.8	U	ug/l	50	4.8	U	ug/l	50
Copper	2.3	U	ug/l	25	3	U	ug/l	25
Iron	6580	J	ug/l	100	5540	J	ug/l	100
Lead	2.8	U	ug/l	5	1.1	U	ug/l	5
Magnesium	1590	J	ug/l	5000	1180	J	ug/l	5000
Manganese	72.9		ug/l	15	30.4		ug/l	15
Mercury	.16	U	ug/l	.2	.08	U	ug/l	.2
Nickel	11.9	U	ug/l	40	9.5	U	ug/l	40
Potassium	1690	J	ug/l	5000	2120	J	ug/l	5000
Selenium	1.6	U	ug/l	15	1.6	U	ug/l	5
Silver	.14	U	ug/l	10	.14	U	ug/l	10
Sodium	4450	J	ug/l	5000	3960	J	ug/l	5000
Thallium	1.3	U	ug/l	10	1.3	U	ug/l	10
Vanadium	2	U	ug/l	50	2	U	ug/l	50
Zinc	32.8		ug/l	20	16.8	J	ug/l	20
Cyanide	3	U	ug/l	10	3	U	ug/l	10

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



Note: Adapted from ordnance survey by EDOT Services, Inc., 1994.

Magnetometer Color Key

- 0 – 100 Hertz (Hz)
- 100 – 200 Hz
- 200 – 300 Hz
- 300 – 400 Hz
- 400 – 500 Hz

16 Anomalous magnetic areas

0 10 20

SCALE: 1" = 20'

Note: Sketch is a composite of several maps. Locations of objects are approximated. Drawing not based on survey data.

FIGURE A-1
POTENTIAL SOURCE OF CONTAMINATION (PSC) 18
MAGNETOMETER RESULTS

TECHNICAL MEMORANDUM
FOR NO FURTHER ACTION
POTENTIAL SOURCE OF
CONTAMINATION 18
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

0483.JOHY

Table A-1
Interpreted Anomaly Identification, PSC 18

Technical Memorandum for No Further Action
Potential Source of Contamination 18
Naval Air Station Cecil Field
Jacksonville, Florida

Anomaly Number	Description
1	Indicates pit, possibly beginning trench
2	Indicates pit
3	Indicates pit
4	Sign
5	Indicates large pit or trench
6	Indicates pit
7	Unknown
8	Indicates pit
9	Explosive crater, surface banding straps, and possible pit
[1]10	Indicates pits or trench
[1]11	Indicates pit or trench and some background benchmark
12	Surface metal
[1]13	Sign
14	Unknown
[1]15	Indicates pit
[1]16	Unknown

[1] Possibly large trench or dump site.

Source: EODT Services, Inc., 1994.

APPENDIX B

CONFIRMATORY ANALYTICAL DATA

NAS CECIL FIELD -- PSC 18
SURFACE SOIL -- VOLATILES -- REPORT NO. 9317

Lab Sample Number:		C86QC				C86QD				C86QDRE				C86Q0			
Site		PSC18				PSC18				PSC18				PSC18			
Locator		CF18SS1				CF18SS2				CF18SS2RE				CF18SS3			
Collect Date:		17-FEB-97				17-FEB-97				17-FEB-97				17-FEB-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/kg																
Chloromethane		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
Bromomethane		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
Vinyl chloride		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
Chloroethane		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
Methylene chloride		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
Acetone		56		ug/kg	27	67		ug/kg	17	72		ug/kg	17	13	U	ug/kg	13
Carbon disulfide		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
1,1-Dichloroethene		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
1,1-Dichloroethane		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
1,2-Dichloroethene (total)		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
Chloroform		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
1,2-Dichloroethane		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
2-Butanone		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
1,1,1-Trichloroethane		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
Carbon tetrachloride		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
Bromodichloromethane		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
1,2-Dichloropropane		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
cis-1,3-Dichloropropene		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
Trichloroethene		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
Dibromochloromethane		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
1,1,2-Trichloroethane		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
Benzene		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
trans-1,3-Dichloropropene		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
Bromoform		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
4-Methyl-2-pentanone		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
2-Hexanone		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
Tetrachloroethene		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
Toluene		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
1,1,2,2-Tetrachloroethane		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
Chlorobenzene		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
Ethylbenzene		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
Styrene		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	ug/kg	13
Xylenes (total)		27	U	ug/kg	27	17	U	ug/kg	17	17	U	ug/kg	17	13	U	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 -- PSC 18
SURFACE SOIL -- VOLATILES -- REPORT NO. 9317

Lab Sample Number:		C86Q2			C86Q3		
Site		PSC18			PSC18		
Locator		CF18SS4			CF18SS5		
Collect Date:		17-FEB-97			17-FEB-97		
		VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP VOLATILES 90-SOW	ug/kg						
Chloromethane		12	U ug/kg	12	12	U ug/kg	12
Bromomethane		12	U ug/kg	12	12	U ug/kg	12
Vinyl chloride		12	U ug/kg	12	12	U ug/kg	12
Chloroethane		12	U ug/kg	12	12	U ug/kg	12
Methylene chloride		12	U ug/kg	12	12	U ug/kg	12
Acetone		12	U ug/kg	12	12	U ug/kg	12
Carbon disulfide		12	U ug/kg	12	12	U ug/kg	12
1,1-Dichloroethene		12	U ug/kg	12	12	U ug/kg	12
1,1-Dichloroethane		12	U ug/kg	12	12	U ug/kg	12
1,2-Dichloroethene (total)		12	U ug/kg	12	12	U ug/kg	12
Chloroform		12	U ug/kg	12	12	U ug/kg	12
1,2-Dichloroethane		12	U ug/kg	12	12	U ug/kg	12
2-Butanone		12	U ug/kg	12	12	U ug/kg	12
1,1,1-Trichloroethane		12	U ug/kg	12	12	U ug/kg	12
Carbon tetrachloride		12	U ug/kg	12	12	U ug/kg	12
Bromodichloromethane		12	U ug/kg	12	12	U ug/kg	12
1,2-Dichloropropane		12	U ug/kg	12	12	U ug/kg	12
cis-1,3-Dichloropropene		12	U ug/kg	12	12	U ug/kg	12
Trichloroethene		12	U ug/kg	12	12	U ug/kg	12
Dibromochloromethane		12	U ug/kg	12	12	U ug/kg	12
1,1,2-Trichloroethane		12	U ug/kg	12	12	U ug/kg	12
Benzene		12	U ug/kg	12	12	U ug/kg	12
trans-1,3-Dichloropropene		12	U ug/kg	12	12	U ug/kg	12
Bromoform		12	U ug/kg	12	12	U ug/kg	12
4-Methyl-2-pentanone		12	U ug/kg	12	12	U ug/kg	12
2-Hexanone		12	U ug/kg	12	12	U ug/kg	12
Tetrachloroethene		12	U ug/kg	12	12	U ug/kg	12
Toluene		12	U ug/kg	12	12	U ug/kg	12
1,1,2,2-Tetrachloroethane		12	U ug/kg	12	12	U ug/kg	12
Chlorobenzene		12	U ug/kg	12	12	U ug/kg	12
Ethylbenzene		12	U ug/kg	12	12	U ug/kg	12
Styrene		12	U ug/kg	12	12	U ug/kg	12
Xylenes (total)		12	U ug/kg	12	12	U ug/kg	12

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

NAS CECIL FIELD -- PSC 18
SURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9318

Lab Sample Number:		C86QC				A7B1801360				C86QD				A7B1801360			
Site		PSC18				PSC18				PSC18				PSC18			
Locator		CF18SS1				CF18SS1				CF18SS2				CF18SS2			
Collect Date:		17-FEB-97				17-FEB-97				17-FEB-97				17-FEB-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/kg																
Phenol		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
bis(2-Chloroethyl) ether		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
2-Chlorophenol		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
1,3-Dichlorobenzene		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
1,4-Dichlorobenzene		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
1,2-Dichlorobenzene		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
2-Methylphenol		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
2,2-oxybis(1-Chloropropane)		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
4-Methylphenol		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
N-Nitroso-di-n-propylamine		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
Hexachloroethane		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
Nitrobenzene		890	U	ug/kg	890	250	U	ug/kg	250	570	U	ug/kg	570	250	U	ug/kg	250
Isophorone		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
2-Nitrophenol		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
2,4-Dimethylphenol		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
bis(2-Chloroethoxy) methane		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
2,4-Dichlorophenol		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
1,2,4-Trichlorobenzene		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
Naphthalene		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
4-Chloroaniline		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
Hexachlorobutadiene		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
4-Chloro-3-methylphenol		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
2-Methylnaphthalene		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
Hexachlorocyclopentadiene		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
2,4,6-Trichlorophenol		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
2,4,5-Trichlorophenol		2200	U	ug/kg	2200	-		ug/kg		1400	U	ug/kg	1400	-		ug/kg	
2-Chloronaphthalene		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
2-Nitroaniline		2200	U	ug/kg	2200	-		ug/kg		1400	U	ug/kg	1400	-		ug/kg	
Dimethylphthalate		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
Acenaphthylene		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
2,6-Dinitrotoluene		890	U	ug/kg	890	250	U	ug/kg	250	570	U	ug/kg	570	250	U	ug/kg	250
3-Nitroaniline		2200	U	ug/kg	2200	-		ug/kg		1400	U	ug/kg	1400	-		ug/kg	
Acenaphthene		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
2,4-Dinitrophenol		2200	U	ug/kg	2200	-		ug/kg		1400	U	ug/kg	1400	-		ug/kg	
4-Nitrophenol		2200	U	ug/kg	2200	-		ug/kg		1400	U	ug/kg	1400	-		ug/kg	
Dibenzofuran		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
2,4-Dinitrotoluene		890	U	ug/kg	890	250	U	ug/kg	250	570	U	ug/kg	570	250	U	ug/kg	250
Diethylphthalate		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
4-Chlorophenyl-phenylether		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
Fluorene		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
4-Nitroaniline		2200	U	ug/kg	2200	-		ug/kg		1400	U	ug/kg	1400	-		ug/kg	
4,6-Dinitro-2-methylphenol		2200	U	ug/kg	2200	-		ug/kg		1400	U	ug/kg	1400	-		ug/kg	
N-Nitrosodiphenylamine		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
4-Bromophenyl-phenylether		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
Hexachlorobenzene		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
Pentachlorophenol		2200	U	ug/kg	2200	-		ug/kg		1400	U	ug/kg	1400	-		ug/kg	
Phenanthrene		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
Anthracene		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
Carbazole		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
Di-n-butylphthalate		890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	

NAS CECIL FIELD -- PSC 18
SURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9318

Lab Sample Number:	C86QC				A7B1801360				C86QD				A7B1801360			
Site	PSC18				PSC18				PSC18				PSC18			
Locator	CF18SS1				CF18SS1				CF18SS2				CF18SS2			
Collect Date:	17-FEB-97				17-FEB-97				17-FEB-97				17-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluoranthene	890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
Pyrene	890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
Butylbenzylphthalate	890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
3,3-Dichlorobenzidine	890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
Benzo (a) anthracene	890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
Chrysene	890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
bis(2-Ethylhexyl) phthalate	890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
Di-n-octylphthalate	890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
Benzo (b) fluoranthene	890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
Benzo (k) fluoranthene	890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
Benzo (a) pyrene	890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
Indeno (1,2,3-cd) pyrene	890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
Dibenzo (a,h) anthracene	890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	
Benzo (g,h,i) perylene	890	U	ug/kg	890	-		ug/kg		570	U	ug/kg	570	-		ug/kg	

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

NAS CECIL FIELD -- PSC 18
SURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9318

Lab Sample Number:		C86Q0				A7B1801360				C86Q2				A7B1801360			
Site		PSC18				PSC18				PSC18				PSC18			
Locator		CF18SS3				CF18SS3				CF18SS4				CF18SS4			
Collect Date:		17-FEB-97				17-FEB-97				17-FEB-97				17-FEB-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/kg																
Phenol		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
bis(2-Chloroethyl) ether		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
2-Chlorophenol		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
1,3-Dichlorobenzene		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
1,4-Dichlorobenzene		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
1,2-Dichlorobenzene		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
2-Methylphenol		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
2,2-oxybis(1-Chloropropane)		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
4-Methylphenol		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
N-Nitroso-di-n-propylamine		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Hexachloroethane		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Nitrobenzene		420	U	ug/kg	420	250	U	ug/kg	250	400	U	ug/kg	400	250	U	ug/kg	250
Isophorone		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
2-Nitrophenol		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
2,4-Dimethylphenol		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
bis(2-Chloroethoxy) methane		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
2,4-Dichlorophenol		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
1,2,4-Trichlorobenzene		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Naphthalene		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
4-Chloroaniline		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Hexachlorobutadiene		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
4-Chloro-3-methylphenol		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
2-Methylnaphthalene		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Hexachlorocyclopentadiene		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
2,4,6-Trichlorophenol		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
2,4,5-Trichlorophenol		1000	U	ug/kg	1000	-		ug/kg		980	U	ug/kg	980	-		ug/kg	
2-Chloronaphthalene		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
2-Nitroaniline		1000	U	ug/kg	1000	-		ug/kg		980	U	ug/kg	980	-		ug/kg	
Dimethylphthalate		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Acenaphthylene		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
2,6-Dinitrotoluene		420	U	ug/kg	420	250	U	ug/kg	250	400	U	ug/kg	400	250	U	ug/kg	250
3-Nitroaniline		1000	U	ug/kg	1000	-		ug/kg		980	U	ug/kg	980	-		ug/kg	
Acenaphthene		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
2,4-Dinitrophenol		1000	U	ug/kg	1000	-		ug/kg		980	U	ug/kg	980	-		ug/kg	
4-Nitrophenol		1000	U	ug/kg	1000	-		ug/kg		980	U	ug/kg	980	-		ug/kg	
Dibenzofuran		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
2,4-Dinitrotoluene		420	U	ug/kg	420	250	U	ug/kg	250	400	U	ug/kg	400	250	U	ug/kg	250
Diethylphthalate		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
4-Chlorophenyl-phenylether		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Fluorene		420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	

NAS CECIL FIELD -- PSC 18
SURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9318

Lab Sample Number:	C86Q0				A7B1801360				C86Q2				A7B1801360			
Site	PSC18				PSC18				PSC18				PSC18			
Locator	CF18SS3				CF18SS3				CF18SS4				CF18SS4			
Collect Date:	17-FEB-97				17-FEB-97				17-FEB-97				17-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	1000	U	ug/kg	1000	-		ug/kg		980	U	ug/kg	980	-		ug/kg	
4,6-Dinitro-2-methylphenol	1000	U	ug/kg	1000	-		ug/kg		980	U	ug/kg	980	-		ug/kg	
N-Nitrosodiphenylamine	420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
4-Bromophenyl-phenylether	420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Hexachlorobenzene	420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Pentachlorophenol	1000	U	ug/kg	1000	-		ug/kg		980	U	ug/kg	980	-		ug/kg	
Phenanthrene	420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Anthracene	420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Carbazole	420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Di-n-butylphthalate	420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Fluoranthene	420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Pyrene	420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Butylbenzylphthalate	420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
3,3-Dichlorobenzidine	420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Benzo (a) anthracene	420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Chrysene	420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
bis(2-Ethylhexyl) phthalate	200	J	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Di-n-octylphthalate	420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Benzo (b) fluoranthene	420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Benzo (k) fluoranthene	420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Benzo (a) pyrene	420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Indeno (1,2,3-cd) pyrene	420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Dibenzo (a,h) anthracene	420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	
Benzo (g,h,i) perylene	420	U	ug/kg	420	-		ug/kg		400	U	ug/kg	400	-		ug/kg	

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

NAS CECIL FIELD -- PSC 18
SURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9318

