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TECHNICAL MEMORANDUM FOR NO FURTHER ACTION AT POTENTIAL SOURCE OF CONTAMINATION 4 NAS CECIL FIELD FL

9/1/1998

HARDING LAWSON ASSOCIATES

NAS Cecil Field Administrative Record
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TECHNICAL MEMORANDUM FOR NO FURTHER ACTION POTENTIAL SOURCE OF CONTAMINATION 4

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

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

SEPTEMBER 1998

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

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Harding Lawson Associates

2523-3288

September 28, 1998

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

Subject: Revised Final Technical Memorandum for No Further Action
Potential Source of Contamination (PSC) 4
Naval Air Station Cecil Field, Jacksonville, Florida
Contract No. N62467-89D-0317/090

Dear Ms. Vaughn-Wright:

On behalf of Southern Division, Naval Facilities Engineering Command, Harding Lawson Associates ES, Inc. is pleased to forward two copies of the subject document. The final technical memorandum, submitted in March 1998, has been revised to address data gaps identified during the partnering meetings.

Comments or questions you may have concerning this technical memorandum should be directed to Mr. Mark Davidson at (803) 820-5526.

Sincerely,

HARDING LAWSON ASSOCIATES ES, INC.

Rao Angara
Task Order Manager

cc: Mr. Mike Deliz, FDEP (2 copies)
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TECHNICAL MEMORANDUM
FOR NO FURTHER ACTION

POTENTIAL SOURCE OF CONTAMINATION 4

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Unit Identification Code: N60200

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

Prepared by:

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Prepared for:

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Mark Davidson, Code 1879, Engineer-in-Charge

September 1998

CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, Harding Lawson Associates, hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/090 are complete and accurate and comply with all requirements of this contract.

DATE: September 25, 1998

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

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

(DFAR 252.227-7036)

CEC-PSC4.TM
FGW.09.98

This document that describes the field screening investigation of Potential Source of Contamination 4, Naval Air Station Cecil Field, Jacksonville, Florida, has been prepared under the direction of a Florida-registered professional geologist. The work and professional opinions rendered in this report were conducted or developed in accordance with commonly accepted procedures consistent with applicable standards of practice.

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

Date: 9-28-98

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) 4 at Naval Air Station (NAS) Cecil Field.

PSC 4, Grease Pits, is located approximately 150 feet west of Lake Fretwell and along the east side of Perimeter Road. PSC 4 is accessible from Perimeter Road. From the mid-1950s to the late 1980s, kitchen grease, waste oil, and sludge were disposed of at PSC 4.

PSC 4 was first investigated by Geraghty & Miller in 1983. In 1984 Geraghty & Miller installed three monitoring wells. Groundwater samples were collected from the wells and analyzed for State of Florida primary and secondary drinking-water parameters, volatile organic compounds, and semivolatile organic compounds. Groundwater samples were collected for four consecutive quarters, and based on the analytical results, it was recommended that monitoring of the site be discontinued.

An Initial Assessment Study (IAS) was conducted by Envirodyne Engineers, Inc., in 1985. The IAS recommended the installation of additional monitoring wells and the collection of groundwater, sediment, and surface water samples. The additional work was conducted by Harding Lawson Associates and reported in their *Resource Conservation and Recovery Act Facilities Investigation* report in 1988.

In 1991, HLA conducted supplemental sampling at PSC 4. The results were reported in the *Technical Memorandum for Supplemental Sampling (TMSS) at Operable Units 1, 2, and 7*, dated September 1992. The TMSS recommended additional investigative work be continued at PSC 4.

In 1993, a soil gas study was conducted at PSC 4 by Northeast Research Institute, Inc. The soil gas survey indicated the presence of volatile organic compounds at very low levels.

In 1995, HLA recommended that additional investigative work be conducted at PSC 4. 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 following conclusions can be made.

- The soil is relatively permeable, fine-grained sand, with some silt and clay.
- The surficial aquifer exists in the sandy materials from the water table to approximately 100 feet below land surface.
- Horizontal groundwater flow in the surficial aquifer is east toward Lake Fretwell; vertical flow is downward in the western part of the site and upward in the eastern part of the site, near Lake Fretwell.

- No volatiles, semivolatiles, pesticides, polychlorinated biphenyls, total recoverable petroleum hydrocarbons, and inorganics were detected in surface and subsurface soils above Florida Department of Environmental Protection soil cleanup goals.

- Aluminum, iron, and manganese were detected in groundwater above State and Federal secondary (not health-based) drinking water standards. However, concentrations of aluminum and iron did not exceed the NAS Cecil Field screening criteria. The concentration of manganese slightly exceeded the NAS Cecil Field screening criterion; however, the concentration was below this criterion during the September 1998 resampling.

Based on the type and extent of contamination identified at PSC 4, it is unlikely that human health or ecological receptors would be at a risk from exposure to analytes detected in surface soil, subsurface soil, or groundwater at PSC 4; therefore, no further action is recommended for PSC 4.

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Naval Air Station Cecil Field
Jacksonville, Florida

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
AQUIRE	Aquatic Information Retrieval
AWQC	ambient water quality criteria
bls	below land surface
BTAG	biological technical assistance groups
DDT	dichlorodiphenyltrichloroethane
FDEP	Florida Department of Environmental Protection
GPR	ground-penetrating radar
HLA	Harding Lawson Associates
IAS	initial assessment study
IR	Installation Restoration
mg/kg	milligrams per kilogram
$\mu g/\ell$	micrograms per liter
NAS	Naval Air Station
PCB	polychlorinated biphenyl
PRE	preliminary risk evaluation
PSC	potential source of contamination
RFI	Resource Conservation and Recovery Act (RCRA) facility investigation
SVOC	semivolatile organic compound
TAL	target analyte list
TCL	target compound list
TMSS	Technical Memorandum for Supplemental Sampling
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) 4, Grease Pits, at Naval Air Station (NAS) Cecil Field in Jacksonville, Florida. The PSC investigation is being completed under contract number N62467-89-D-0317-90 as part of the Navy's Installation Restoration (IR) program.

The goals of the PSC investigation are to assess the presence of contamination at the site and provide information for a preliminary risk evaluation (PRE). The PRE will use the investigative results to determine the nature, pathway, and extent of contamination and to identify potential risks to human and ecological receptors.

The purpose of this technical memorandum is to decide whether or not further investigation of the site is needed as part of the IR program. This technical memorandum summarizes the related field operations, results, conclusions, and recommendations of the PSC 4 field screening investigation.

2.0 SITE DESCRIPTION AND HISTORY

2.1 PHYSICAL SETTING. PSC 4, Grease Pits, is located on the main base west of Lake Fretwell and east of Perimeter Road (Figure 2-1). The historical site area was estimated to be approximately 9 acres. The area of investigation, which included the historical site area, was approximately 25 acres (Figure 2-2).

The site is bordered to the west by Perimeter Road and to the east by woodlands and Lake Fretwell. North and south of the site are open fields and woodlands. The site is partly forested. The western part of the site is an open field with scattered areas of pine trees and brush. The eastern part is more densely wooded. The open areas are vegetated with grasses, weeds, and briars. Site 3 (Operable Unit 8), identified as an oily waste and solvent disposal pit, is adjacent to and south of PSC 4. PSC 4 is accessible from Perimeter Road.