Lab Sample Number:		C86Q3				A7B1801360			
Site		PSC18				PSC18			
Locator		CF18SS5				CF18SS5			
Collect Date:		17-FEB-97				17-FEB-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/kg								
Phenol		390	U	ug/kg	390	-		ug/kg	
bis(2-Chloroethyl) ether		390	U	ug/kg	390	-		ug/kg	
2-Chlorophenol		390	U	ug/kg	390	-		ug/kg	
1,3-Dichlorobenzene		390	U	ug/kg	390	-		ug/kg	
1,4-Dichlorobenzene		390	U	ug/kg	390	-		ug/kg	
1,2-Dichlorobenzene		390	U	ug/kg	390	-		ug/kg	
2-Methylphenol		390	U	ug/kg	390	-		ug/kg	
2,2-oxybis(1-Chloropropane)		390	U	ug/kg	390	-		ug/kg	
4-Methylphenol		390	U	ug/kg	390	-		ug/kg	
N-Nitroso-di-n-propylamine		390	U	ug/kg	390	-		ug/kg	
Hexachloroethane		390	U	ug/kg	390	-		ug/kg	
Nitrobenzene		390	U	ug/kg	390	250	U	ug/kg	250
Isophorone		390	U	ug/kg	390	-		ug/kg	
2-Nitrophenol		390	U	ug/kg	390	-		ug/kg	
2,4-Dimethylphenol		390	U	ug/kg	390	-		ug/kg	
bis(2-Chloroethoxy) methane		390	U	ug/kg	390	-		ug/kg	
2,4-Dichlorophenol		390	U	ug/kg	390	-		ug/kg	
1,2,4-Trichlorobenzene		390	U	ug/kg	390	-		ug/kg	
Naphthalene		390	U	ug/kg	390	-		ug/kg	
4-Chloroaniline		390	U	ug/kg	390	-		ug/kg	
Hexachlorobutadiene		390	U	ug/kg	390	-		ug/kg	
4-Chloro-3-methylphenol		390	U	ug/kg	390	-		ug/kg	
2-Methylnaphthalene		390	U	ug/kg	390	-		ug/kg	
Hexachlorocyclopentadiene		390	U	ug/kg	390	-		ug/kg	
2,4,6-Trichlorophenol		390	U	ug/kg	390	-		ug/kg	
2,4,5-Trichlorophenol		940	U	ug/kg	940	-		ug/kg	
2-Chloronaphthalene		390	U	ug/kg	390	-		ug/kg	
2-Nitroaniline		940	U	ug/kg	940	-		ug/kg	
Dimethylphthalate		390	U	ug/kg	390	-		ug/kg	
Acenaphthylene		390	U	ug/kg	390	-		ug/kg	
2,6-Dinitrotoluene		390	U	ug/kg	390	250	U	ug/kg	250
3-Nitroaniline		940	U	ug/kg	940	-		ug/kg	
Acenaphthene		390	U	ug/kg	390	-		ug/kg	
2,4-Dinitrophenol		940	U	ug/kg	940	-		ug/kg	
4-Nitrophenol		940	U	ug/kg	940	-		ug/kg	
Dibenzofuran		390	U	ug/kg	390	-		ug/kg	
2,4-Dinitrotoluene		390	U	ug/kg	390	250	U	ug/kg	250
Diethylphthalate		390	U	ug/kg	390	-		ug/kg	
4-Chlorophenyl-phenylether		390	U	ug/kg	390	-		ug/kg	
Fluorene		390	U	ug/kg	390	-		ug/kg	

NAS CECIL FIELD -- PSC 18
SURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9318

Lab Sample Number:	C86Q3				A7B1801360			
Site	PSC18				PSC18			
Locator	CF18SS5				CF18SS5			
Collect Date:	17-FEB-97				17-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	940	U	ug/kg	940	-		ug/kg	
4,6-Dinitro-2-methylphenol	940	U	ug/kg	940	-		ug/kg	
N-Nitrosodiphenylamine	390	U	ug/kg	390	-		ug/kg	
4-Bromophenyl-phenylether	390	U	ug/kg	390	-		ug/kg	
Hexachlorobenzene	390	U	ug/kg	390	-		ug/kg	
Pentachlorophenol	940	U	ug/kg	940	-		ug/kg	
Phenanthrene	390	U	ug/kg	390	-		ug/kg	
Anthracene	390	U	ug/kg	390	-		ug/kg	
Carbazole	390	U	ug/kg	390	-		ug/kg	
Di-n-butylphthalate	390	U	ug/kg	390	-		ug/kg	
Fluoranthene	390	U	ug/kg	390	-		ug/kg	
Pyrene	390	U	ug/kg	390	-		ug/kg	
Butylbenzylphthalate	390	U	ug/kg	390	-		ug/kg	
3,3-Dichlorobenzidine	390	U	ug/kg	390	-		ug/kg	
Benzo (a) anthracene	390	U	ug/kg	390	-		ug/kg	
Chrysene	390	U	ug/kg	390	-		ug/kg	
bis(2-Ethylhexyl) phthalate	390	U	ug/kg	390	-		ug/kg	
Di-n-octylphthalate	390	U	ug/kg	390	-		ug/kg	
Benzo (b) fluoranthene	390	U	ug/kg	390	-		ug/kg	
Benzo (k) fluoranthene	390	U	ug/kg	390	-		ug/kg	
Benzo (a) pyrene	390	U	ug/kg	390	-		ug/kg	
Indeno (1,2,3-cd) pyrene	390	U	ug/kg	390	-		ug/kg	
Dibenzo (a,h) anthracene	390	U	ug/kg	390	-		ug/kg	
Benzo (g,h,i) perylene	390	U	ug/kg	390	-		ug/kg	

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

NAS CECIL FIELD -- PSC 18
SURFACE SOIL -- PESTICIDES AND PCBs -- REPORT NO. 9319

Lab Sample Number:		C86QC				C86QD				C86Q0				C86Q2			
Site		PSC18				PSC18				PSC18				PSC18			
Locator		CF18SS1				CF18SS2				CF18SS3				CF18SS4			
Collect Date:		17-FEB-97				17-FEB-97				17-FEB-97				17-FEB-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/kg																
alpha-BHC		4.5	U	ug/kg	4.5	2.6	U	ug/kg	2.6	2.1	U	ug/kg	2.1	2	U	ug/kg	2
beta-BHC		4.5	U	ug/kg	4.5	2.6	U	ug/kg	2.6	2.1	U	ug/kg	2.1	2	U	ug/kg	2
delta-BHC		4.5	U	ug/kg	4.5	2.6	U	ug/kg	2.6	2.1	U	ug/kg	2.1	2	U	ug/kg	2
gamma-BHC (Lindane)		4.5	U	ug/kg	4.5	2.6	U	ug/kg	2.6	2.1	U	ug/kg	2.1	2	U	ug/kg	2
Heptachlor		4.5	U	ug/kg	4.5	2.6	U	ug/kg	2.6	2.1	U	ug/kg	2.1	2	U	ug/kg	2
Aldrin		4.5	U	ug/kg	4.5	2.6	U	ug/kg	2.6	2.1	U	ug/kg	2.1	2	U	ug/kg	2
Heptachlor epoxide		4.5	U	ug/kg	4.5	2.6	U	ug/kg	2.6	2.1	U	ug/kg	2.1	2	U	ug/kg	2
Endosulfan I		4.5	U	ug/kg	4.5	2.6	U	ug/kg	2.6	2.1	U	ug/kg	2.1	2	U	ug/kg	2
Dieldrin		9	U	ug/kg	9	5.2	U	ug/kg	5.2	4.3	U	ug/kg	4.3	4	U	ug/kg	4
4,4-DDE		9	U	ug/kg	9	5.2	U	ug/kg	5.2	4.3	U	ug/kg	4.3	4	U	ug/kg	4
Endrin		9	U	ug/kg	9	5.2	U	ug/kg	5.2	4.3	U	ug/kg	4.3	4	U	ug/kg	4
Endosulfan II		9	U	ug/kg	9	.1	J	ug/kg	5	4.3	U	ug/kg	4.3	4	U	ug/kg	4
4,4-DDD		9	U	ug/kg	9	5.2	U	ug/kg	5.2	4.3	U	ug/kg	4.3	4	U	ug/kg	4
Endosulfan sulfate		9	U	ug/kg	9	5.2	U	ug/kg	5.2	4.3	U	ug/kg	4.3	4	U	ug/kg	4
4,4-DDT		9	U	ug/kg	9	5.2	U	ug/kg	5.2	4.3	U	ug/kg	4.3	1.1	J	ug/kg	4
Methoxychlor		45	U	ug/kg	45	26	U	ug/kg	26	21	U	ug/kg	21	20	U	ug/kg	20
Endrin ketone		9	U	ug/kg	9	5.2	U	ug/kg	5.2	4.3	U	ug/kg	4.3	4	U	ug/kg	4
Endrin aldehyde		9	U	ug/kg	9	5.2	U	ug/kg	5.2	4.3	U	ug/kg	4.3	4	U	ug/kg	4
alpha-Chlordane		4.5	U	ug/kg	4.5	2.6	U	ug/kg	2.6	2.1	U	ug/kg	2.1	2	U	ug/kg	2
gamma-Chlordane		4.5	U	ug/kg	4.5	2.6	U	ug/kg	2.6	2.1	U	ug/kg	2.1	2	U	ug/kg	2
Toxaphene		450	U	ug/kg	450	260	U	ug/kg	260	210	U	ug/kg	210	200	U	ug/kg	200
Aroclor-1016		90	U	ug/kg	90	52	U	ug/kg	52	43	U	ug/kg	43	40	U	ug/kg	40
Aroclor-1221		180	U	ug/kg	180	100	U	ug/kg	100	86	U	ug/kg	86	81	U	ug/kg	81
Aroclor-1232		90	U	ug/kg	90	52	U	ug/kg	52	43	U	ug/kg	43	40	U	ug/kg	40
Aroclor-1242		90	U	ug/kg	90	52	U	ug/kg	52	43	U	ug/kg	43	40	U	ug/kg	40
Aroclor-1248		90	U	ug/kg	90	52	U	ug/kg	52	43	U	ug/kg	43	40	U	ug/kg	40
Aroclor-1254		90	U	ug/kg	90	52	U	ug/kg	52	43	U	ug/kg	43	40	U	ug/kg	40
Aroclor-1260		90	U	ug/kg	90	52	U	ug/kg	52	43	U	ug/kg	43	40	U	ug/kg	40

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

NAS CECIL FIELD -- PSC 18
SURFACE SOIL -- PESTICIDES AND PCBs -- REPORT NO. 9319

Lab Sample Number:		C86Q3		
Site		PSC18		
Locator		CF18SS5		
Collect Date:		17-FEB-97		
	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/kg			
alpha-BHC	2	U	ug/kg	2
beta-BHC	2	U	ug/kg	2
delta-BHC	2	U	ug/kg	2
gamma-BHC (Lindane)	2	U	ug/kg	2
Heptachlor	2	U	ug/kg	2
Aldrin	2	U	ug/kg	2
Heptachlor epoxide	2	U	ug/kg	2
Endosulfan I	2	U	ug/kg	2
Dieldrin	3.9	U	ug/kg	3.9
4,4-DDE	3.9	U	ug/kg	3.9
Endrin	3.9	U	ug/kg	3.9
Endosulfan II	3.9	U	ug/kg	3.9
4,4-DDD	3.9	U	ug/kg	3.9
Endosulfan sulfate	3.9	U	ug/kg	3.9
4,4-DDT	3.9	U	ug/kg	3.9
Methoxychlor	20	U	ug/kg	20
Endrin ketone	3.9	U	ug/kg	3.9
Endrin aldehyde	3.9	U	ug/kg	3.9
alpha-Chlordane	2	U	ug/kg	2
gamma-Chlordane	2	U	ug/kg	2
Toxaphene	200	U	ug/kg	200
Aroclor-1016	39	U	ug/kg	39
Aroclor-1221	78	U	ug/kg	78
Aroclor-1232	39	U	ug/kg	39
Aroclor-1242	39	U	ug/kg	39
Aroclor-1248	39	U	ug/kg	39
Aroclor-1254	39	U	ug/kg	39
Aroclor-1260	39	U	ug/kg	39

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NAS CECIL FIELD -- PSC 18
SURFACE SOIL -- METALS -- REPORT NO. 9320

Lab Sample Number:	C86QC				CEK4A				CEK4C				C86QD			
Site	PSC18				PSC18				PSC18				PSC18			
Locator	CF18SS1				CF18SS1A				CF18SS1B				CF18SS2			
Collect Date:	17-FEB-97				11-DEC-97				11-DEC-97				17-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE mg/kg																
Aluminum	11400		mg/kg	40	-		mg/kg		-		mg/kg		1620		mg/kg	40
Antimony	11.4	U	mg/kg	12	-		mg/kg		-		mg/kg		7.2	U	mg/kg	12
Arsenic	1.1	U	mg/kg	2	-		mg/kg		-		mg/kg		1.2	J	mg/kg	2
Barium	110		mg/kg	40	-		mg/kg		-		mg/kg		15	J	mg/kg	40
Beryllium	.63	J	mg/kg	1	1	U	mg/kg	1	1	U	mg/kg	1	.34	U	mg/kg	1
Cadmium	.54	U	mg/kg	1	-		mg/kg		-		mg/kg		.34	U	mg/kg	1
Calcium	5740		mg/kg	1000	-		mg/kg		-		mg/kg		578	J	mg/kg	1000
Chromium	6		mg/kg	2	-		mg/kg		-		mg/kg		1.5	J	mg/kg	2
Cobalt	2.2	U	mg/kg	10	-		mg/kg		-		mg/kg		1.4	U	mg/kg	10
Copper	2.8	J	mg/kg	5	-		mg/kg		-		mg/kg		.85	J	mg/kg	5
Iron	4400		mg/kg	20	-		mg/kg		-		mg/kg		1960		mg/kg	20
Lead	32		mg/kg	.6	-		mg/kg		-		mg/kg		27.4		mg/kg	.6
Magnesium	630	J	mg/kg	1000	-		mg/kg		-		mg/kg		126	J	mg/kg	1000
Manganese	5.6	J	mg/kg	3	-		mg/kg		-		mg/kg		1.7	J	mg/kg	3
Mercury	.14	U	mg/kg	.1	-		mg/kg		-		mg/kg		.09	U	mg/kg	.1
Nickel	3.7	J	mg/kg	8	-		mg/kg		-		mg/kg		.69	U	mg/kg	8
Potassium	112	J	mg/kg	1000	-		mg/kg		-		mg/kg		44.3	J	mg/kg	1000
Selenium	1.6	U	mg/kg	1	-		mg/kg		-		mg/kg		1	U	mg/kg	1
Silver	1.6	U	mg/kg	2	-		mg/kg		-		mg/kg		1	U	mg/kg	2
Sodium	60.2	U	mg/kg	1000	-		mg/kg		-		mg/kg		39.6	J	mg/kg	1000
Thallium	2.2	U	mg/kg	2	-		mg/kg		-		mg/kg		1.4	U	mg/kg	2
Vanadium	10.3	J	mg/kg	10	-		mg/kg		-		mg/kg		3	J	mg/kg	10
Zinc	16.2		mg/kg	4	-		mg/kg		-		mg/kg		5.5	J	mg/kg	4
Cyanide	.16	U	mg/kg	.5	-		mg/kg		-		mg/kg		.1	U	mg/kg	.5

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

NAS CECIL FIELD -- PSC 18
SURFACE SOIL -- METALS -- REPORT NO. 9320

Lab Sample Number:		CEK4E				CEK4F				C86Q0				C86Q2			
Site		PSC18				PSC18				PSC18				PSC18			
Locator		CF18SS2A				CF18SS2B				CF18SS3				CF18SS4			
Collect Date:		11-DEC-97				11-DEC-97				17-FEB-97				17-FEB-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE	mg/kg																
Aluminum		-		mg/kg		-		mg/kg		24.5	J	mg/kg	40	247		mg/kg	40
Antimony		-		mg/kg		-		mg/kg		5.4	U	mg/kg	12	5.1	U	mg/kg	12
Arsenic		1.2	J	mg/kg	2	1.8	J	mg/kg	2	.51	U	mg/kg	2	.49	U	mg/kg	2
Barium		-		mg/kg		-		mg/kg		.42	J	mg/kg	40	2	J	mg/kg	40
Beryllium		-		mg/kg		-		mg/kg		.26	U	mg/kg	1	.24	U	mg/kg	1
Cadmium		-		mg/kg		-		mg/kg		.26	U	mg/kg	1	.24	U	mg/kg	1
Calcium		-		mg/kg		-		mg/kg		48	J	mg/kg	1000	39.9	J	mg/kg	1000
Chromium		-		mg/kg		-		mg/kg		.26	U	mg/kg	2	.42	J	mg/kg	2
Cobalt		-		mg/kg		-		mg/kg		1	U	mg/kg	10	.98	U	mg/kg	10
Copper		-		mg/kg		-		mg/kg		.53	J	mg/kg	5	.24	U	mg/kg	5
Iron		-		mg/kg		-		mg/kg		23	J	mg/kg	20	214		mg/kg	20
Lead		-		mg/kg		-		mg/kg		2		mg/kg	.6	2.8		mg/kg	.6
Magnesium		-		mg/kg		-		mg/kg		10.4	J	mg/kg	1000	15.6	J	mg/kg	1000
Manganese		-		mg/kg		-		mg/kg		.45	J	mg/kg	3	.71	J	mg/kg	3
Mercury		-		mg/kg		-		mg/kg		.06	U	mg/kg	.1	.06	U	mg/kg	.1
Nickel		-		mg/kg		-		mg/kg		.55	J	mg/kg	8	.49	U	mg/kg	8
Potassium		-		mg/kg		-		mg/kg		12.1	U	mg/kg	1000	11.5	U	mg/kg	1000
Selenium		-		mg/kg		-		mg/kg		.77	U	mg/kg	1	.73	U	mg/kg	1
Silver		-		mg/kg		-		mg/kg		.77	U	mg/kg	2	.73	U	mg/kg	2
Sodium		-		mg/kg		-		mg/kg		28.5	U	mg/kg	1000	27.1	U	mg/kg	1000
Thallium		-		mg/kg		-		mg/kg		1	U	mg/kg	2	.98	U	mg/kg	2
Vanadium		-		mg/kg		-		mg/kg		.26	U	mg/kg	10	.82	J	mg/kg	10
Zinc		-		mg/kg		-		mg/kg		5	J	mg/kg	4	1.1	J	mg/kg	4
Cyanide		-		mg/kg		-		mg/kg		.08	U	mg/kg	.5	.07	U	mg/kg	.5

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NAS CECIL FIELD -- PSC 18
SURFACE SOIL -- METALS -- REPORT NO. 9320

Lab Sample Number:	C86Q3
Site	PSC18
Locator	CF18SS5
Collect Date:	17-FEB-97

		VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE	mg/kg				
Aluminum		168		mg/kg	40
Antimony		4.9	U	mg/kg	12
Arsenic		.47	U	mg/kg	2
Barium		3.6	J	mg/kg	40
Beryllium		.24	U	mg/kg	1
Cadmium		.24	U	mg/kg	1
Calcium		78.1	J	mg/kg	1000
Chromium		.39	J	mg/kg	2
Cobalt		.94	U	mg/kg	10
Copper		.39	J	mg/kg	5
Iron		161		mg/kg	20
Lead		1.5		mg/kg	.6
Magnesium		20.5	J	mg/kg	1000
Manganese		.96	J	mg/kg	3
Mercury		.06	U	mg/kg	.1
Nickel		.47	U	mg/kg	8
Potassium		11.1	U	mg/kg	1000
Selenium		.71	U	mg/kg	1
Silver		.71	U	mg/kg	2
Sodium		26.1	U	mg/kg	1000
Thallium		.94	U	mg/kg	2
Vanadium		1	J	mg/kg	10
Zinc		2.8	J	mg/kg	4
Cyanide		.07	U	mg/kg	.5

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NAS CECIL FIELD -- PSC 18
SURFACE SOIL -- EXPLOSIVES -- REPORT NO. 9597

Lab Sample Number:	A7B1801360				A7B1801360				A7B1801360				A7B1801360			
Site	PSC18				PSC18				PSC18				PSC18			
Locator	CF18SS1				CF18SS2				CF18SS3				CF18SS4			
Collect Date:	17-FEB-97				17-FEB-97				17-FEB-97				17-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
EXPLOSIVES																
1,3,5-Trinitrobenzene	.25	U	mg/kg	.25	.25	U	mg/kg	.25	.25	U	mg/kg	.25	.25	U	mg/kg	.25
1,3-Dinitrobenzene	.25	U	mg/kg	.25	.25	U	mg/kg	.25	.25	U	mg/kg	.25	.25	U	mg/kg	.25
2,4,6-Trinitrotoluene	.25	U	mg/kg	.25	.25	U	mg/kg	.25	.25	U	mg/kg	.25	.25	U	mg/kg	.25
2-Nitrotoluene	.25	U	mg/kg	.25	.25	U	mg/kg	.25	.25	U	mg/kg	.25	.25	U	mg/kg	.25
3-Nitrotoluene	.25	U	mg/kg	.25	-				.25	U	mg/kg	.25	.25	U	mg/kg	.25
HMX	.5	U	mg/kg	.5	.5	U	mg/kg	.5	.5	U	mg/kg	.5	.5	U	mg/kg	.5
RDX	.5	U	mg/kg	.5	.5	U	mg/kg	.5	.5	U	mg/kg	.5	.5	U	mg/kg	.5
TETRYL	.65	U	mg/kg	.65	.65	U	mg/kg	.65	.65	U	mg/kg	.65	.65	U	mg/kg	.65

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NAS CECIL FIELD -- PSC 18
SURFACE SOIL -- EXPLOSIVES -- REPORT NO. 9597

Lab Sample Number:	A7B1801360
Site	PSC18
Locator	CF18SS5
Collect Date:	17-FEB-97

	VALUE	QUAL	UNITS	DL
EXPLOSIVES				
1,3,5-Trinitrobenzene	.25	U	mg/kg	.25
1,3-Dinitrobenzene	.25	U	mg/kg	.25
2,4,6-Trinitrotoluene	.25	U	mg/kg	.25
2-Nitrotoluene	.25	U	mg/kg	.25
3-Nitrotoluene	.25	U	mg/kg	.25
HMX	.5	U	mg/kg	.5
RDX	.5	U	mg/kg	.5
TETRYL	.65	U	mg/kg	.65

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NAS CECIL FIELD -- PSC 18
SUBSURFACE SOIL -- VOLATILES -- REPORT NO. 9321

Lab Sample Number:		C86QF				C86PX				C86Q1			
Site		PSC18				PSC18				PSC18			
Locator		CF18SB1				CF18SB2				CF18SB3			
Collect Date:		17-FEB-97				17-FEB-97				17-FEB-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/kg												
Chloromethane		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
Bromomethane		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
Vinyl chloride		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
Chloroethane		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
Methylene chloride		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
Acetone		130		ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
Carbon disulfide		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
1,1-Dichloroethene		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
1,1-Dichloroethane		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
1,2-Dichloroethene (total)		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
Chloroform		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
1,2-Dichloroethane		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
2-Butanone		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
1,1,1-Trichloroethane		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
Carbon tetrachloride		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
Bromodichloromethane		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
1,2-Dichloropropane		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
cis-1,3 Dichloropropene		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
Trichloroethene		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
Dibromochloromethane		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
1,1,2-Trichloroethane		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
Benzene		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
trans-1,3-Dichloropropene		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
Bromoform		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
4-Methyl-2-pentanone		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
2-Hexanone		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
Tetrachloroethene		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
Toluene		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
1,1,2,2-Tetrachloroethane		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
Chlorobenzene		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
Ethylbenzene		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
Styrene		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12
Xylenes (total)		16	U	ug/kg	16	13	U	ug/kg	13	12	U	ug/kg	12

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NAS CECIL FIELD -- PSC 18
SUBSURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9322

Lab Sample Number:		C86QF				A7B1801360				C86PX				A7B1801360			
Site		PSC18				PSC18				PSC18				PSC18			
Locator		CF18SB1				CF18SB1				CF18SB2				CF18SB2			
Collect Date:		17-FEB-97				17-FEB-97				17-FEB-97				17-FEB-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/kg																
Phenol		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
bis(2-Chloroethyl) ether		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
2-Chlorophenol		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
1,3-Dichlorobenzene		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
1,4-Dichlorobenzene		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
1,2-Dichlorobenzene		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
2-Methylphenol		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
2,2-oxybis(1-Chloropropane)		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
4-Methylphenol		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
N-Nitroso-di-n-propylamine		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
Hexachloroethane		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
Nitrobenzene		540	U	ug/kg	540	250	U	ug/kg	250	430	U	ug/kg	430	250	U	ug/kg	250
Isophorone		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
2-Nitrophenol		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
2,4-Dimethylphenol		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
bis(2-Chloroethoxy) methane		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
2,4-Dichlorophenol		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
1,2,4-Trichlorobenzene		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
Naphthalene		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
4-Chloroaniline		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
Hexachlorobutadiene		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
4-Chloro-3-methylphenol		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
2-Methylnaphthalene		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
Hexachlorocyclopentadiene		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
2,4,6-Trichlorophenol		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
2,4,5-Trichlorophenol		1300	U	ug/kg	1300	-		ug/kg		1000	U	ug/kg	1000	-		ug/kg	
2-Chloronaphthalene		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
2-Nitroaniline		1300	U	ug/kg	1300	-		ug/kg		1000	U	ug/kg	1000	-		ug/kg	
Dimethylphthalate		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
Acenaphthylene		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
2,6-Dinitrotoluene		540	U	ug/kg	540	250	U	ug/kg	250	430	U	ug/kg	430	250	U	ug/kg	250
3-Nitroaniline		1300	U	ug/kg	1300	-		ug/kg		1000	U	ug/kg	1000	-		ug/kg	
Acenaphthene		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
2,4-Dinitrophenol		1300	U	ug/kg	1300	-		ug/kg		1000	U	ug/kg	1000	-		ug/kg	
4-Nitrophenol		1300	U	ug/kg	1300	-		ug/kg		1000	U	ug/kg	1000	-		ug/kg	
Dibenzofuran		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
2,4-Dinitrotoluene		540	U	ug/kg	540	250	U	ug/kg	250	430	U	ug/kg	430	250	U	ug/kg	250
Diethylphthalate		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
4-Chlorophenyl-phenylether		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
Fluorene		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
4-Nitroaniline		1300	U	ug/kg	1300	-		ug/kg		1000	U	ug/kg	1000	-		ug/kg	
4,6-Dinitro-2-methylphenol		1300	U	ug/kg	1300	-		ug/kg		1000	U	ug/kg	1000	-		ug/kg	
N-Nitrosodiphenylamine		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
4-Bromophenyl-phenylether		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
Hexachlorobenzene		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
Pentachlorophenol		1300	U	ug/kg	1300	-		ug/kg		1000	U	ug/kg	1000	-		ug/kg	
Phenanthrene		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
Anthracene		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
Carbazole		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
Di-n-butylphthalate		540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	

NAS CECIL FIELD -- PSC 18
SUBSURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9322

Lab Sample Number:	C86QF				A7B1801360				C86PX				A7B1801360			
Site	PSC18				PSC18				PSC18				PSC18			
Locator	CF18SB1				CF18SB1				CF18SB2				CF18SB2			
Collect Date:	17-FEB-97				17-FEB-97				17-FEB-97				17-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluoranthene	540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
Pyrene	540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
Butylbenzylphthalate	540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
3,3-Dichlorobenzidine	540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
Benzo (a) anthracene	540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
Chrysene	540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
bis(2-Ethylhexyl) phthalate	540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
Di-n-octylphthalate	540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
Benzo (b) fluoranthene	540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
Benzo (k) fluoranthene	540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
Benzo (a) pyrene	540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
Indeno (1,2,3-cd) pyrene	540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
Dibenzo (a,h) anthracene	540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	
Benzo (g,h,i) perylene	540	U	ug/kg	540	-		ug/kg		430	U	ug/kg	430	-		ug/kg	

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

NAS CECIL FIELD -- PSC 18
SUBSURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9322

Lab Sample Number:		C86Q1				A7B1801360			
Site		PSC18				PSC18			
Locator		CF18SB3				CF18SB3			
Collect Date:		17-FEB-97				17-FEB-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/kg								
Phenol		410	U	ug/kg	410	-		ug/kg	
bis(2-Chloroethyl) ether		410	U	ug/kg	410	-		ug/kg	
2-Chlorophenol		410	U	ug/kg	410	-		ug/kg	
1,3-Dichlorobenzene		410	U	ug/kg	410	-		ug/kg	
1,4-Dichlorobenzene		410	U	ug/kg	410	-		ug/kg	
1,2-Dichlorobenzene		410	U	ug/kg	410	-		ug/kg	
2-Methylphenol		410	U	ug/kg	410	-		ug/kg	
2,2-oxybis(1-Chloropropane)		410	U	ug/kg	410	-		ug/kg	
4-Methylphenol		410	U	ug/kg	410	-		ug/kg	
N-Nitroso-di-n-propylamine		410	U	ug/kg	410	-		ug/kg	
Hexachloroethane		410	U	ug/kg	410	-		ug/kg	
Nitrobenzene		410	U	ug/kg	410	250	U	ug/kg	250
Isophorone		410	U	ug/kg	410	-		ug/kg	
2-Nitrophenol		410	U	ug/kg	410	-		ug/kg	
2,4-Dimethylphenol		410	U	ug/kg	410	-		ug/kg	
bis(2-Chloroethoxy) methane		410	U	ug/kg	410	-		ug/kg	
2,4-Dichlorophenol		410	U	ug/kg	410	-		ug/kg	
1,2,4-Trichlorobenzene		410	U	ug/kg	410	-		ug/kg	
Naphthalene		410	U	ug/kg	410	-		ug/kg	
4-Chloroaniline		410	U	ug/kg	410	-		ug/kg	
Hexachlorobutadiene		410	U	ug/kg	410	-		ug/kg	
4-Chloro-3-methylphenol		410	U	ug/kg	410	-		ug/kg	
2-Methylnaphthalene		410	U	ug/kg	410	-		ug/kg	
Hexachlorocyclopentadiene		410	U	ug/kg	410	-		ug/kg	
2,4,6-Trichlorophenol		410	U	ug/kg	410	-		ug/kg	
2,4,5-Trichlorophenol		990	U	ug/kg	990	-		ug/kg	
2-Chloronaphthalene		410	U	ug/kg	410	-		ug/kg	
2-Nitroaniline		990	U	ug/kg	990	-		ug/kg	
Dimethylphthalate		410	U	ug/kg	410	-		ug/kg	
Acenaphthylene		410	U	ug/kg	410	-		ug/kg	
2,6-Dinitrotoluene		410	U	ug/kg	410	250	U	ug/kg	250
3-Nitroaniline		990	U	ug/kg	990	-		ug/kg	
Acenaphthene		410	U	ug/kg	410	-		ug/kg	
2,4-Dinitrophenol		990	U	ug/kg	990	-		ug/kg	
4-Nitrophenol		990	U	ug/kg	990	-		ug/kg	
Dibenzofuran		410	U	ug/kg	410	-		ug/kg	
2,4-Dinitrotoluene		410	U	ug/kg	410	250	U	ug/kg	250
Diethylphthalate		410	U	ug/kg	410	-		ug/kg	
4-Chlorophenyl-phenylether		410	U	ug/kg	410	-		ug/kg	
Fluorene		410	U	ug/kg	410	-		ug/kg	

NAS CECIL FIELD -- PSC 18
SUBSURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9322