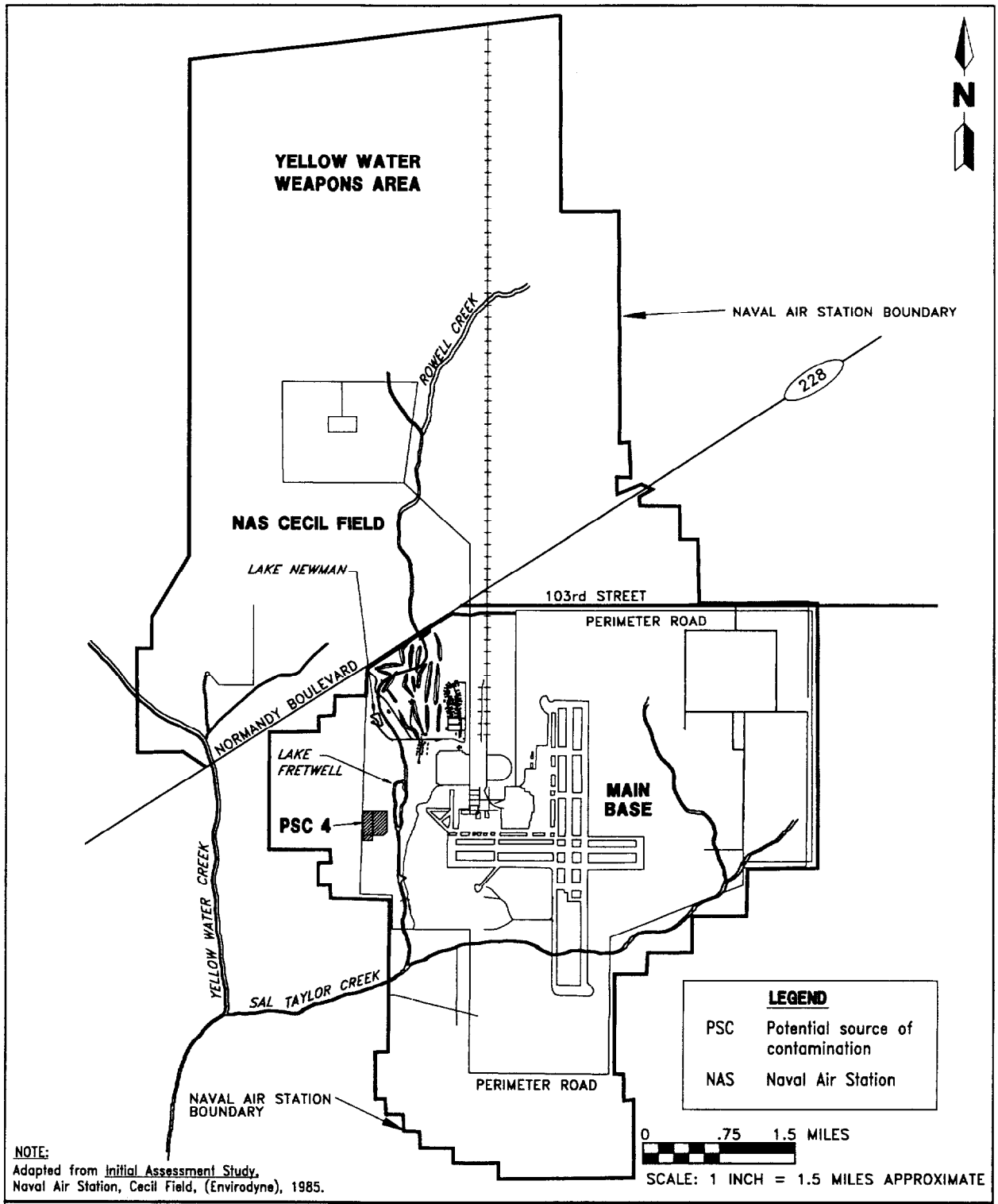
The land surface at PSC 4 is nearly flat, sloping gently eastward toward Lake Fretwell. The eastern part of the site, near Lake Fretwell, can be marshy. There are no obvious drainage features on the site. If overland water flow occurs at the site, it is interpreted that the flow would be toward Lake Fretwell.

2.2 SITE HISTORY. The history of PSC 4 was compiled in the Field Investigation Plan (March 1995). PSC 4 was used for the disposal of waste oil and sludge, kitchen grease, and possibly paint, paint thinners, and solvents. Disposal of these materials occurred from the mid-1950s to the late 1980s, a little more than 30 years. Disposal operations consisted of excavating shallow unlined pits and dumping the waste materials into the pits. The waste was then allowed to either evaporate or percolate into the ground or remain in the pit. When the pit was filled, it was covered with soil and a new pit was made. Pit sizes were variable, but each pit is interpreted to be only a few feet deep (3 to 5 feet) and would have a capacity of a few thousand gallons. The locations of these pits are unknown, though areas of activity (areas lacking vegetation) are evident from aerial photographs. These areas, which lack vegetation, parallel Perimeter Road and are located adjacent to the road to approximately 200 feet east of the road. Currently, one pit is evident in the western part of the site, but it is not known if it is related to disposal operations.

The Initial Assessment Study (IAS) conducted by Envirodyne Engineers, Inc. (1985), estimated maximum volumes disposed of at the site are 700,000 gallons of waste oil, grease, and solvents and 800,000 gallons of kitchen grease and water. These values were estimated from weekly disposal volumes over a 30-year period and do not reflect actual volumes derived from facility records, which have been searched but not found to contain such information. Previous investigations (Chapter 3.0) indicate the presence of volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) in soil and groundwater.

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 drilling operations at PSC 4 are generally undifferentiated geologic materials of fine- to medium-grained,