Lab Sample Number:	C86Q1				A7B1801360			
Site	PSC18				PSC18			
Locator	CF18SB3				CF18SB3			
Collect Date:	17-FEB-97				17-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	990	U	ug/kg	990		-	ug/kg	
4,6-Dinitro-2-methylphenol	990	U	ug/kg	990		-	ug/kg	
N-Nitrosodiphenylamine	410	U	ug/kg	410		-	ug/kg	
4-Bromophenyl-phenylether	410	U	ug/kg	410		-	ug/kg	
Hexachlorobenzene	410	U	ug/kg	410		-	ug/kg	
Pentachlorophenol	990	U	ug/kg	990		-	ug/kg	
Phenanthrene	410	U	ug/kg	410		-	ug/kg	
Anthracene	410	U	ug/kg	410		-	ug/kg	
Carbazole	410	U	ug/kg	410		-	ug/kg	
Di-n-butylphthalate	410	U	ug/kg	410		-	ug/kg	
Fluoranthene	410	U	ug/kg	410		-	ug/kg	
Pyrene	410	U	ug/kg	410		-	ug/kg	
Butylbenzylphthalate	410	U	ug/kg	410		-	ug/kg	
3,3-Dichlorobenzidine	410	U	ug/kg	410		-	ug/kg	
Benzo (a) anthracene	410	U	ug/kg	410		-	ug/kg	
Chrysene	410	U	ug/kg	410		-	ug/kg	
bis(2-Ethylhexyl) phthalate	410	U	ug/kg	410		-	ug/kg	
Di-n-octylphthalate	410	U	ug/kg	410		-	ug/kg	
Benzo (b) fluoranthene	410	U	ug/kg	410		-	ug/kg	
Benzo (k) fluoranthene	410	U	ug/kg	410		-	ug/kg	
Benzo (a) pyrene	410	U	ug/kg	410		-	ug/kg	
Indeno (1,2,3-cd) pyrene	410	U	ug/kg	410		-	ug/kg	
Dibenzo (a,h) anthracene	410	U	ug/kg	410		-	ug/kg	
Benzo (g,h,i) perylene	410	U	ug/kg	410		-	ug/kg	

U = NOT DETECTED J = ESTIMATED VALUE
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NAS CECIL FIELD -- PSC 18
SUBSURFACE SOIL -- PESTICIDES AND PCBs -- REPORT NO. 9323

Lab Sample Number:		C86QF				C86PX				C86Q1			
Site		PSC18				PSC18				PSC18			
Locator		CF18SB1				CF18SB2				CF18SB3			
Collect Date:		17-FEB-97				17-FEB-97				17-FEB-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/kg												
alpha-BHC		2.6	U	ug/kg	2.6	2.2	U	ug/kg	2.2	2	U	ug/kg	2
beta-BHC		2.6	U	ug/kg	2.6	2.2	U	ug/kg	2.2	2	U	ug/kg	2
delta-BHC		2.6	U	ug/kg	2.6	2.2	U	ug/kg	2.2	2	U	ug/kg	2
gamma-BHC (Lindane)		2.6	U	ug/kg	2.6	2.2	U	ug/kg	2.2	2	U	ug/kg	2
Heptachlor		2.6	U	ug/kg	2.6	2.2	U	ug/kg	2.2	2	U	ug/kg	2
Aldrin		2.6	U	ug/kg	2.6	2.2	U	ug/kg	2.2	2	U	ug/kg	2
Heptachlor epoxide		2.6	U	ug/kg	2.6	2.2	U	ug/kg	2.2	2	U	ug/kg	2
Endosulfan I		2.6	U	ug/kg	2.6	2.2	U	ug/kg	2.2	2	U	ug/kg	2
Dieldrin		5.1	U	ug/kg	5.1	4.3	U	ug/kg	4.3	4.1	U	ug/kg	4.1
4,4-DDE		5.1	U	ug/kg	5.1	4.3	U	ug/kg	4.3	4.1	U	ug/kg	4.1
Endrin		5.1	U	ug/kg	5.1	4.3	U	ug/kg	4.3	4.1	U	ug/kg	4.1
Endosulfan II		5.1	U	ug/kg	5.1	4.3	U	ug/kg	4.3	4.1	U	ug/kg	4.1
4,4-DDD		5.1	U	ug/kg	5.1	4.3	U	ug/kg	4.3	4.1	U	ug/kg	4.1
Endosulfan sulfate		5.1	U	ug/kg	5.1	4.3	U	ug/kg	4.3	4.1	U	ug/kg	4.1
4,4-DDT		5.1	U	ug/kg	5.1	4.3	U	ug/kg	4.3	.45	J	ug/kg	4
Methoxychlor		26	U	ug/kg	26	3.3	J	ug/kg	22	20	U	ug/kg	20
Endrin ketone		5.1	U	ug/kg	5.1	4.3	U	ug/kg	4.3	4.1	U	ug/kg	4.1
Endrin aldehyde		5.1	U	ug/kg	5.1	4.3	U	ug/kg	4.3	4.1	U	ug/kg	4.1
alpha-Chlordane		2.6	U	ug/kg	2.6	2.2	U	ug/kg	2.2	2	U	ug/kg	2
gamma-Chlordane		2.6	U	ug/kg	2.6	2.2	U	ug/kg	2.2	2	U	ug/kg	2
Toxaphene		260	U	ug/kg	260	220	U	ug/kg	220	200	U	ug/kg	200
Aroclor-1016		51	U	ug/kg	51	43	U	ug/kg	43	41	U	ug/kg	41
Aroclor-1221		100	U	ug/kg	100	86	U	ug/kg	86	82	U	ug/kg	82
Aroclor-1232		51	U	ug/kg	51	43	U	ug/kg	43	41	U	ug/kg	41
Aroclor-1242		51	U	ug/kg	51	43	U	ug/kg	43	41	U	ug/kg	41
Aroclor-1248		51	U	ug/kg	51	43	U	ug/kg	43	41	U	ug/kg	41
Aroclor-1254		51	U	ug/kg	51	43	U	ug/kg	43	41	U	ug/kg	41
Aroclor-1260		51	U	ug/kg	51	43	U	ug/kg	43	41	U	ug/kg	41

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NAS CECIL FIELD -- PSC 18
SUBSURFACE SOIL -- METALS -- REPORT NO. 9324

Lab Sample Number:	C86QF				C86PX				C86Q1			
Site	PSC18				PSC18				PSC18			
Locator	CF18SB1				CF18SB2				CF18SB3			
Collect Date:	17-FEB-97				17-FEB-97				17-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE mg/kg												
Aluminum	599		mg/kg	40	55.4		mg/kg	40	206		mg/kg	40
Antimony	6.8	U	mg/kg	12	5.4	U	mg/kg	12	5.2	U	mg/kg	12
Arsenic	.65	U	mg/kg	2	.52	U	mg/kg	2	.5	U	mg/kg	2
Barium	10.4	J	mg/kg	40	.53	J	mg/kg	40	1.6	J	mg/kg	40
Beryllium	.33	U	mg/kg	1	.26	U	mg/kg	1	.25	U	mg/kg	1
Cadmium	.33	U	mg/kg	1	.26	U	mg/kg	1	.25	U	mg/kg	1
Calcium	214	J	mg/kg	1000	63.6	J	mg/kg	1000	53.6	J	mg/kg	1000
Chromium	.74	J	mg/kg	2	.26	U	mg/kg	2	.35	J	mg/kg	2
Cobalt	1.3	U	mg/kg	10	1	U	mg/kg	10	.99	U	mg/kg	10
Copper	.44	J	mg/kg	5	.32	J	mg/kg	5	1	J	mg/kg	5
Iron	713		mg/kg	20	29.4		mg/kg	20	355		mg/kg	20
Lead	4		mg/kg	.6	3.9		mg/kg	.6	1.9		mg/kg	.6
Magnesium	44	J	mg/kg	1000	10.5	J	mg/kg	1000	13.8	J	mg/kg	1000
Manganese	.81	J	mg/kg	3	.32	J	mg/kg	3	.47	J	mg/kg	3
Mercury	.08	U	mg/kg	.1	.06	U	mg/kg	.1	.06	U	mg/kg	.1
Nickel	.65	U	mg/kg	8	.52	U	mg/kg	8	.5	U	mg/kg	8
Potassium	15.3	U	mg/kg	1000	12.1	U	mg/kg	1000	11.7	U	mg/kg	1000
Selenium	.98	U	mg/kg	1	.78	U	mg/kg	1	.74	U	mg/kg	1
Silver	.98	U	mg/kg	2	.78	U	mg/kg	2	.74	U	mg/kg	2
Sodium	69.7	J	mg/kg	1000	28.7	U	mg/kg	1000	27.5	U	mg/kg	1000
Thallium	1.3	U	mg/kg	2	1	U	mg/kg	2	.99	U	mg/kg	2
Vanadium	.97	J	mg/kg	10	.26	U	mg/kg	10	.55	J	mg/kg	10
Zinc	1.5	J	mg/kg	4	2.5	J	mg/kg	4	1.7	J	mg/kg	4
Cyanide	.1	U	mg/kg	.5	.54	J	mg/kg	.5	.07	U	mg/kg	.5

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NAS CECIL FIELD -- PSC 18
SUBSURFACE SOIL -- EXPLOSIVES -- REPORT NO. 9598

Lab Sample Number:	A7B1801360				A7B1801360				A7B1801360			
Site	PSC18				PSC18				PSC18			
Locator	CF18SB1				CF18SB2				CF18SB3			
Collect Date:	17-FEB-97				17-FEB-97				17-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
EXPLOSIVES												
1,3,5-Trinitrobenzene	.25	U	mg/kg	.25	.25	U	mg/kg	.25	.25	U	mg/kg	.25
1,3-Dinitrobenzene	.25	U	mg/kg	.25	.25	U	mg/kg	.25	.25	U	mg/kg	.25
2,4,6-Trinitrotoluene	.25	U	mg/kg	.25	.25	U	mg/kg	.25	.25	U	mg/kg	.25
2-Nitrotoluene	.25	U	mg/kg	.25	.25	U	mg/kg	.25	.25	U	mg/kg	.25
3-Nitrotoluene	.25	U	mg/kg	.25	.25	U	mg/kg	.25	.25	U	mg/kg	.25
HMX	.5	U	mg/kg	.5	.5	U	mg/kg	.5	.5	U	mg/kg	.5
RDX	.5	U	mg/kg	.5	.5	U	mg/kg	.5	.5	U	mg/kg	.5
TETRYL	.65	U	mg/kg	.65	.65	U	mg/kg	.65	.65	U	mg/kg	.65

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
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NAS CECIL FIELD -- PSC 18
GROUNDWATER -- VOLATILES -- REPORT NO. 9325

Lab Sample Number:		CC5K9			CC5K7			CC5K8		
Site		PSC18			PSC18			PSC18		
Locator		CF18MW1S			CF18MW2S			CF18MW2SD		
Collect Date:		05-AUG-97			05-AUG-97			05-AUG-97		
		VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l									
Chloromethane		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
Vinyl chloride		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
Methylene chloride		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
Carbon disulfide		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
1,1-Dichloroethane		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
Chloroform		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
2-Butanone		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
Carbon tetrachloride		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
1,2-Dichloropropane		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
Trichloroethene		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
1,1,2-Trichloroethane		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
trans-1,3-Dichloropropene		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
4-Methyl-2-pentanone		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
Tetrachloroethene		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
1,1,2,2-Tetrachloroethane		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
Ethylbenzene		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
Xylenes (total)		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 -- PSC 18
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 9326

Lab Sample Number:		CC5K9				CC5K7				CC5K8			
Site		PSC18				PSC18				PSC18			
Locator		CF18MW1S				CF18MW2S				CF18MW2SD			
Collect Date:		05-AUG-97				05-AUG-97				05-AUG-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l												
Phenol		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
2-Chlorophenol		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
1,4-Dichlorobenzene		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
2-Methylphenol		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
4-Methylphenol		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
Hexachloroethane		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
Isophorone		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
2,4-Dimethylphenol		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
2,4-Dichlorophenol		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
Naphthalene		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
Hexachlorobutadiene		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
2-Methylnaphthalene		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
2,4,6-Trichlorophenol		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
2-Chloronaphthalene		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
Dimethylphthalate		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
2,6-Dinitrotoluene		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
Acenaphthene		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
4-Nitrophenol		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
2,4-Dinitrotoluene		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
4-Chlorophenyl-phenylether		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
4-Nitroaniline		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
N-Nitrosodiphenylamine		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
Hexachlorobenzene		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
Phenanthrene		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
Carbazole		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

NAS CECIL FIELD -- PSC 18
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 9326

Lab Sample Number:	CC5K9				CC5K7				CC5K8			
Site	PSC18				PSC18				PSC18			
Locator	CF18MW1S				CF18MW2S				CF18MW2SD			
Collect Date:	05-AUG-97				05-AUG-97				05-AUG-97			
	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
Pyrene	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
3,3-Dichlorobenzidine	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
Chrysene	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
Di-n-octylphthalate	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
Benzo (k) fluoranthene	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
Indeno (1,2,3-cd) pyrene	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
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

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NAS CECIL FIELD -- PSC 18
GROUNDWATER -- PESTICIDES AND PCBs -- REPORT NO. 9327

Lab Sample Number:		CC5K9				CC5K7				CC5K8			
Site		PSC18				PSC18				PSC18			
Locator		CF18MW1S				CF18MW2S				CF18MW2SD			
Collect Date:		05-AUG-97				05-AUG-97				05-AUG-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/l												
alpha-BHC		.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
delta-BHC		.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
Heptachlor		.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
Heptachlor epoxide		.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
Dieldrin		.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
Endrin		.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
4,4-DDD		.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
4,4-DDT		.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
Endrin ketone		.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
alpha-Chlordane		.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
Toxaphene		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
Aroclor-1221		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232		.34	J	ug/l		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
Aroclor-1248		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
Aroclor-1260		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1

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NAS CECIL FIELD -- PSC 18
GROUNDWATER -- UNFILTERED METALS -- REPORT NO. 9328

Lab Sample Number:		CC5K9			CEMLD			CC5K7			CEMLE		
Site		PSC18			PSC18			PSC18			PSC18		
Locator		CF18MW1S			CF18MW1S			CF18MW2S			CF18MW2S		
Collect Date:		05-AUG-97			18-DEC-97			05-AUG-97			18-DEC-97		
		VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP METALS AND CYANIDE	ug/l												
Aluminum		14400 J	ug/l	200	18000	ug/l	200	7150 J	ug/l	200	4290	ug/l	200
Antimony		3.8 U	ug/l	60	2.8 U	ug/l	60	3.8 U	ug/l	60	3.9 J	ug/l	60
Arsenic		4.3 U	ug/l	10	3.8 J	ug/l	10	4.3 U	ug/l	10	3.2 U	ug/l	10
Barium		67.9 J	ug/l	200	79.3 J	ug/l	200	32.9 J	ug/l	200	111 J	ug/l	200
Beryllium		.43 J	ug/l	5	.2 U	ug/l	5	.4 U	ug/l	5	.2 U	ug/l	5
Cadmium		.24 J	ug/l	5	.2 U	ug/l	5	.2 U	ug/l	5	.2 U	ug/l	5
Calcium		19000 J	ug/l	5000	32600	ug/l	5000	11200 J	ug/l	5000	20700	ug/l	5000
Chromium		14.5	ug/l	10	15.7	ug/l	10	5.1 J	ug/l	10	3.7 J	ug/l	10
Cobalt		2 J	ug/l	50	2.2 J	ug/l	50	1.2 U	ug/l	50	1.4 U	ug/l	50
Copper		5.9 J	ug/l	25	2.6 J	ug/l	25	3.9 U	ug/l	25	1.2 U	ug/l	25
Iron		6650	ug/l	100	9110	ug/l	100	6740	ug/l	100	8170	ug/l	100
Lead		4.5	ug/l	3	6	ug/l	3	2.9 J	ug/l	3	2 U	ug/l	3
Magnesium		4640 J	ug/l	5000	7340	ug/l	5000	2620 J	ug/l	5000	5580	ug/l	5000
Manganese		45.6	ug/l	15	30.8	ug/l	15	105	ug/l	15	48.4	ug/l	15
Mercury		.13 J	ug/l	.2	.1 U	ug/l	.2	.12 J	ug/l	.2	.1 U	ug/l	.2
Nickel		3.7 J	ug/l	40	4 J	ug/l	40	3.6 J	ug/l	40	1.5 U	ug/l	40
Potassium		691 J	ug/l	5000	947 J	ug/l	5000	325 J	ug/l	5000	581 J	ug/l	5000
Selenium		4.1 U	ug/l	5	3.3 J	ug/l	5	4.1 U	ug/l	5	3.2 U	ug/l	5
Silver		1 U	ug/l	10	.5 U	ug/l	10	1 U	ug/l	10	.5 U	ug/l	10
Sodium		5910	ug/l	5000	8340	ug/l	5000	4020 J	ug/l	5000	7210	ug/l	5000
Thallium		5.9 U	ug/l	10	5.3 J	ug/l	10	5.9 U	ug/l	10	3.8 U	ug/l	10
Vanadium		25 J	ug/l	50	26.3 J	ug/l	50	10.2 J	ug/l	50	6.4 J	ug/l	50
Zinc		19 J	ug/l	20	50.2	ug/l	20	4.1 J	ug/l	20	27.7	ug/l	20
Cyanide		1.6 U	ug/l	10	-	ug/l		1.6 U	ug/l	10	-	ug/l	