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

FIGURE 2-1
SITE LOCATION MAP

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JACKSONVILLE, FLORIDA

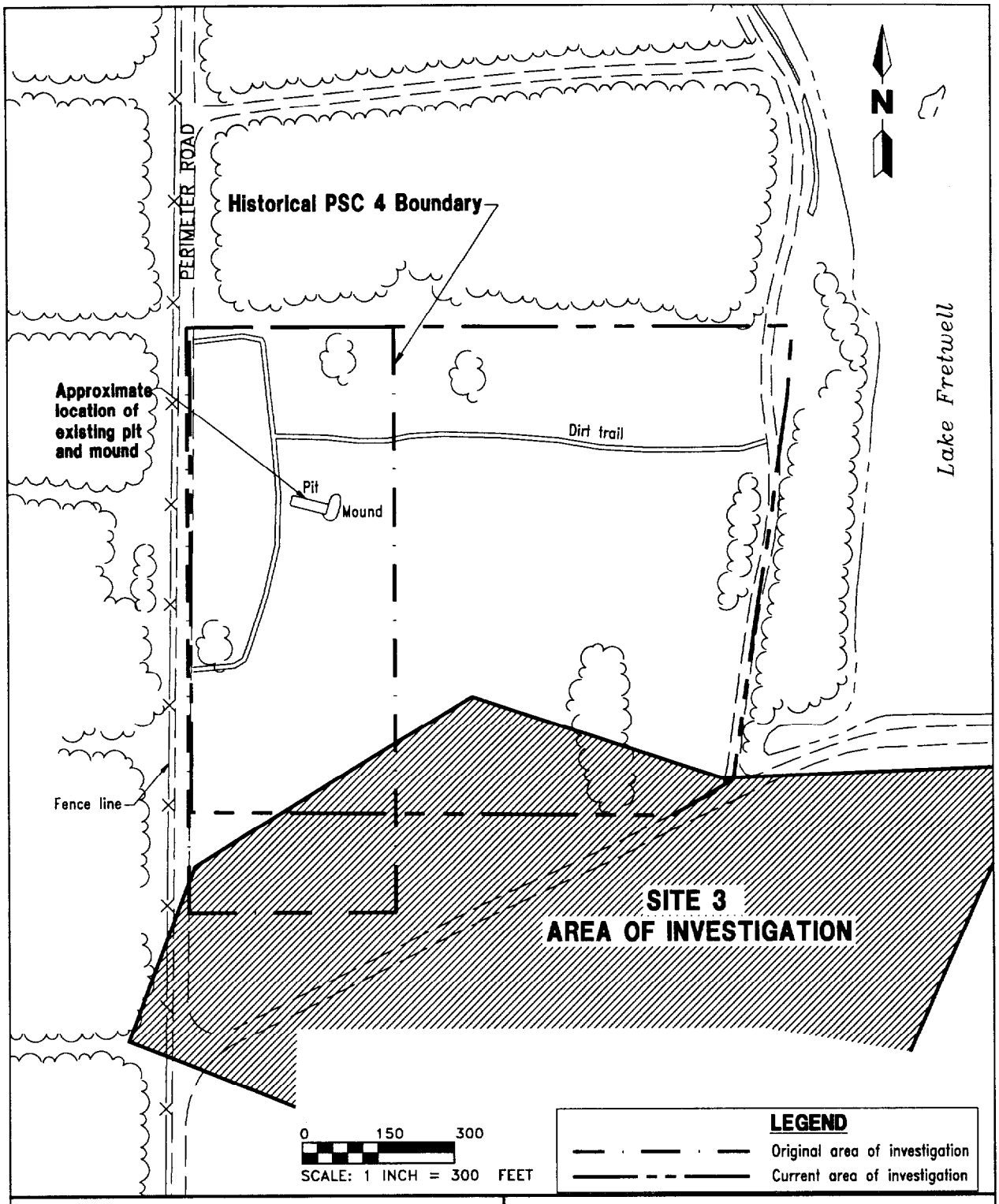

FIGURE 2-2
SITE MAP

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TECHNICAL MEMORANDUM FOR NO FURTHER ACTION, POTENTIAL SOURCE OF CONTAMINATION 4

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poorly-to-well-sorted quartz sand mixed with varying amounts of silt and clay. These geologic materials are probably of Holocene age (Recent, less than 10 thousand years old) to Pliocene age (less than 6 million years old) and are between 70 and 100 feet thick. Boring logs are presented in Appendix B.

2.4 SITE HYDROGEOLOGY. The surficial aquifer system was encountered in the area of this investigation. The surficial aquifer system in the area of PSC 4 is located in the undifferentiated geologic materials. These unconsolidated sediments overlay the top of a clay unit (Hawthorn Group), which separates the surficial aquifer system from the intermediate aquifer system. The surficial aquifer system is under water table conditions (unconfined).

Data from previous investigations and preliminary evaluation of water-level data collected during this investigation are interpreted to indicate groundwater flow is to the east. The vertical flow in the eastern and central parts of PSC 4 is downward as is evident from the water-level measurements between well pairs CF4MW6S and CF4MW7I and CF4MW1 and CF4MW9I (Appendix B). The water table is generally 2 to 4 feet below land surface (bls). Water-level measurements are presented in Appendix B. To conform with current facilitywide well nomenclature, PSC 4 wells are identified as CF4MWXX (the first "X" indicates the well number and the second "X" indicates "S" for shallow well or "I" for intermediate well). Interpreted piezometric conditions based on measurements from the shallow wells are presented on Figure 2-3.

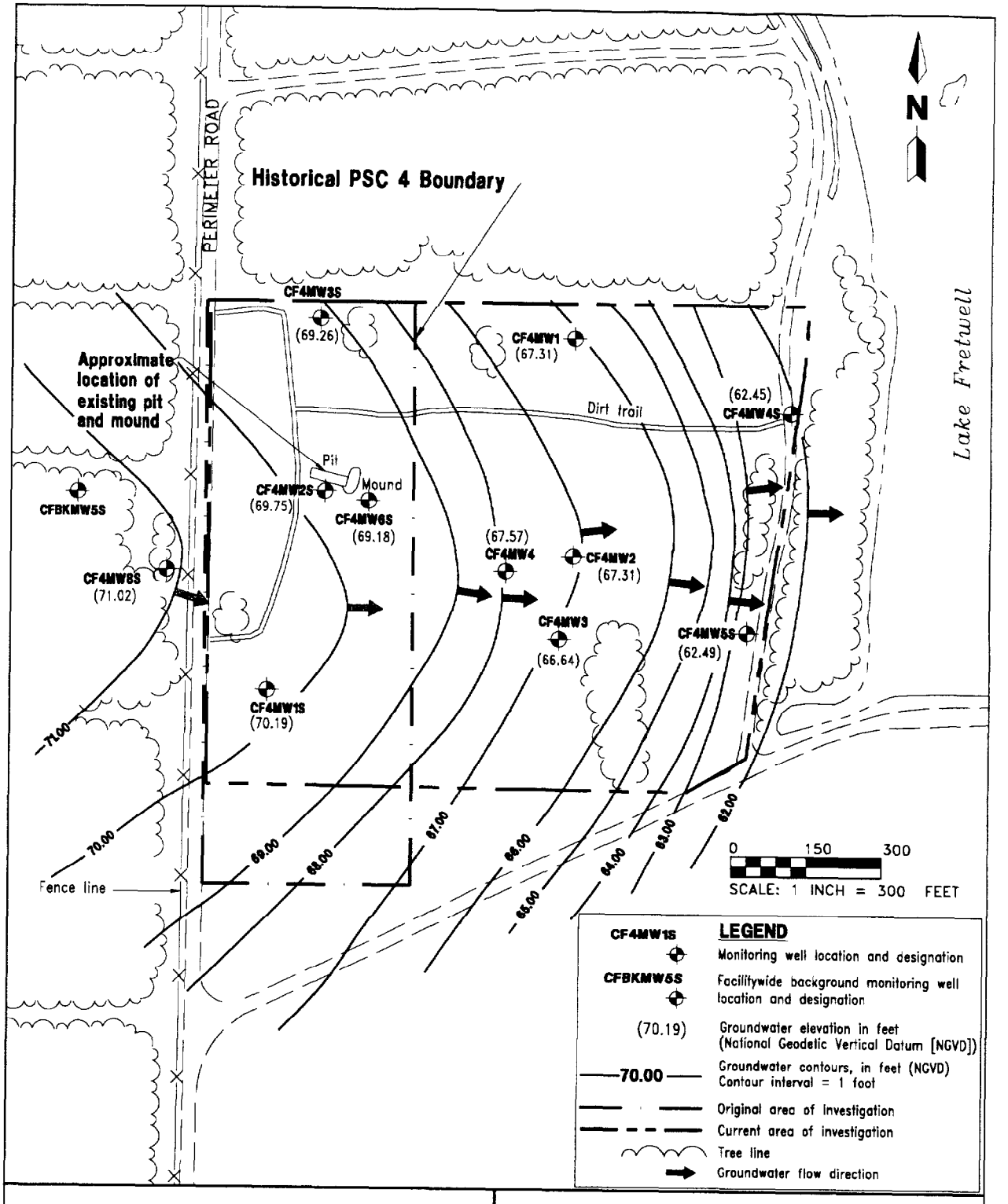

FIGURE 2-3
SEPTEMBER 1997 POTENTIOMETRIC MAP

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3.0 PREVIOUS INVESTIGATIONS

PSC 4 was first investigated in 1983 when Geraghty & Miller, Inc., carried out their Hydrogeologic Assessment and Ground-Water Monitoring Plan (Geraghty & Miller, 1983). During this investigation PSC 4 was identified as an area where grease and waste oil and sludge from the NAS Cecil Field's sanitary sewer system and from oil-water separators were disposed of into pits. Each pit was believed to have a capacity of a few thousand gallons.

In 1984, Geraghty & Miller, Inc., installed three monitoring wells (Geraghty & Miller, 1984) between the original PSC 4 area and Lake Fretwell (Figure 3-1). Groundwater flow of the surficial aquifer was interpreted to flow from west to east; therefore, the wells are interpreted to be located downgradient of PSC 4. Two wells, GM-S-2 and GM-S-3, were shallow wells, being less than 15 feet in total depth and each having a 5-foot screen. The third well, GM-SA-1, was set in the upper part of the Hawthorn Group, was 115 feet deep, and was apparently an open-hole well from 95 to 115 feet bls. The water table was encountered between 2 and 4 feet bls.

Groundwater samples were collected from the monitoring wells and analyzed for selected State of Florida primary and secondary drinking-water parameters, VOCs, and SVOCs. Groundwater samples were collected for four consecutive quarters. Analytical results of the first quarter, which are representative of the other data, are given in Appendix A. Except for iron concentrations, results were below State primary and secondary standards. Based on the groundwater data, it was recommended that monitoring of the site not be continued (Geraghty & Miller, 1985).

In 1985, Envirodyne Engineers, Inc., reported the results of the IAS. During this study historical data and aerial photographs were reviewed, personnel interviews conducted, and potential sites were inspected. Based on available data, the estimated maximum amount of liquid waste oils and sludge that could have been disposed of at the site was estimated to be 770,000 gallons.

Reportedly, materials disposed of included solvents, paint, paint thinners, oils, and fuels. Additionally, a maximum of 800,000 gallons of kitchen grease and water could have been disposed of at the site. Sources of the waste materials included the fuel farm, aircraft intermediate maintenance department, squadrons, public works, and the facility's mess halls. The volumes of estimated waste oils and sludge that could have been disposed of at the site are given in Table 3-1. The IAS recommended the installation of additional monitoring wells, as well as the collection of groundwater, sediment, and surface water samples.

Additional work at the site was conducted by Harding Lawson Associates and reported in the *Resource Conservation and Recovery Act Facilities Investigation* (RFI) report, 1988. Harding Lawson Associates reported that soil contaminated with diesel fuel and domestic sewage were being disposed of at the site during the RFI investigation. A small disposal pit was active during the RFI fieldwork and was located in the central part of the original area of investigation.

As part of the RFI investigation, geophysical surveys were conducted at the site. Survey readings were collected from stations located on a grid at 50-foot by 50-foot intervals. The grid measured 1,100 feet by 500 feet, with the 0,0 point

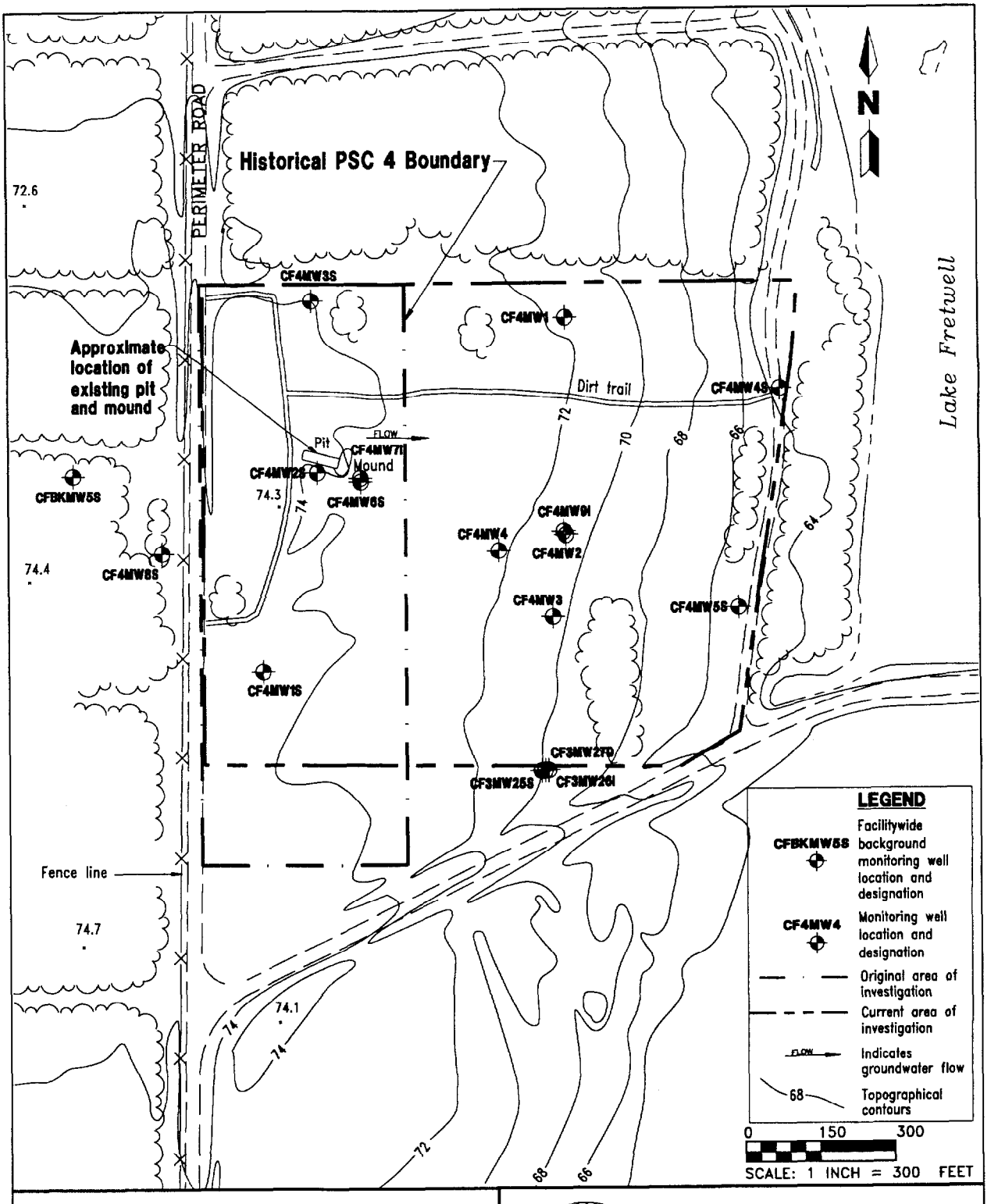

FIGURE 3-1
MONITORING WELL LOCATIONS

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NAVAL AIR STATION CECIL FIELD
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Table 3-1
Potential Wastes Disposed of at the Grease Pits

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Naval Air Station Cecil Field
Jacksonville, Florida

Waste Type	Total Estimated[1] Quantity Disposed of (gallons)	Source	Comments
Grease	625,000 to 800,000	Installation messes	Grease mixed with water
Waste paint (enamel, epoxy, polyurethane, lacquer, and acrylic)	8,000	Squadrons, AIMD, and Public Works	--
Spent solvents (Stoddard, MEK, trichloroethene, PD-680, MIBK, toluene, naphtha, and xylene)	180,000	AIMD, squadrons, and Public Works	--
POL wastes	550,000	AIMD, squadron, and fuel farm	--
Paint thinners	35,000	Squadrons, AIMD, and Public Works	--

[1] This represents the total quantity generated during the operational period of the site. Some unknown portion of this total quantity may have been disposed of at the site. This number provides a worst-case assumption (Envirodyne Engineers, 1985).