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NAS CECIL FIELD -- PSC 18
GROUNDWATER -- UNFILTERED METALS -- REPORT NO. 9328

Lab Sample Number:		CC5K8		
Site		PSC18		
Locator		CF18MW2SD		
Collect Date:		05-AUG-97		
	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE	ug/l			
Aluminum	25800	J	ug/l	200
Antimony	3.8	U	ug/l	60
Arsenic	4.3	J	ug/l	10
Barium	64.7	J	ug/l	200
Beryllium	.5	J	ug/l	5
Cadmium	.2	U	ug/l	5
Calcium	13400	J	ug/l	5000
Chromium	17.9		ug/l	10
Cobalt	1.7	J	ug/l	50
Copper	8.5	J	ug/l	25
Iron	11800		ug/l	100
Lead	7.8		ug/l	3
Magnesium	3670	J	ug/l	5000
Manganese	121		ug/l	15
Mercury	.22		ug/l	.2
Nickel	12.2	J	ug/l	40
Potassium	812	J	ug/l	5000
Selenium	4.1	U	ug/l	5
Silver	1	U	ug/l	10
Sodium	4160	J	ug/l	5000
Thallium	5.9	U	ug/l	10
Vanadium	27.9	J	ug/l	50
Zinc	22.8		ug/l	20
Cyanide	1.6	U	ug/l	10

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R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- POTENTIAL SCOURCE OF CONTAMINATION 18
GROUNDWATER -- INORGANICS (FILTERED) -- REPORT REQ NO. 10269

Lab Sample Number:	CC5K9F				CC5K7F				CC5K8F			
Site	PSC18				PSC18				PSC18			
Locator	CF18MW1SF				CF18MW2SF				CF18MW2SDF			
Collect Date:	05-AUG-97				05-AUG-97				05-AUG-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE												
Aluminum	8660	J	ug/l	200	3050	J	ug/l	200	4520	J	ug/l	200
Antimony	3.8	U	ug/l	60	3.8	U	ug/l	60	3.8	U	ug/l	60
Arsenic	4.3	U	ug/l	10	4.3	U	ug/l	10	4.3	U	ug/l	10
Barium	61.2	J	ug/l	200	28.6	J	ug/l	200	26.9	J	ug/l	200
Beryllium	.4	U	ug/l	5	.4	U	ug/l	5	.4	U	ug/l	5
Cadmium	.2	U	ug/l	5	.2	U	ug/l	5	.2	U	ug/l	5
Calcium	22700	J	ug/l	5000	14500	J	ug/l	5000	13000	J	ug/l	5000
Chromium	9	J	ug/l	10	3.1	J	ug/l	10	3.2	J	ug/l	10
Cobalt	1.2	U	ug/l	50	1.2	U	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
Iron	5220		ug/l	100	8390		ug/l	100	8140		ug/l	100
Lead	5.3		ug/l	3	2.2	U	ug/l	3	2.2	U	ug/l	3
Magnesium	5310		ug/l	5000	3530	J	ug/l	5000	3140	J	ug/l	5000
Manganese	40.8		ug/l	15	85.1		ug/l	15	82.9		ug/l	15
Mercury	.13	J	ug/l	.2	.11	J	ug/l	.2	.1	J	ug/l	.2
Nickel	3.8	J	ug/l	40	2.8	U	ug/l	40	2.8	U	ug/l	40
Potassium	611	J	ug/l	5000	322	J	ug/l	5000	310	J	ug/l	5000
Selenium	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
Sodium	6390		ug/l	5000	4700	J	ug/l	5000	4260	J	ug/l	5000
Thallium	5.9	U	ug/l	10	5.9	U	ug/l	10	5.9	U	ug/l	10
Vanadium	16.1	J	ug/l	50	7.4	J	ug/l	50	7.3	J	ug/l	50
Zinc	22.8		ug/l	20	74.6		ug/l	20	12.6	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

NAS CECIL FIELD -- PSC 18
GROUNWATER -- RESAMPLING OF IRON -- REPORT REQ NO. 10253

Lab Sample Number:	JR24125			JR24126		
Site	PSC18			PSC18		
Locator	CF18MW1S			CF18MW2S		
Collect Date:	21-JUL-98			21-JUL-98		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Iron	3700	ug/l	50	3400	ug/l	50

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

NAS CECIL FIELD -- PSC 18
GROUNWATER -- RESAMPLING OF MANGANESE -- REPORT REQ NO. 10254

Lab Sample Number:	JR24126			
Site	PSC18			
Locator	CF18MW2S			
Collect Date:	21-JUL-98			
	VALUE	QUAL	UNITS	DL
Manganese	210		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 -- PSC 18
SEDIMENT -- VOLATILES -- REPORT NO. 9330

Lab Sample Number:		C86QA			C86Q4			C86Q7			C8603		
Site		PSC18			PSC18			PSC18			PSC18		
Locator		CF18SD1			CF18SD3			CF18SD3D			CF18SD4		
Collect Date:		17-FEB-97			17-FEB-97			17-FEB-97			14-FEB-97		
		VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/kg												
Chloromethane		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
Bromomethane		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
Vinyl chloride		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
Chloroethane		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
Methylene chloride		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
Acetone		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
Carbon disulfide		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
1,1-Dichloroethene		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
1,1-Dichloroethane		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
1,2-Dichloroethene (total)		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
Chloroform		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
1,2-Dichloroethane		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
2-Butanone		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
1,1,1-Trichloroethane		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
Carbon tetrachloride		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
Bromodichloromethane		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
1,2-Dichloropropane		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
cis-1,3-Dichloropropene		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
Trichloroethene		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
Dibromochloromethane		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
1,1,2-Trichloroethane		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
Benzene		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
trans-1,3-Dichloropropene		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
Bromoform		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
4-Methyl-2-pentanone		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
2-Hexanone		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
Tetrachloroethene		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
Toluene		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
1,1,2,2-Tetrachloroethane		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
Chlorobenzene		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
Ethylbenzene		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
Styrene		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	ug/kg	13
Xylenes (total)		13 U	ug/kg	13	13 U	ug/kg	13	14 U	ug/kg	14	13 U	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 -- PSC 18
SEDIMENT -- SEMIVOLATILES -- REPORT NO. 9331

Lab Sample Number:		C86QA				A7B1801360				A7B1501190				C8604		
Site		PSC18				PSC18				PSC18				PSC18		
Locator		CF18SD1				CF18SD1				CF18SD2				CF18SD2		
Collect Date:		17-FEB-97				17-FEB-97				14-FEB-97				14-FEB-97		
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/kg																
Phenol		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
bis(2-Chloroethyl) ether		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
2-Chlorophenol		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
1,3-Dichlorobenzene		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
1,4-Dichlorobenzene		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
1,2-Dichlorobenzene		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
2-Methylphenol		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
2,2-oxybis(1-Chloropropane)		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
4-Methylphenol		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
N-Nitroso-di-n-propylamine		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
Hexachloroethane		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
Nitrobenzene		430	U	ug/kg	430	250	U	ug/kg	250	250	U	ug/kg	250	410	U	ug/kg	410
Isophorone		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
2-Nitrophenol		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
2,4-Dimethylphenol		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
bis(2-Chloroethoxy) methane		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
2,4-Dichlorophenol		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
1,2,4-Trichlorobenzene		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
Naphthalene		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
4-Chloroaniline		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
Hexachlorobutadiene		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
4-Chloro-3-methylphenol		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
2-Methylnaphthalene		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
Hexachlorocyclopentadiene		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
2,4,6-Trichlorophenol		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
2,4,5-Trichlorophenol		1000	U	ug/kg	1000	-		ug/kg		-		ug/kg		1000	U	ug/kg	1000
2-Chloronaphthalene		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
2-Nitroaniline		1000	U	ug/kg	1000	-		ug/kg		-		ug/kg		1000	U	ug/kg	1000
Dimethylphthalate		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
Acenaphthylene		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
2,6-Dinitrotoluene		430	U	ug/kg	430	250	U	ug/kg	250	250	U	ug/kg	250	410	U	ug/kg	410
3-Nitroaniline		1000	U	ug/kg	1000	-		ug/kg		-		ug/kg		1000	U	ug/kg	1000
Acenaphthene		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
2,4-Dinitrophenol		1000	U	ug/kg	1000	-		ug/kg		-		ug/kg		1000	U	ug/kg	1000
4-Nitrophenol		1000	U	ug/kg	1000	-		ug/kg		-		ug/kg		1000	U	ug/kg	1000
Dibenzofuran		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
2,4-Dinitrotoluene		430	U	ug/kg	430	250	U	ug/kg	250	410	U	ug/kg	410	410	U	ug/kg	410
Diethylphthalate		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
4-Chlorophenyl-phenylether		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
Fluorene		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
4-Nitroaniline		1000	U	ug/kg	1000	-		ug/kg		-		ug/kg		1000	U	ug/kg	1000
4,6-Dinitro-2-methylphenol		1000	U	ug/kg	1000	-		ug/kg		-		ug/kg		1000	U	ug/kg	1000
N-Nitrosodiphenylamine		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
4-Bromophenyl-phenylether		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
Hexachlorobenzene		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
Pentachlorophenol		1000	U	ug/kg	1000	-		ug/kg		-		ug/kg		1000	U	ug/kg	1000
Phenanthrene		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
Anthracene		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
Carbazole		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
Di-n-butylphthalate		430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410

NAS CECIL FIELD -- PSC 18
SEDIMENT -- SEMIVOLATILES -- REPORT NO. 9331

Lab Sample Number:	C86QA				A7B1801360				A7B1501190				C8604			
Site	PSC18				PSC18				PSC18				PSC18			
Locator	CF18SD1				CF18SD1				CF18SD2				CF18SD2			
Collect Date:	17-FEB-97				17-FEB-97				14-FEB-97				14-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluoranthene	430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
Pyrene	430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
Butylbenzylphthalate	430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
3,3-Dichlorobenzidine	430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
Benzo (a) anthracene	430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
Chrysene	430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
bis(2-Ethylhexyl) phthalate	430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
Di-n-octylphthalate	430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
Benzo (b) fluoranthene	430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
Benzo (k) fluoranthene	430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
Benzo (a) pyrene	430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
Indeno (1,2,3-cd) pyrene	430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
Dibenzo (a,h) anthracene	430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410
Benzo (g,h,i) perylene	430	U	ug/kg	430	-		ug/kg		-		ug/kg		410	U	ug/kg	410

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
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NAS CECIL FIELD -- PSC 18
SEDIMENT -- SEMIVOLATILES -- REPORT NO. 9331

Lab Sample Number:		C86Q4				A7B1801360				C86Q7				A7B1801360		
Site		PSC18				PSC18				PSC18				PSC18		
Locator		CF18SD3				CF18SD3				CF18SD3D				CF18SD3D		
Collect Date:		17-FEB-97				17-FEB-97				17-FEB-97				17-FEB-97		
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/kg																
Phenol		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
bis(2-Chloroethyl) ether		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
2-Chlorophenol		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
1,3-Dichlorobenzene		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
1,4-Dichlorobenzene		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
1,2-Dichlorobenzene		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
2-Methylphenol		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
2,2-oxybis(1-Chloropropane)		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
4-Methylphenol		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
N-Nitroso-di-n-propylamine		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
Hexachloroethane		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
Nitrobenzene		440	U	ug/kg	440	250	U	ug/kg	250	470	U	ug/kg	470	250	U	ug/kg	250
Isophorone		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
2-Nitrophenol		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
2,4-Dimethylphenol		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
bis(2-Chloroethoxy) methane		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
2,4-Dichlorophenol		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
1,2,4-Trichlorobenzene		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
Naphthalene		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
4-Chloroaniline		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
Hexachlorobutadiene		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
4-Chloro-3-methylphenol		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
2-Methylnaphthalene		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
Hexachlorocyclopentadiene		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
2,4,6-Trichlorophenol		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
2,4,5-Trichlorophenol		1100	U	ug/kg	1100	-		ug/kg		1100	U	ug/kg	1100	-		ug/kg	
2-Chloronaphthalene		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
2-Nitroaniline		1100	U	ug/kg	1100	-		ug/kg		1100	U	ug/kg	1100	-		ug/kg	
Dimethylphthalate		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
Acenaphthylene		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
2,6-Dinitrotoluene		440	U	ug/kg	440	250	U	ug/kg	250	470	U	ug/kg	470	250	U	ug/kg	250
3-Nitroaniline		1100	U	ug/kg	1100	-		ug/kg		1100	U	ug/kg	1100	-		ug/kg	
Acenaphthene		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
2,4-Dinitrophenol		1100	U	ug/kg	1100	-		ug/kg		1100	U	ug/kg	1100	-		ug/kg	
4-Nitrophenol		1100	U	ug/kg	1100	-		ug/kg		1100	U	ug/kg	1100	-		ug/kg	
Dibenzofuran		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
2,4-Dinitrotoluene		440	U	ug/kg	440	250	U	ug/kg	250	470	U	ug/kg	470	250	U	ug/kg	250
Diethylphthalate		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
4-Chlorophenyl-phenylether		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
Fluorene		440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	

NAS CECIL FIELD -- PSC 18
SEDIMENT -- SEMIVOLATILES -- REPORT NO. 9331

Lab Sample Number:	C86Q4				A7B1801360				C86Q7				A7B1801360			
Site	PSC18				PSC18				PSC18				PSC18			
Locator	CF18SD3				CF18SD3				CF18SD3D				CF18SD3D			
Collect Date:	17-FEB-97				17-FEB-97				17-FEB-97				17-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	-		ug/kg		1100	U	ug/kg	1100	-		ug/kg	
4,6-Dinitro-2-methylphenol	1100	U	ug/kg	1100	-		ug/kg		1100	U	ug/kg	1100	-		ug/kg	
N-Nitrosodiphenylamine	440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
4-Bromophenyl-phenylether	440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
Hexachlorobenzene	440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
Pentachlorophenol	1100	U	ug/kg	1100	-		ug/kg		1100	U	ug/kg	1100	-		ug/kg	
Phenanthrene	440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
Anthracene	440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
Carbazole	440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
Di-n-butylphthalate	440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
Fluoranthene	440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
Pyrene	440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
Butylbenzylphthalate	440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
3,3-Dichlorobenzidine	440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
Benzo (a) anthracene	440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
Chrysene	440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
bis(2-Ethylhexyl) phthalate	440	U	ug/kg	440	-		ug/kg		68	J	ug/kg	470	-		ug/kg	
Di-n-octylphthalate	440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
Benzo (b) fluoranthene	440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
Benzo (k) fluoranthene	440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
Benzo (a) pyrene	440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
Indeno (1,2,3-cd) pyrene	440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
Dibenzo (a,h) anthracene	440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	
Benzo (g,h,i) perylene	440	U	ug/kg	440	-		ug/kg		470	U	ug/kg	470	-		ug/kg	

U = NOT DETECTED J = ESTIMATED VALUE
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NAS CECIL FIELD -- PSC 18
SEDIMENT -- SEMIVOLATILES -- REPORT NO. 9331