Notes: AIMD = Aircraft Maintenance Department.
-- = no comments.
MEK = methyl ethyl ketone.
MIBK = methyl isobutyl ketone.
POL = petroleum oils and lubricants.

(reference point) being located in the southwest corner of the site. Magnetometer and very low frequency (VLF) electromagnetic surveys were conducted at the site. No magnetic anomalies were observed, indicating that metal objects, such as drums, were not disposed of at the site. Review of the VLF data indicated soil conductivity readings greater than background in the northern two-thirds of the original area of investigation and possibly in areas east of the survey grid (Figure 3-2).

During the RFI, an additional monitoring well, CEF4-4 (HLA-Well on Figure 3-1), was installed on the east-central side of the site. CEF4-4 has a total depth of 50 feet and is screened from 20 to 50 feet bls. Groundwater samples were collected from this well and the three existing monitoring wells, and one surface water sample was collected near the Lake Fretwell spillway. The samples were analyzed for "modified" priority pollutants and selected heavy metals, which are referenced in *Final Verification Workplan* (Harding Lawson Associates, 1987).

Analytical results indicated the presence of bis(2-ethylhexyl)phthalate at a concentration of 14 micrograms per liter ($\mu g/\ell$) in well CF4MW2 (Geraghty & Miller well GM-SA-1) and 12 $\mu g/\ell$ in wells CF4MW3 (Geraghty & Miller well GM-S-3) and CF4MW4. The RFI recommended that monitoring at PSC 4 be continued, but it did not recommend additional investigative work.

In 1991, HLA conducted supplemental sampling at the site, reporting the results in the *Technical Memorandum for Supplemental Sampling (TMSS) at Operable Unit 1, 2, and 7*, dated September 1992 (ABB-ES, 1991). Investigative techniques used during the supplemental investigation included a ground-penetrating radar (GPR) survey, groundwater headspace screening, piezocone surveying, soil sampling, installation of two shallow monitoring wells (CF4MW1S and CF4MW2S), groundwater sampling, slug testing, and collection of water-level data.

The headspace screening samples were analyzed with a gas chromatograph equipped with an electron capture detector and a flame ionization detector. Seven groundwater samples were collected at the water table from locations indicated on Figure 3-3. Six soil samples (Figure 3-3) were collected, three from 0 to 2 feet bls and three from 2 to 4 feet bls. The soil samples were analyzed for U.S. Environmental Protection Agency (USEPA) target analyte list (TAL) inorganics and target compound list (TCL) organics. Groundwater samples from the two new monitoring wells were analyzed for TCL inorganics, TAL organics, and total recoverable petroleum hydrocarbons (TRPH).

The GPR survey was inconclusive and did not identify any pits. Review of the groundwater headspace screening analysis results indicated the presence of VOCs, specifically toluene (73 $\mu g/\ell$) and ethylbenzene (22 $\mu g/\ell$). VOCs and SVOCs were detected in soil samples. Low (11 $\mu g/\ell$ or less for SVOCs and 70 $\mu g/\ell$ for TRPH) concentrations of SVOCs and TRPH were detected in groundwater samples. Soil and groundwater TAL and TCL results are given in Appendix A.

Review of piezocone data from the 1991 investigation indicated that soil at PSC 4 from land surface to 74 feet bls consists of fine-grained sand mixed with varying amounts of silt and clay. Based on water-level data, groundwater flow in the upper part (approximately 15 feet bls) of the surficial aquifer is interpreted to be to the east. The hydraulic conductivity of this same interval is approximately 1.1 feet per day.