Lab Sample Number:	A7B1501190				C8603			
Site	PSC18				PSC18			
Locator	CF18SD4				CF18SD4			
Collect Date:	14-FEB-97				14-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW ug/kg								
Phenol	-		ug/kg		440	U	ug/kg	440
bis(2-Chloroethyl) ether	-		ug/kg		440	U	ug/kg	440
2-Chlorophenol	-		ug/kg		440	U	ug/kg	440
1,3-Dichlorobenzene	-		ug/kg		440	U	ug/kg	440
1,4-Dichlorobenzene	-		ug/kg		440	U	ug/kg	440
1,2-Dichlorobenzene	-		ug/kg		440	U	ug/kg	440
2-Methylphenol	-		ug/kg		440	U	ug/kg	440
2,2-oxybis(1-Chloropropane)	-		ug/kg		440	U	ug/kg	440
4-Methylphenol	-		ug/kg		440	U	ug/kg	440
N-Nitroso-di-n-propylamine	-		ug/kg		440	U	ug/kg	440
Hexachloroethane	-		ug/kg		440	U	ug/kg	440
Nitrobenzene	250	U	ug/kg	250	440	U	ug/kg	440
Isophorone	-		ug/kg		440	U	ug/kg	440
2-Nitrophenol	-		ug/kg		440	U	ug/kg	440
2,4-Dimethylphenol	-		ug/kg		440	U	ug/kg	440
bis(2-Chloroethoxy) methane	-		ug/kg		440	U	ug/kg	440
2,4-Dichlorophenol	-		ug/kg		440	U	ug/kg	440
1,2,4-Trichlorobenzene	-		ug/kg		440	U	ug/kg	440
Naphthalene	-		ug/kg		440	U	ug/kg	440
4-Chloroaniline	-		ug/kg		440	U	ug/kg	440
Hexachlorobutadiene	-		ug/kg		440	U	ug/kg	440
4-Chloro-3-methylphenol	-		ug/kg		440	U	ug/kg	440
2-Methylnaphthalene	-		ug/kg		440	U	ug/kg	440
Hexachlorocyclopentadiene	-		ug/kg		440	U	ug/kg	440
2,4,6-Trichlorophenol	-		ug/kg		440	U	ug/kg	440
2,4,5-Trichlorophenol	-		ug/kg		1000	U	ug/kg	1000
2-Chloronaphthalene	-		ug/kg		440	U	ug/kg	440
2-Nitroaniline	-		ug/kg		1000	U	ug/kg	1000
Dimethylphthalate	-		ug/kg		440	U	ug/kg	440
Acenaphthylene	-		ug/kg		440	U	ug/kg	440
2,6-Dinitrotoluene	250	U	ug/kg	250	440	U	ug/kg	440
3-Nitroaniline	-		ug/kg		1000	U	ug/kg	1000
Acenaphthene	-		ug/kg		440	U	ug/kg	440
2,4-Dinitrophenol	-		ug/kg		1000	U	ug/kg	1000
4-Nitrophenol	-		ug/kg		1000	U	ug/kg	1000
Dibenzofuran	-		ug/kg		440	U	ug/kg	440
2,4-Dinitrotoluene	250	U	ug/kg	250	440	U	ug/kg	440
Diethylphthalate	-		ug/kg		440	U	ug/kg	440
4-Chlorophenyl-phenylether	-		ug/kg		440	U	ug/kg	440
Fluorene	-		ug/kg		440	U	ug/kg	440

NAS CECIL FIELD -- PSC 18
SEDIMENT -- SEMIVOLATILES -- REPORT NO. 9331

Lab Sample Number:	A7B1501190			C8603		
Site	PSC18			PSC18		
Locator	CF18SD4			CF18SD4		
Collect Date:	14-FEB-97			14-FEB-97		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
4-Nitroaniline	-	ug/kg		1000 U	ug/kg	1000
4,6-Dinitro-2-methylphenol	-	ug/kg		1000 U	ug/kg	1000
N-Nitrosodiphenylamine	-	ug/kg		440 U	ug/kg	440
4-Bromophenyl-phenylether	-	ug/kg		440 U	ug/kg	440
Hexachlorobenzene	-	ug/kg		440 U	ug/kg	440
Pentachlorophenol	-	ug/kg		1000 U	ug/kg	1000
Phenanthrene	-	ug/kg		440 U	ug/kg	440
Anthracene	-	ug/kg		440 U	ug/kg	440
Carbazole	-	ug/kg		440 U	ug/kg	440
Di-n-butylphthalate	-	ug/kg		440 U	ug/kg	440
Fluoranthene	-	ug/kg		440 U	ug/kg	440
Pyrene	-	ug/kg		440 U	ug/kg	440
Butylbenzylphthalate	-	ug/kg		440 U	ug/kg	440
3,3-Dichlorobenzidine	-	ug/kg		440 U	ug/kg	440
Benzo (a) anthracene	-	ug/kg		440 U	ug/kg	440
Chrysene	-	ug/kg		440 U	ug/kg	440
bis(2-Ethylhexyl) phthalate	-	ug/kg		440 U	ug/kg	440
Di-n-octylphthalate	-	ug/kg		440 U	ug/kg	440
Benzo (b) fluoranthene	-	ug/kg		440 U	ug/kg	440
Benzo (k) fluoranthene	-	ug/kg		440 U	ug/kg	440
Benzo (a) pyrene	-	ug/kg		440 U	ug/kg	440
Indeno (1,2,3-cd) pyrene	-	ug/kg		440 U	ug/kg	440
Dibenzo (a,h) anthracene	-	ug/kg		440 U	ug/kg	440
Benzo (g,h,i) perylene	-	ug/kg		440 U	ug/kg	440

U = NOT DETECTED J = ESTIMATED VALUE
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NAS CECIL FIELD -- PSC 18
SEDIMENT -- PESTICIDES AND PCBs -- REPORT NO. 9332

Lab Sample Number:		C86QA				C8604				C8604RE				C86Q4			
Site		PSC18				PSC18				PSC18				PSC18			
Locator		CF18SD1				CF18SD2				CF18SD2RE				CF18SD3			
Collect Date:		17-FEB-97				14-FEB-97				14-FEB-97				17-FEB-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/kg																
alpha-BHC		2.2	U	ug/kg	2.2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2.2	U	ug/kg	2.2
beta-BHC		2.2	U	ug/kg	2.2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2.2	U	ug/kg	2.2
delta-BHC		2.2	U	ug/kg	2.2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2.2	U	ug/kg	2.2
gamma-BHC (Lindane)		2.2	U	ug/kg	2.2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2.2	U	ug/kg	2.2
Heptachlor		2.2	U	ug/kg	2.2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2.2	U	ug/kg	2.2
Aldrin		2.2	U	ug/kg	2.2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2.2	U	ug/kg	2.2
Heptachlor epoxide		2.2	U	ug/kg	2.2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2.2	U	ug/kg	2.2
Endosulfan I		2.2	U	ug/kg	2.2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2.2	U	ug/kg	2.2
Dieldrin		4.4	U	ug/kg	4.4	4.1	U	ug/kg	4.1	4.2	U	ug/kg	4.2	4.4	U	ug/kg	4.4
4,4-DDE		4.4	U	ug/kg	4.4	4.1	U	ug/kg	4.1	4.2	U	ug/kg	4.2	4.4	U	ug/kg	4.4
Endrin		4.4	U	ug/kg	4.4	4.1	U	ug/kg	4.1	4.2	U	ug/kg	4.2	4.4	U	ug/kg	4.4
Endosulfan II		4.4	U	ug/kg	4.4	4.1	U	ug/kg	4.1	4.2	U	ug/kg	4.2	4.4	U	ug/kg	4.4
4,4-DDD		4.4	U	ug/kg	4.4	4.1	U	ug/kg	4.1	4.2	U	ug/kg	4.2	4.4	U	ug/kg	4.4
Endosulfan sulfate		4.4	U	ug/kg	4.4	4.1	U	ug/kg	4.1	4.2	U	ug/kg	4.2	4.4	U	ug/kg	4.4
4,4-DDT		4.4	U	ug/kg	4.4	4.1	U	ug/kg	4.1	4.2	U	ug/kg	4.2	4.4	U	ug/kg	4.4
Methoxychlor		22	U	ug/kg	22	21	U	ug/kg	21	21	U	ug/kg	21	22	U	ug/kg	22
Endrin ketone		4.4	U	ug/kg	4.4	4.1	U	ug/kg	4.1	4.2	U	ug/kg	4.2	4.4	U	ug/kg	4.4
Endrin aldehyde		4.4	U	ug/kg	4.4	4.1	U	ug/kg	4.1	4.2	U	ug/kg	4.2	4.4	U	ug/kg	4.4
alpha-Chlordane		2.2	U	ug/kg	2.2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2.2	U	ug/kg	2.2
gamma-Chlordane		2.2	U	ug/kg	2.2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2.2	U	ug/kg	2.2
Toxaphene		220	U	ug/kg	220	210	U	ug/kg	210	210	U	ug/kg	210	220	U	ug/kg	220
Aroclor-1016		44	U	ug/kg	44	41	U	ug/kg	41	42	U	ug/kg	42	44	U	ug/kg	44
Aroclor-1221		88	U	ug/kg	88	83	U	ug/kg	83	83	U	ug/kg	83	89	U	ug/kg	89
Aroclor-1232		44	U	ug/kg	44	41	U	ug/kg	41	42	U	ug/kg	42	44	U	ug/kg	44
Aroclor-1242		44	U	ug/kg	44	41	U	ug/kg	41	42	U	ug/kg	42	44	U	ug/kg	44
Aroclor-1248		44	U	ug/kg	44	41	U	ug/kg	41	42	U	ug/kg	42	44	U	ug/kg	44
Aroclor-1254		44	U	ug/kg	44	41	U	ug/kg	41	42	U	ug/kg	42	44	U	ug/kg	44
Aroclor-1260		44	U	ug/kg	44	41	U	ug/kg	41	42	U	ug/kg	42	44	U	ug/kg	44

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NAS CECIL FIELD -- PSC 18
SEDIMENT -- PESTICIDES AND PCBs -- REPORT NO. 9332

Lab Sample Number:		C86Q7				C8603				C8603RE			
Site		PSC18				PSC18				PSC18			
Locator		CF18SD3D				CF18SD4				CF18SD4RE			
Collect Date:		17-FEB-97				14-FEB-97				14-FEB-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/kg												
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		2.4	U	ug/kg	2.4	2.2	U	ug/kg	2.2	2.2	U	ug/kg	2.2
Heptachlor epoxide		2.4	U	ug/kg	2.4	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		4.8	U	ug/kg	4.8	4.4	U	ug/kg	4.4	4.4	U	ug/kg	4.4
4,4-DDE		4.8	U	ug/kg	4.8	4.4	U	ug/kg	4.4	4.4	U	ug/kg	4.4
Endrin		4.8	U	ug/kg	4.8	4.4	U	ug/kg	4.4	4.4	U	ug/kg	4.4
Endosulfan II		4.8	U	ug/kg	4.8	4.4	U	ug/kg	4.4	4.4	U	ug/kg	4.4
4,4-DDD		4.8	U	ug/kg	4.8	4.4	U	ug/kg	4.4	4.4	U	ug/kg	4.4
Endosulfan sulfate		4.8	U	ug/kg	4.8	4.4	U	ug/kg	4.4	4.4	U	ug/kg	4.4
4,4-DDT		4.8	U	ug/kg	4.8	4.4	U	ug/kg	4.4	4.4	U	ug/kg	4.4
Methoxychlor		24	U	ug/kg	24	3.8	J	ug/kg	22	22	U	ug/kg	22
Endrin ketone		4.8	U	ug/kg	4.8	4.4	U	ug/kg	4.4	.18	J	ug/kg	4
Endrin aldehyde		4.8	U	ug/kg	4.8	4.4	U	ug/kg	4.4	4.4	U	ug/kg	4.4
alpha-Chlordane		2.4	U	ug/kg	2.4	2.2	U	ug/kg	2.2	2.2	U	ug/kg	2.2
gamma-Chlordane		2.4	U	ug/kg	2.4	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		48	U	ug/kg	48	44	U	ug/kg	44	44	U	ug/kg	44
Aroclor-1221		96	U	ug/kg	96	88	U	ug/kg	88	88	U	ug/kg	88
Aroclor-1232		48	U	ug/kg	48	44	U	ug/kg	44	44	U	ug/kg	44
Aroclor-1242		48	U	ug/kg	48	44	U	ug/kg	44	44	U	ug/kg	44
Aroclor-1248		48	U	ug/kg	48	44	U	ug/kg	44	44	U	ug/kg	44
Aroclor-1254		48	U	ug/kg	48	44	U	ug/kg	44	44	U	ug/kg	44
Aroclor-1260		48	U	ug/kg	48	44	U	ug/kg	44	44	U	ug/kg	44

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NAS CECIL FIELD -- PSC 18
SEDIMENT -- METALS -- REPORT NO. 9333

Lab Sample Number:		C86QA			C8604			C86Q4			C86Q7		
Site		PSC18			PSC18			PSC18			PSC18		
Locator		CF18SD1			CF18SD2			CF18SD3			CF18SD3D		
Collect Date:		17-FEB-97			14-FEB-97			17-FEB-97			17-FEB-97		
		VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP METALS AND CYANIDE	mg/kg												
Aluminum		144	mg/kg	40	33.7 J	mg/kg	40	6490	mg/kg	40	6610	mg/kg	40
Antimony		5.5 U	mg/kg	12	.75 U	mg/kg	12	5.6 U	mg/kg	12	6 U	mg/kg	12
Arsenic		.52 U	mg/kg	2	.5 U	mg/kg	2	.54 U	mg/kg	2	.57 U	mg/kg	2
Barium		1.8 J	mg/kg	40	.66 J	mg/kg	40	19.2 J	mg/kg	40	16.9 J	mg/kg	40
Beryllium		.26 U	mg/kg	1	.25 U	mg/kg	1	.38 J	mg/kg	1	.32 J	mg/kg	1
Cadmium		.26 U	mg/kg	1	.25 U	mg/kg	1	.27 U	mg/kg	1	.29 U	mg/kg	1
Calcium		257 J	mg/kg	1000	65.9 J	mg/kg	1000	1500	mg/kg	1000	1180 J	mg/kg	1000
Chromium		.26 U	mg/kg	2	.29 J	mg/kg	2	7.1	mg/kg	2	6.9	mg/kg	2
Cobalt		1 U	mg/kg	10	.25 U	mg/kg	10	1.1 U	mg/kg	10	1.1 U	mg/kg	10
Copper		.41 J	mg/kg	5	1.5 U	mg/kg	5	.64 J	mg/kg	5	.55 J	mg/kg	5
Iron		151	mg/kg	20	40.4 J	mg/kg	20	3100	mg/kg	20	2820	mg/kg	20
Lead		1.1	mg/kg	.6	2	mg/kg	.6	4.3	mg/kg	.6	4.3	mg/kg	.6
Magnesium		26.3 J	mg/kg	1000	12.3 J	mg/kg	1000	354 J	mg/kg	1000	345 J	mg/kg	1000
Manganese		1.7 J	mg/kg	3	.59 J	mg/kg	3	2.8 J	mg/kg	3	3.7 J	mg/kg	3
Mercury		.07 U	mg/kg	.1	.06 U	mg/kg	.1	.07 U	mg/kg	.1	.07 U	mg/kg	.1
Nickel		.52 U	mg/kg	8	.5 U	mg/kg	8	1.2 J	mg/kg	8	1.2 J	mg/kg	8
Potassium		12.3 U	mg/kg	1000	11.8 U	mg/kg	1000	24.4 J	mg/kg	1000	39.3 J	mg/kg	1000
Selenium		.79 U	mg/kg	1	1 U	mg/kg	1	.8 U	mg/kg	1	.86 U	mg/kg	1
Silver		.79 U	mg/kg	2	.25 U	mg/kg	2	.8 U	mg/kg	2	.86 U	mg/kg	2
Sodium		29.1 U	mg/kg	1000	27.8 U	mg/kg	1000	29.8 U	mg/kg	1000	42.4 J	mg/kg	1000
Thallium		1 U	mg/kg	2	.75 U	mg/kg	2	1.1 U	mg/kg	2	1.1 U	mg/kg	2
Vanadium		.34 J	mg/kg	10	.25 U	mg/kg	10	10.4 J	mg/kg	10	10 J	mg/kg	10
Zinc		2.5 J	mg/kg	4	.75 U	mg/kg	4	2.7 J	mg/kg	4	2.3 J	mg/kg	4
Cyanide		.08 U	mg/kg	.5	.07 U	mg/kg	.5	.08 U	mg/kg	.5	.09 U	mg/kg	.5

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NAS CECIL FIELD -- PSC 18
SEDIMENT -- METALS -- REPORT NO. 9333

Lab Sample Number:	C8603
Site	PSC18
Locator	CF18SD4
Collect Date:	14-FEB-97

		VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE	mg/kg				
Aluminum		78.1		mg/kg	40
Antimony		.79	U	mg/kg	12
Arsenic		.53	U	mg/kg	2
Barium		.89	J	mg/kg	40
Beryllium		.26	U	mg/kg	1
Cadmium		.26	U	mg/kg	1
Calcium		64.1	J	mg/kg	1000
Chromium		.33	J	mg/kg	2
Cobalt		.26	U	mg/kg	10
Copper		1.6	U	mg/kg	5
Iron		59.7	J	mg/kg	20
Lead		1		mg/kg	.6
Magnesium		13.6	J	mg/kg	1000
Manganese		.81	J	mg/kg	3
Mercury		.07	U	mg/kg	.1
Nickel		.53	U	mg/kg	8
Potassium		12.4	U	mg/kg	1000
Selenium		1.1	U	mg/kg	1
Silver		.26	U	mg/kg	2
Sodium		29.3	U	mg/kg	1000
Thallium		.79	U	mg/kg	2
Vanadium		.29	J	mg/kg	10
Zinc		.79	U	mg/kg	4
Cyanide		.08	U	mg/kg	.5

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

NAS CECIL FIELD -- PSC 18
SEDIMENT -- EXPLOSIVES -- REPORT NO. 9596

Lab Sample Number:	A7B1801360				A7B1501190				A7B1801360				A7B1801360			
Site	PSC18				PSC18				PSC18				PSC18			
Locator	CF18SD1				CF18SD2				CF18SD3				CF18SD3D			
Collect Date:	17-FEB-97				14-FEB-97				17-FEB-97				17-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
EXPLOSIVES																
1,3,5-Trinitrobenzene	-				.25	U	mg/kg	.25	.25	U	mg/kg	.25	.25	U	mg/kg	.25
1,3-Dinitrobenzene	.25	U	mg/kg	.25	.25	U	mg/kg	.25	-				.25	U	mg/kg	.25
2,4,6-Trinitrotoluene	.25	U	mg/kg	.25	.25	U	mg/kg	.25	.25	U	mg/kg	.25	.25	U	mg/kg	.25
2-Nitrotoluene	.25	U	mg/kg	.25	.25	U	mg/kg	.25	.25	U	mg/kg	.25	.25	U	mg/kg	.25
3-Nitrotoluene	.25	U	mg/kg	.25	.25	U	mg/kg	.25	.25	U	mg/kg	.25	.25	U	mg/kg	.25
HMX	.5	U	mg/kg	.5	.5	U	mg/kg	.5	.5	U	mg/kg	.5	.5	U	mg/kg	.5
RDX	.5	U	mg/kg	.5	.5	U	mg/kg	.5	.5	U	mg/kg	.5	.5	U	mg/kg	.5
TETRYL	.65	U	mg/kg	.65	.65	U	mg/kg	.65	.65	U	mg/kg	.65	.65	U	mg/kg	.65

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NAS CECIL FIELD -- PSC 18
SEDIMENT -- EXPLOSIVES -- REPORT NO. 9596

Lab Sample Number:	A7B1501190
Site	PSC18
Locator	CF18SD4
Collect Date:	14-FEB-97

	VALUE	QUAL	UNITS	DL
EXPLOSIVES				
1,3,5-Trinitrobenzene	.25	U	mg/kg	.25
1,3-Dinitrobenzene	.25	U	mg/kg	.25
2,4,6-Trinitrotoluene	.25	U	mg/kg	.25
2-Nitrotoluene	.25	U	mg/kg	.25
3-Nitrotoluene	.25	U	mg/kg	.25
HMX	.5	U	mg/kg	.5
RDX	.5	U	mg/kg	.5
TETRYL	.65	U	mg/kg	.65

U = NOT DETECTED J = ESTIMATED VALUE
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NAS CECIL FIELD -- PSC 18
SURFACE WATER -- VOLATILES -- REPORT NO. 9334

Lab Sample Number:		C86QJ				C8602				C86QG				C86QH			
Site		PSC18				PSC18				PSC18				PSC18			
Locator		CF18SW1				CF18SW2				CF18SW3				CF18SW3D			
Collect Date:		17-FEB-97				14-FEB-97				17-FEB-97				17-FEB-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l																
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 -- PSC 18
SURFACE WATER -- VOLATILES -- REPORT NO. 9334

Lab Sample Number:	C8601
Site	PSC18
Locator	CF18SW4
Collect Date:	14-FEB-97

		VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l				
Chloromethane		10	U	ug/l	10
Bromomethane		10	U	ug/l	10
Vinyl chloride		10	U	ug/l	10
Chloroethane		10	U	ug/l	10
Methylene chloride		10	U	ug/l	10
Acetone		10	U	ug/l	10
Carbon disulfide		10	U	ug/l	10
1,1-Dichloroethene		10	U	ug/l	10
1,1-Dichloroethane		10	U	ug/l	10
1,2-Dichloroethene (total)		10	U	ug/l	10
Chloroform		10	U	ug/l	10
1,2-Dichloroethane		10	U	ug/l	10
2-Butanone		10	U	ug/l	10
1,1,1-Trichloroethane		10	U	ug/l	10
Carbon tetrachloride		10	U	ug/l	10
Bromodichloromethane		10	U	ug/l	10
1,2-Dichloropropane		10	U	ug/l	10
cis-1,3-Dichloropropene		10	U	ug/l	10
Trichloroethene		10	U	ug/l	10
Dibromochloromethane		10	U	ug/l	10
1,1,2-Trichloroethane		10	U	ug/l	10
Benzene		10	U	ug/l	10
trans-1,3-Dichloropropene		10	U	ug/l	10
Bromoform		10	U	ug/l	10
4-Methyl-2-pentanone		10	U	ug/l	10
2-Hexanone		10	U	ug/l	10
Tetrachloroethene		10	U	ug/l	10
Toluene		10	U	ug/l	10
1,1,2,2-Tetrachloroethane		10	U	ug/l	10
Chlorobenzene		10	U	ug/l	10
Ethylbenzene		10	U	ug/l	10
Styrene		10	U	ug/l	10
Xylenes (total)		10	U	ug/l	10

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NAS CECIL FIELD -- PSC 18
SURFACE WATER -- SEMIVOLATILES -- REPORT NO. 9335

Lab Sample Number:		C86QJ				A7B1801360				A7B1501190				C8602		
Site		PSC18				PSC18				PSC18				PSC18		
Locator		CF18SW1				CF18SW1				CF18SW2				CF18SW2		
Collect Date:		17-FEB-97				17-FEB-97				14-FEB-97				14-FEB-97		
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l																
Phenol		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
bis(2-Chloroethyl) ether		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
2-Chlorophenol		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
1,3-Dichlorobenzene		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
1,4-Dichlorobenzene		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
1,2-Dichlorobenzene		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
2-Methylphenol		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
2,2-oxybis(1-Chloropropane)		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
4-Methylphenol		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
N-Nitroso-di-n-propylamine		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
Hexachloroethane		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
Nitrobenzene		10	U	ug/l	10	1	U	ug/l	1	1	U	ug/l	1	10	U	ug/l	10
Isophorone		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
2-Nitrophenol		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
2,4-Dimethylphenol		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
bis(2-Chloroethoxy) methane		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
2,4-Dichlorophenol		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
1,2,4-Trichlorobenzene		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
Naphthalene		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
4-Chloroaniline		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
Hexachlorobutadiene		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
4-Chloro-3-methylphenol		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
2-Methylnaphthalene		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
Hexachlorocyclopentadiene		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
2,4,6-Trichlorophenol		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
2,4,5-Trichlorophenol		25	U	ug/l	25	-		ug/l		-		ug/l		25	U	ug/l	25
2-Chloronaphthalene		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
2-Nitroaniline		25	U	ug/l	25	-		ug/l		-		ug/l		25	U	ug/l	25
Dimethylphthalate		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
Acenaphthylene		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
2,6-Dinitrotoluene		10	U	ug/l	10	-		ug/l		1	U	ug/l	1	10	U	ug/l	10
3-Nitroaniline		25	U	ug/l	25	-		ug/l		-		ug/l		25	U	ug/l	25
Acenaphthene		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
2,4-Dinitrophenol		25	U	ug/l	25	-		ug/l		-		ug/l		25	U	ug/l	25
4-Nitrophenol		25	U	ug/l	25	-		ug/l		-		ug/l		25	U	ug/l	25
Dibenzofuran		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
2,4-Dinitrotoluene		10	U	ug/l	10	1	U	ug/l	1	1	U	ug/l	1	10	U	ug/l	10
Diethylphthalate		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
4-Chlorophenyl-phenylether		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
Fluorene		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
4-Nitroaniline		25	U	ug/l	25	-		ug/l		-		ug/l		25	U	ug/l	25
4,6-Dinitro-2-methylphenol		25	U	ug/l	25	-		ug/l		-		ug/l		25	U	ug/l	25
N-Nitrosodiphenylamine		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
4-Bromophenyl-phenylether		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
Hexachlorobenzene		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
Pentachlorophenol		25	U	ug/l	25	-		ug/l		-		ug/l		25	U	ug/l	25
Phenanthrene		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
Anthracene		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
Carbazole		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
Di-n-butylphthalate		10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10

NAS CECIL FIELD -- PSC 18
SURFACE WATER -- SEMIVOLATILES -- REPORT NO. 9335

Lab Sample Number:	C86QJ				A7B1801360				A7B1501190				C8602			
Site	PSC18				PSC18				PSC18				PSC18			
Locator	CF18SW1				CF18SW1				CF18SW2				CF18SW2			
Collect Date:	17-FEB-97				17-FEB-97				14-FEB-97				14-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluoranthene	10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
Pyrene	10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
Chrysene	10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
Dibenzo (a,h) anthracene	10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	-		ug/l		-		ug/l		10	U	ug/l	10

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NAS CECIL FIELD -- PSC 18
SURFACE WATER -- SEMIVOLATILES -- REPORT NO. 9335

Lab Sample Number:		C86QG				A7B1801360				C86QH				A7B1801360			
Site		PSC18				PSC18				PSC18				PSC18			
Locator		CF18SW3				CF18SW3				CF18SW3D				CF18SW3D			
Collect Date:		17-FEB-97				17-FEB-97				17-FEB-97				17-FEB-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l																
Phenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
bis(2-Chloroethyl) ether		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2-Chlorophenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
1,3-Dichlorobenzene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
1,4-Dichlorobenzene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
1,2-Dichlorobenzene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2-Methylphenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,2-oxybis(1-Chloropropane)		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
4-Methylphenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
N-Nitroso-di-n-propylamine		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Hexachloroethane		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Nitrobenzene		10	U	ug/l	10	1	U	ug/l	1	10	U	ug/l	10	1	U	ug/l	1
Isophorone		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2-Nitrophenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,4-Dimethylphenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
bis(2-Chloroethoxy) methane		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,4-Dichlorophenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
1,2,4-Trichlorobenzene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Naphthalene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
4-Chloroaniline		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Hexachlorobutadiene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
4-Chloro-3-methylphenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2-Methylnaphthalene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Hexachlorocyclopentadiene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,4,6-Trichlorophenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,4,5-Trichlorophenol		25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
2-Chloronaphthalene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2-Nitroaniline		25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
Dimethylphthalate		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Acenaphthylene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,6-Dinitrotoluene		10	U	ug/l	10	1	U	ug/l	1	10	U	ug/l	10	1	U	ug/l	1
3-Nitroaniline		25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
Acenaphthene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,4-Dinitrophenol		25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
4-Nitrophenol		25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
Dibenzofuran		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,4-Dinitrotoluene		10	U	ug/l	10	1	U	ug/l	1	10	U	ug/l	10	1	U	ug/l	1
Diethylphthalate		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
4-Chlorophenyl-phenylether		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Fluorene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	

NAS CECIL FIELD -- PSC 18
SURFACE WATER -- SEMIVOLATILES -- REPORT NO. 9335

Lab Sample Number:	C86QG				A7B1801360				C86QH				A7B1801360			
Site	PSC18				PSC18				PSC18				PSC18			
Locator	CF18SW3				CF18SW3				CF18SW3D				CF18SW3D			
Collect Date:	17-FEB-97				17-FEB-97				17-FEB-97				17-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
N-Nitrosodiphenylamine	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
4-Bromophenyl-phenylether	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Hexachlorobenzene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Pentachlorophenol	25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
Phenanthrene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Anthracene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Carbazole	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Di-n-butylphthalate	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Fluoranthene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Pyrene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Butylbenzylphthalate	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
3,3-Dichlorobenzidine	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Benzo (a) anthracene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Chrysene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Di-n-octylphthalate	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Benzo (b) fluoranthene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Benzo (k) fluoranthene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Benzo (a) pyrene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Dibenzo (a,h) anthracene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Benzo (g,h,i) perylene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	

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

NAS CECIL FIELD -- PSC 18
SURFACE WATER -- SEMIVOLATILES -- REPORT NO. 9335

Lab Sample Number:		A7B1501190				C8601			
Site		PSC18				PSC18			
Locator		CF18SW4				CF18SW4			
Collect Date:		14-FEB-97				14-FEB-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW	ug/l								
Phenol		-		ug/l		10	U	ug/l	10
bis(2-Chloroethyl) ether		-		ug/l		10	U	ug/l	10
2-Chlorophenol		-		ug/l		10	U	ug/l	10
1,3-Dichlorobenzene		-		ug/l		10	U	ug/l	10
1,4-Dichlorobenzene		-		ug/l		10	U	ug/l	10
1,2-Dichlorobenzene		-		ug/l		10	U	ug/l	10
2-Methylphenol		-		ug/l		10	U	ug/l	10
2,2-oxybis(1-Chloropropane)		-		ug/l		10	U	ug/l	10
4-Methylphenol		-		ug/l		10	U	ug/l	10
N-Nitroso-di-n-propylamine		-		ug/l		10	U	ug/l	10
Hexachloroethane		-		ug/l		10	U	ug/l	10
Nitrobenzene		1	U	ug/l	1	10	U	ug/l	10
Isophorone		-		ug/l		10	U	ug/l	10
2-Nitrophenol		-		ug/l		10	U	ug/l	10
2,4-Dimethylphenol		-		ug/l		10	U	ug/l	10
bis(2-Chloroethoxy) methane		-		ug/l		10	U	ug/l	10
2,4-Dichlorophenol		-		ug/l		10	U	ug/l	10
1,2,4-Trichlorobenzene		-		ug/l		10	U	ug/l	10
Naphthalene		-		ug/l		10	U	ug/l	10
4-Chloroaniline		-		ug/l		10	U	ug/l	10
Hexachlorobutadiene		-		ug/l		10	U	ug/l	10
4-Chloro-3-methylphenol		-		ug/l		10	U	ug/l	10
2-Methylnaphthalene		-		ug/l		10	U	ug/l	10
Hexachlorocyclopentadiene		-		ug/l		10	U	ug/l	10
2,4,6-Trichlorophenol		-		ug/l		10	U	ug/l	10
2,4,5-Trichlorophenol		-		ug/l		25	U	ug/l	25
2-Chloronaphthalene		-		ug/l		10	U	ug/l	10
2-Nitroaniline		-		ug/l		25	U	ug/l	25
Dimethylphthalate		-		ug/l		10	U	ug/l	10
Acenaphthylene		-		ug/l		10	U	ug/l	10
2,6-Dinitrotoluene		1	U	ug/l	1	10	U	ug/l	10
3-Nitroaniline		-		ug/l		25	U	ug/l	25
Acenaphthene		-		ug/l		10	U	ug/l	10
2,4-Dinitrophenol		-		ug/l		25	U	ug/l	25
4-Nitrophenol		-		ug/l		25	U	ug/l	25
Dibenzofuran		-		ug/l		10	U	ug/l	10
2,4-Dinitrotoluene		1	U	ug/l	1	10	U	ug/l	10
Diethylphthalate		-		ug/l		10	U	ug/l	10
4-Chlorophenyl-phenylether		-		ug/l		10	U	ug/l	10
Fluorene		-		ug/l		10	U	ug/l	10