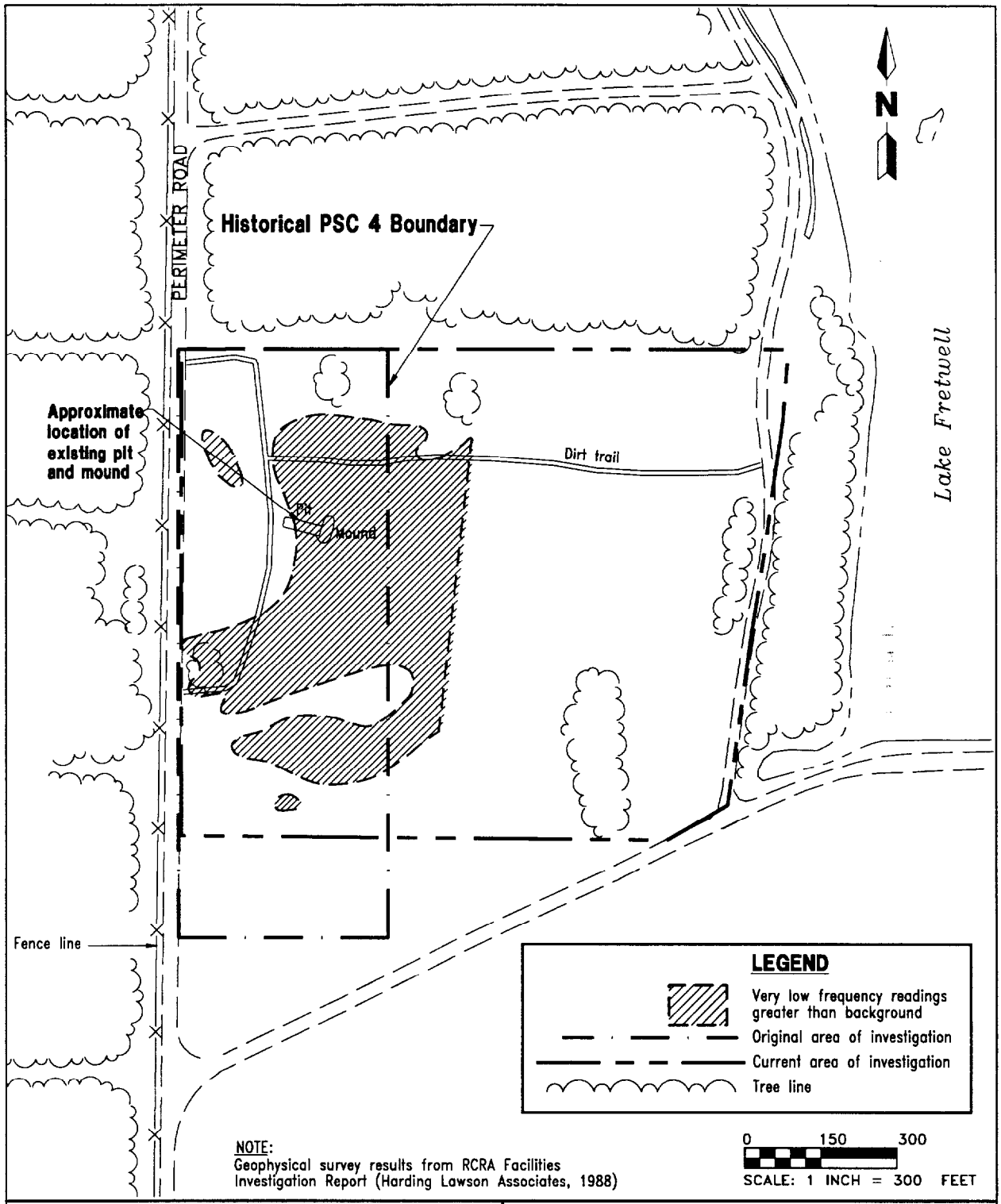

FIGURE 3-2
VERY LOW FREQUENCY ELECTROMAGNETIC SURVEY RESULTS

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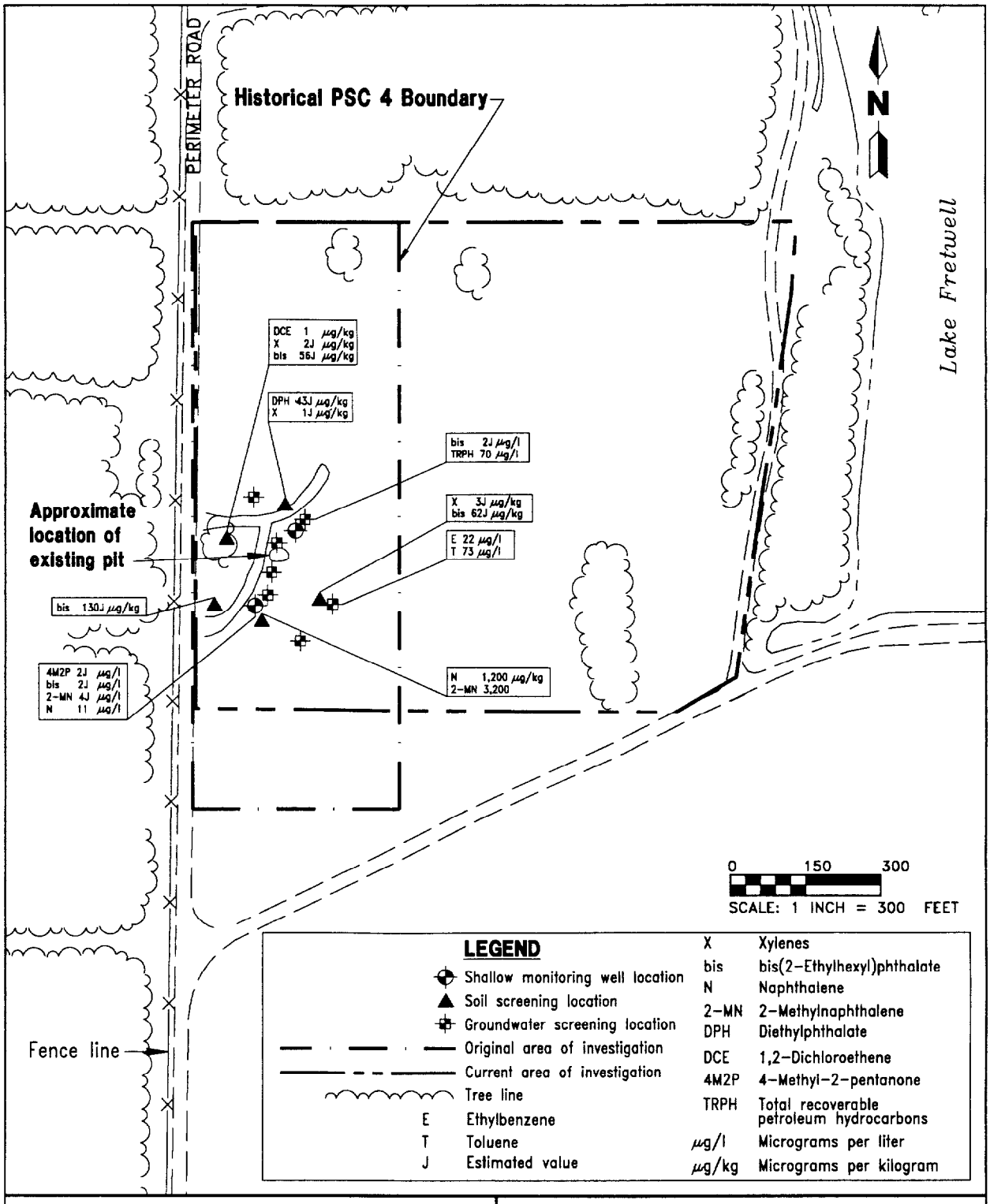

FIGURE 3-3
1991 FIELD INVESTIGATION SAMPLE LOCATIONS AND RESULTS

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Based on the results of the 1991 investigation, which showed the presence of VOCs and SVOCs in soil and groundwater, it was recommended that investigative work be continued at PSC 4. The TMSS recommended a passive soil gas survey over a sampling grid approximately 650 feet by 550 feet, located in the area believed to be the Grease Pit disposal sites.

In February 1993, 424 passive soil gas samplers were installed at PSC 4 by Northeast Research Institute, Inc. These samplers were installed to collect VOCs and SVOCs from the soil gas to map the extent of the detected compounds, and to indicate source areas and plume boundaries. Each soil gas sampler was installed to a depth of 18 inches bls. Samplers were installed at 50-foot centers and sampling density was increased to 25-foot centers in areas where contamination was suspected. The sampling grid size was approximately 850 feet by 1,150 feet or approximately 22 acres, with the long axis of the grid oriented west to east.

The soil gas samples were analyzed by thermal desorption-mass spectrometry and thermal desorption-gas chromatograph and mass spectrometry. Analytical results were reported as ion count values. Ion count values are relative and do not represent actual compound concentrations. Ion counts were plotted as histograms of the distribution of the ion counts, and any breaks in the distribution were noted. The soil gas survey report stated that results were generally very low, with few exceptions. Exceptions were those areas where ion counts were equal to or greater than 5,000, which, based on the histograms, was the break between the source populations and migration and/or background populations (Figure 3-4). Figure 3-4 shows the 20 out of 424 sample locations that had positive test results. Compounds with ion counts equal to or greater than 5,000 included the chlorinated chemicals tetrachloroethene, trichloroethene, trichloroethane, and dichlorobenzene. Other compounds detected at less than 5,000 ion counts were benzene, toluene, ethylbenzene, xylenes, and chloroform. The report concluded that the isolated distribution of the chlorinated compounds reflected source areas (possibly pits) and, because of the limited areal extent of elevated ion counts, that little or no migration of these compounds had occurred at PSC 4.