NAS CECIL FIELD -- PSC 18
SURFACE WATER -- SEMIVOLATILES -- REPORT NO. 9335

Lab Sample Number:	A7B1501190			C8601		
Site	PSC18			PSC18		
Locator	CF18SW4			CF18SW4		
Collect Date:	14-FEB-97			14-FEB-97		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
4-Nitroaniline	-	ug/l		25 U	ug/l	25
4,6-Dinitro-2-methylphenol	-	ug/l		25 U	ug/l	25
N-Nitrosodiphenylamine	-	ug/l		10 U	ug/l	10
4-Bromophenyl-phenylether	-	ug/l		10 U	ug/l	10
Hexachlorobenzene	-	ug/l		10 U	ug/l	10
Pentachlorophenol	-	ug/l		25 U	ug/l	25
Phenanthrene	-	ug/l		10 U	ug/l	10
Anthracene	-	ug/l		10 U	ug/l	10
Carbazole	-	ug/l		10 U	ug/l	10
Di-n-butylphthalate	-	ug/l		10 U	ug/l	10
Fluoranthene	-	ug/l		10 U	ug/l	10
Pyrene	-	ug/l		10 U	ug/l	10
Butylbenzylphthalate	-	ug/l		10 U	ug/l	10
3,3-Dichlorobenzidine	-	ug/l		10 U	ug/l	10
Benzo (a) anthracene	-	ug/l		10 U	ug/l	10
Chrysene	-	ug/l		10 U	ug/l	10
bis(2-Ethylhexyl) phthalate	-	ug/l		10 U	ug/l	10
Di-n-octylphthalate	-	ug/l		10 U	ug/l	10
Benzo (b) fluoranthene	-	ug/l		10 U	ug/l	10
Benzo (k) fluoranthene	-	ug/l		10 U	ug/l	10
Benzo (a) pyrene	-	ug/l		10 U	ug/l	10
Indeno (1,2,3-cd) pyrene	-	ug/l		10 U	ug/l	10
Dibenzo (a,h) anthracene	-	ug/l		10 U	ug/l	10
Benzo (g,h,i) perylene	-	ug/l		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 -- PSC 18
SURFACE WATER -- PESTICIDES AND PCBs -- REPORT NO. 9336

Lab Sample Number:		C86QJ				C8602				C86QG				C86QH			
Site		PSC18				PSC18				PSC18				PSC18			
Locator		CF18SW1				CF18SW2				CF18SW3				CF18SW3D			
Collect Date:		17-FEB-97				14-FEB-97				17-FEB-97				17-FEB-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/l																
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

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

NAS CECIL FIELD -- PSC 18
SURFACE WATER -- PESTICIDES AND PCBs -- REPORT NO. 9336

Lab Sample Number:	C8601
Site	PSC18
Locator	CF18SW4
Collect Date:	14-FEB-97

		VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW	ug/l				
alpha-BHC		.05	U	ug/l	.05
beta-BHC		.05	U	ug/l	.05
delta-BHC		.05	U	ug/l	.05
gamma-BHC (Lindane)		.05	U	ug/l	.05
Heptachlor		.05	U	ug/l	.05
Aldrin		.05	U	ug/l	.05
Heptachlor epoxide		.05	U	ug/l	.05
Endosulfan I		.05	U	ug/l	.05
Dieldrin		.1	U	ug/l	.1
4,4-DDE		.1	U	ug/l	.1
Endrin		.1	U	ug/l	.1
Endosulfan II		.1	U	ug/l	.1
4,4-DDD		.1	U	ug/l	.1
Endosulfan sulfate		.1	U	ug/l	.1
4,4-DDT		.1	U	ug/l	.1
Methoxychlor		.5	U	ug/l	.5
Endrin ketone		.1	U	ug/l	.1
Endrin aldehyde		.1	U	ug/l	.1
alpha-Chlordane		.05	U	ug/l	.05
gamma-Chlordane		.05	U	ug/l	.05
Toxaphene		5	U	ug/l	5
Aroclor-1016		1	U	ug/l	1
Aroclor-1221		2	U	ug/l	2
Aroclor-1232		1	U	ug/l	1
Aroclor-1242		1	U	ug/l	1
Aroclor-1248		1	U	ug/l	1
Aroclor-1254		1	U	ug/l	1
Aroclor-1260		1	U	ug/l	1

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

NAS CECIL FIELD -- PSC 18
SURFACE WATER -- METALS (UNFILTERED) -- REPORT NO. 9337

Lab Sample Number:		C86QJ				C8602				C86QG				C86QH		
Site		PSC18				PSC18				PSC18				PSC18		
Locator		CF18SW1				CF18SW2				CF18SW3				CF18SW3D		
Collect Date:		17-FEB-97				14-FEB-97				17-FEB-97				17-FEB-97		
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE	ug/l																
Aluminum		228		ug/l	200	227		ug/l	200	258		ug/l	200	256		ug/l	200
Antimony		21	U	ug/l	60	3	U	ug/l	60	21	U	ug/l	60	21	U	ug/l	60
Arsenic		2	U	ug/l	10	2	U	ug/l	10	3.4	J	ug/l	10	2	U	ug/l	10
Barium		11.2	J	ug/l	200	13.2	J	ug/l	200	11.8	J	ug/l	200	12.1	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		3230	J	ug/l	5000	3340	J	ug/l	5000	3440	J	ug/l	5000	3520	J	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		4	U	ug/l	50	1	U	ug/l	50	4	U	ug/l	50	4	U	ug/l	50
Copper		1.4	J	ug/l	25	6	U	ug/l	25	1	U	ug/l	25	1.7	J	ug/l	25
Iron		481		ug/l	100	501		ug/l	100	552		ug/l	100	599		ug/l	100
Lead		2	U	ug/l	3	1	U	ug/l	3	2	U	ug/l	3	2	U	ug/l	3
Magnesium		1040	J	ug/l	5000	1040	J	ug/l	5000	1120	J	ug/l	5000	1110	J	ug/l	5000
Manganese		9.4	J	ug/l	15	10.1	J	ug/l	15	10.3	J	ug/l	15	10.7	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		65.9	J	ug/l	5000	47	U	ug/l	5000	81.3	J	ug/l	5000	81.3	J	ug/l	5000
Selenium		3	U	ug/l	5	4	U	ug/l	5	3	U	ug/l	5	3	U	ug/l	5
Silver		3	U	ug/l	10	1	U	ug/l	10	3	U	ug/l	10	3	U	ug/l	10
Sodium		5080		ug/l	5000	4970	J	ug/l	5000	5420		ug/l	5000	5440		ug/l	5000
Thallium		4	U	ug/l	10	3.5	J	ug/l	10	4	U	ug/l	10	4	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		7.8	J	ug/l	20	11.9	J	ug/l	20	5.6	J	ug/l	20	7.9	J	ug/l	20
Cyanide		1.2	U	ug/l	10	1.2	U	ug/l	10	1.2	U	ug/l	10	1.4	J	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 -- PSC 18
SURFACE WATER -- METALS (UNFILTERED) -- REPORT NO. 9337

Lab Sample Number:	C8601
Site	PSC18
Locator	CF18SW4
Collect Date:	14-FEB-97

		VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE	ug/l				
Aluminum		268		ug/l	200
Antimony		3	U	ug/l	60
Arsenic		2	U	ug/l	10
Barium		12.9	J	ug/l	200
Beryllium		1	U	ug/l	5
Cadmium		1	U	ug/l	5
Calcium		3610	J	ug/l	5000
Chromium		1	U	ug/l	10
Cobalt		1	U	ug/l	50
Copper		6	U	ug/l	25
Iron		546		ug/l	100
Lead		1	U	ug/l	3
Magnesium		1050	J	ug/l	5000
Manganese		10.8	J	ug/l	15
Mercury		.1	U	ug/l	.2
Nickel		2	U	ug/l	40
Potassium		79.4	J	ug/l	5000
Selenium		4	U	ug/l	5
Silver		1	U	ug/l	10
Sodium		5240		ug/l	5000
Thallium		6.6	J	ug/l	10
Vanadium		1	U	ug/l	50
Zinc		44.1		ug/l	20
Cyanide		1.2	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 -- PSC 18
SURFACE WATER -- EXPLOSIVES -- REPORT NO. 9595

Lab Sample Number:	A7B1801360				A7B1501190				A7B1801360				A7B1801360			
Site	PSC18				PSC18				PSC18				PSC18			
Locator	CF18SW1				CF18SW2				CF18SW3				CF18SW3D			
Collect Date:	17-FEB-97				14-FEB-97				17-FEB-97				17-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
EXPLOSIVES																
1,3,5-Trinitrobenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,3-Dinitrobenzene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
2,4,6-Trinitrotoluene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
2-Nitrotoluene	1	U	ug/l	1	1	U	ug/l	1	-				1	U	ug/l	1
3-Nitrotoluene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
HMX	2.5	U	ug/l	2.5	2.5	U	ug/l	2.5	2.5	U	ug/l	2.5	2.5	U	ug/l	2.5
RDX	2.5	U	ug/l	2.5	2.5	U	ug/l	2.5	2.5	U	ug/l	2.5	2.5	U	ug/l	2.5
TETRYL	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1

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

NAS CECIL FIELD -- PSC 18
SURFACE WATER -- EXPLOSIVES -- REPORT NO. 9595

Lab Sample Number:	A7B1501190
Site	PSC18
Locator	CF18SW4
Collect Date:	14-FEB-97

	VALUE	QUAL	UNITS	DL
EXPLOSIVES				
1,3,5-Trinitrobenzene	1	U	ug/l	1
1,3-Dinitrobenzene	1	U	ug/l	1
2,4,6-Trinitrotoluene	1	U	ug/l	1
2-Nitrotoluene	1	U	ug/l	1
3-Nitrotoluene	1	U	ug/l	1
HMX	2.5	U	ug/l	2.5
RDX	2.5	U	ug/l	2.5
TETRYL	1	U	ug/l	1

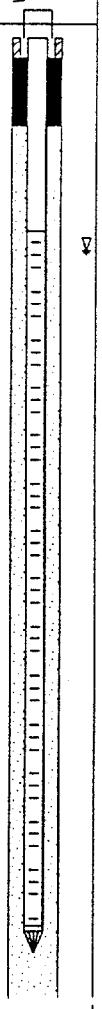
U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

APPENDIX C

BORING LOGS AND WATER-LEVEL MEASUREMENTS

TITLE: NAS Cecil Field	LOG of WELL: CEF-18-1S	BORING NO. CEF-18-1S
CLIENT: SOUTHDIVNAVFACENGCOM		PROJECT NO: 08544-78
CONTRACTOR: Alliance Environmental, Inc.	DATE STARTED: 4-17-97	COMPLTD: 4-17-97
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 ∇ 3.28 FEET.
LOGGED BY: R. Holloway	WELL DEVELOPMENT DATE: 5-22-97	SITE: PSC 18

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
							SM		
				0	SILTY SAND (SM): 100% quartz, light to dark gray, fine- to very fine- grained, sub-rounded to sub-angular.			posthole	
				0				posthole	∇
5				0				7,10,13,12	
10									
15									
20									



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TITLE: NAS Cecil Field		LOG of WELL: CEF-18-2S	BORING NO. CEF-18-2S
CLIENT: SOUTHDIVNAVFACENGCOM			PROJECT NO: 08544-78
CONTRACTOR: Alliance Environmental, Inc.		DATE STARTED: 4-17-97	COMPLTD: 4-17-97
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 ∇ 3.98 FEET.
LOGGED BY: R. Holloway	WELL DEVELOPMENT DATE: 5-22-97		SITE: PSC 18

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									
10									
15									
20									

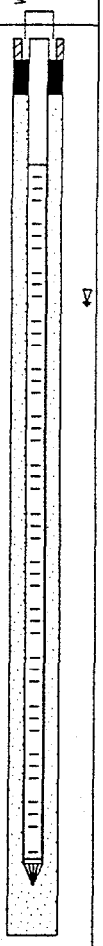

ABB ENVIRONMENTAL SERVICES, INC.

Monitoring Well Water Levels

Potential Source of Contamination - Site 18
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	1155	CF18MW1S	68.55	5.40	63.15	15.20
	1200	CF18MW2S	69.50	6.33	63.17	16.19
6/26/97	1040	CF18MW1S	68.55	5.33	63.22	15.20
	1042	CF18MW2S	69.50	6.34	63.16	16.19
7/25/97	1130	CF18MW1S	68.55	5.20	63.35	15.20
	1132	CF18MW2S	69.50	6.14	63.36	16.19
8/21/97	0810	CF18MW1S	68.55	5.34	63.21	15.20
	0815	CF18MW2S	69.50	6.22	63.28	16.19
9/12/97	0810	CF18MW1S	68.55	5.96	62.59	15.20
	0815	CF18MW2S	69.50	6.84	62.66	16.19

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

APPENDIX D

PRELIMINARY RISK EVALUATION METHODOLOGY

D.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 specific sediment 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.

D.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 D-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 D-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 18
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 D-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 18
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 D-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 18
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 D-2).

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

- Protective contaminant levels (PCLs) for wildlife receptors (see Table D-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 D-2
Terrestrial Plant, Invertebrate and Wildlife Toxicity Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 18
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	[9]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 D-2 (Continued)
Terrestrial Plant, Invertebrate and Wildlife Toxicity Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 18
Naval Air Station Cecil Field
Jacksonville, Florida

Analyte	Phototoxicity 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 D-2 (Continued)
Terrestrial Plant, Invertebrate and Wildlife Toxicity Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 18
Naval Air Station Cecil Field
Jacksonville, Florida

Analyte	Phototoxicity 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 D-2 (Continued)
Terrestrial Plant, Invertebrate and Wildlife Toxicity Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 18
Naval Air Station Cecil Field
Jacksonville, Florida

Analyte	Phototoxicity 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 D-3
Surface Water Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 18
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 D-3 (Continued)
Surface Water Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 18
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 D-3 (Continued)
Surface Water Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 18
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 D-3 (Continued)
Surface Water Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 18
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 D-3 (Continued)
Surface Water Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 18
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 D-3 (Continued)
Surface Water Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 18
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 D-4
Sediment Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 18
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 D-4 (Continued)
Sediment Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 18
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 D-4 (Continued)
Sediment Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 18
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 D-4 (Continued)
Sediment Screening Values

Technical Memorandum for No Further Action
Potential Source of Contamination 18
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 D-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 D-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 D-5
Surrogate Species Selected to Represent Wildlife Receptor Groups at NAS Cecil Field

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

Table D-6
Ingestion Toxicity Information for Wildlife Receptors

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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 D-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

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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 D-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

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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 D-6 (Continued)
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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 D-6 (Continued)
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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 D-6 (Continued)
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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 D-6 (Continued)
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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
	Rat	Oral	NR	LD_{50}	30,600		RTECS, 1994
bis(2-Ethylhexyl)-phthalate							
	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 D-6 (Continued)
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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 D-6 (Continued)
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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 D-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

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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 D-6 (Continued)
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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 D-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

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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 D-6 (Continued)
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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 D-6 (Continued)
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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		15	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 D-6 (Continued)
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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

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Table D-6 (Continued)
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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

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Table D-6 (Continued)
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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

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Table D-6 (Continued)
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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

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Table D-6 (Continued)
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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

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Table D-6 (Continued)
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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

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Table D-6 (Continued)
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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

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Table D-6 (Continued)
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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

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Table D-6 (Continued)
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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

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

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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 D-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

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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 D-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

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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 D-6 (Continued)
Ingestion Toxicity Information for Wildlife Receptors

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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 D-7
Model for Estimation of Chemical Exposures for Representative Wildlife Species

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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):

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

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:

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

See notes at end of table.

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

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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 D-8
Exposure Parameters for Surrogate Wildlife Species

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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 D-9
Bioaccumulation Data

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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 D-9 (Continued)
Bioaccumulation Data

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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 D-9 (Continued)
Bioaccumulation Data

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[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 D-9 (Continued)
Bioaccumulation Data

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[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.
$\mu g/kg$ = micrograms per kilogram.
$\mu g/\ell$ = 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.

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