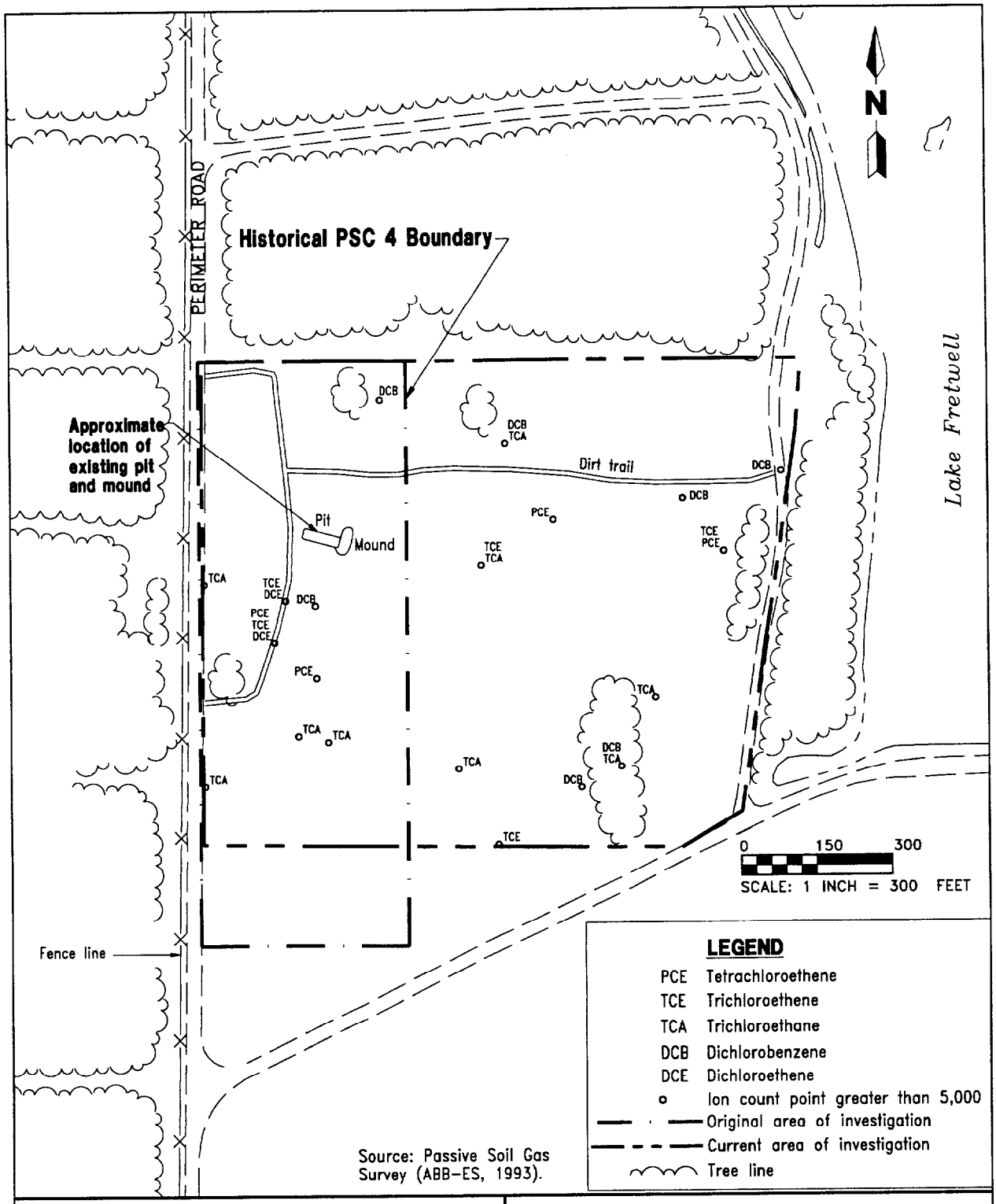

FIGURE 3-4
PASSIVE SOIL GAS SURVEY RESULTS

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TECHNICAL MEMORANDUM FOR NO FURTHER ACTION, POTENTIAL SOURCE OF CONTAMINATION 4

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

4.0 INVESTIGATIVE AND SAMPLING PROGRAM

As specified in the Field Investigation Plan (ABB-ES, 1995), monitoring well installation and soil and groundwater sampling programs were conducted to assess the presence of contamination at PSC 4.

4.1 MONITORING WELL INSTALLATION AND GROUNDWATER SAMPLING. Groundwater quality in the upper and lower parts of the surficial aquifer was assessed by installing seven additional monitoring wells at PSC 4 in 1997 (see Figure 3-1). Five shallow wells (CF4MW4S, CF4MW5S, CF4MW6S, CF4MW8S, and CFBKMW5S) were installed between 15 and 20 feet bls. Two intermediate wells (CF4MW7I and CF4MW9I) were installed between 42 and 53 feet bls.

Groundwater samples were collected from 13 monitoring wells, including 1 background well (CFBKMW5S) at PSC 4 during July and August 1997. The groundwater samples were analyzed by an approved analytical laboratory for TCL organics, TAL inorganics, and TRPH. Analytical results are found in Appendix C and are discussed in Chapter 5.0 of this technical memorandum.

4.2 SOIL SAMPLING. Five surface soil samples and eight subsurface soil samples were collected at PSC 4 during February 1997. The samples were analyzed by an approved analytical laboratory for TCL organics, TAL inorganics, and TRPH. The surface soil and subsurface soil samples were collected from areas where disposal activities appeared to have occurred (based on existing data, aerial photographs, and soil gas survey). Analytical results are found in Appendix C and are discussed in Chapter 5.0 of this technical memorandum.

5.0 NATURE AND EXTENT OF WASTES

5.1 SURFACE SOIL. Five confirmatory surface soil samples (CF4SS1 through CF4SS5) were collected between 0 and 1 foot bls. Summaries of the confirmatory analytical results for surface soil samples are presented on Figure 5-1 and in Tables 5-1 and 5-2. A complete analytical data set for PSC 4 confirmatory samples is presented in Appendix C.

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

Organics in Surface Soil. No VOCs were detected in PSC 4 surface soil samples.

One SVOC, bis(2-ethylhexyl)phthalate, a common environmental sampling and analysis contaminant, was detected in PSC 4 surface soil sample CF4SS1 at a concentration of 0.046 J milligrams per kilogram (mg/kg). This concentration is below FDEP residential-based soil cleanup criteria of 48 mg/kg.

Two pesticides, methoxychlor and endrin ketone, were detected in PSC 4 surface soil samples. Methoxychlor was detected in the sample CF4SS3 at a concentration of 0.0038 J mg/kg and in the reextracted sample CF4SS4RE at a concentration of 0.0024 J. Endrin ketone was detected in the sample CF4SS1 at a concentration of 0.00025 J mg/kg and in the reextracted sample CF4SS5RE at a concentration of 0.00012 J. Both of these compounds are below FDEP residential-based soil cleanup criteria of 380 mg/kg for methoxychlor and 23 mg/kg for endrin. Endrin ketone does not have a cleanup criterion; therefore, the endrin value was used for comparative purposes.

TRPH was detected in all five surface soil samples at PSC 4. Concentrations ranged from 26 mg/kg to 45 mg/kg. These concentrations are below the FDEP soil cleanup goal for TRPH of 350 mg/kg.

Inorganics in Surface Soil. Sixteen inorganic analytical parameters were detected in the confirmatory surface soil samples collected at PSC 4. The confirmatory inorganic analytical results for surface soil are summarized in Table 5-2. None of these inorganic concentrations were greater than FDEP residential-based soil cleanup goals or Dutch screening criteria. Only one inorganic, calcium, exceeded NAS Cecil Field screening criteria for inorganics. Calcium is considered an essential nutrient; therefore, a figure of detected inorganics is not presented.

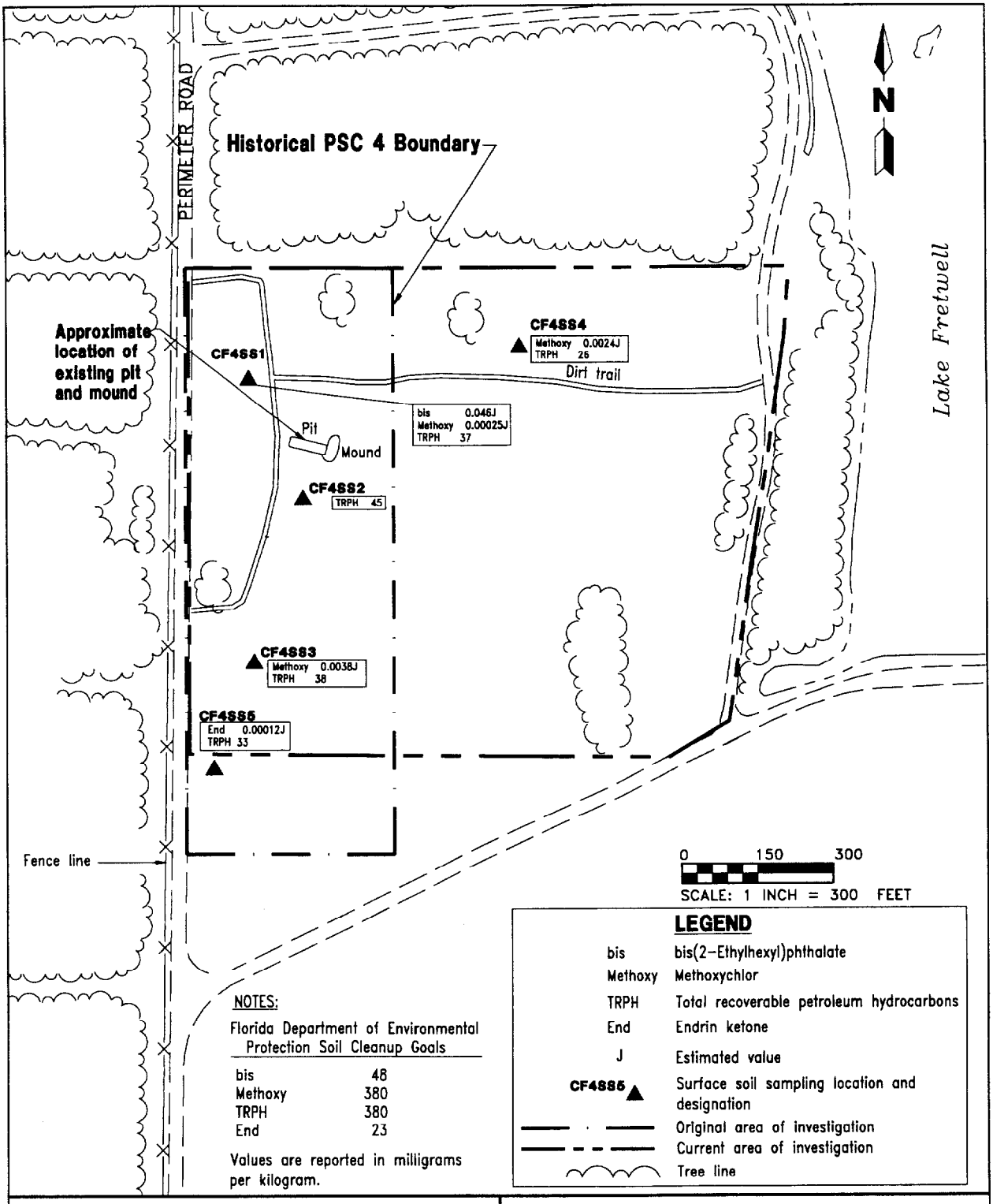

FIGURE 5-1
ORGANICS IN SURFACE SOIL

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TECHNICAL MEMORANDUM FOR NO FURTHER ACTION, POTENTIAL SOURCE OF CONTAMINATION 4

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Table 5-1
Organics in Surface Soil

Technical Memorandum For No Further Action
Potential Source of Contamination 4
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] (Soil Screening) Flora/Fauna
Surface Soil						
TRPH (mg/kg)	5/5	10 to 11	26 to 45	350	NG	NG/NG
Semivolatile Organic Compounds (mg/kg)						
bis(2-Ethylhexyl)phthalate	1/5	0.35	0.046 J	48	NG	NG/NG
Pesticides and PCBs (mg/kg)						
Methoxychlor	3/5	0.019	0.00024 J to 0.0038 J	350	NG[6]	<0.01/<0.01
Endrin ketone	1/5	0.003	0.00012 J	[5]23	NG[6]	[5]<0.01/[5]<0.01

[1] Frequency of detection is the number of samples in which the analyte was detected over the total number of samples analyzed (4SS1, 4SS2, 4SS3, 4SS4, and 4SS5, including a duplicate at 4SS3).
[2] FDEP memorandum dated September 29, 1995 (FDEP, 1995). Values presented are the lesser of the cleanup goals based on a residential land-use scenario.
[3] Dutch Soil Cleanup (Interim) Act from Richardson, G.M., 1987, as reported in the U.S. Fish and Wildlife Service, Biological Report 1990(2), "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 CLP methods.
[4] U.S. Environmental Protection Agency Region III BTAG Screening Levels, (USEPA, 1995).
[5] No value was given for endrin ketone; therefore, value given is for endrin.
[6] No value was given for individual pesticides; however, total pesticide criterion is 0.1 mg/kg. The total pesticide concentration was below this criterion.

Notes: FDEP = Florida Department of Environmental Protection.
BTAG = biological technical assistance group.
TRPH = total recoverable petroleum hydrocarbons.
mg/kg = milligrams per kilogram.
NG = none given.
J = estimated value.
PCB = polychlorinated biphenyl.
< = less than.
CLP = Contract Laboratory Program.

Table 5-2
Inorganics in Surface Soil

Technical Memorandum For No Further Action
Potential Source of Contamination 4
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] (Soil Screening) Flora/Fauna
Surface Soil							
Inorganic Analytes (mg/kg)							
Aluminum	5/5	40	1,620 to [5]2,290	4,432	75,000	NG	1/NG
Antimony	2/5	12	0.65 J to 0.72 J	9.44	26	NG	0.48/NG
Barium	5/5	40	2.1 J to 2.8 J	14.4	5,200	200	440/440
Calcium	5/5	1,000	51.8 J to 539 J	9.44	NG	NG	NG/NG
Chromium	5/5	2	1.6 J to 3	7.75	290	100	0.02/0.0075
Cobalt	3/5	10	0.26 J to 0.39 J	3.11	4,700	20	100/200
Copper	2/5	5	0.29 J to 0.34 J	5.96	NG	50	15/NG
Iron	5/5	20	362 to 1,030	1,486	NG	NG	3,260/12
Lead	5/5	0.6	1.6 to 9	197	500	50	2/0.01
Magnesium	5/5	1,000	49.1 J to 99.4 J	329	NG	NG	4,400/4,400
Manganese	5/5	3	2.3 J to 8.2	22	370	NG	330/330
Nickel	5/5	8	0.57 J to 0.79 J	3.89	1,500	50	2/NG
Potassium	2/5	1,000	12.8 J to 13.8 J	102	NG	NG	NG/NG
Selenium	1/5	1	0.93	1.68	390	NG	1.8/1.8
Vanadium	5/5	10	1.6 J to [5]2.65 J	6.3	490	NG	0.5/58
Zinc	5/5	4	0.75 J to 27	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 (4SS1, 4SS2, 4SS3, 4SS4, and 4SS5, including a duplicate at 4SS3).
[2] FDEP memorandum dated September 29, 1995 (FDEP, 1995). Values presented are the lesser of the cleanup goals based on a residential land-use scenario.
[3] Dutch Soil Cleanup (Interim) Act from Richardson, G.M., 1982, as reported in the U.S. Fish and Wildlife Service, Biological Report 1990(2), "Evaluating Soil Contamination," (Beyer, 1990). Values presented are the lesser of the cleanup goals based on background concentrations in soil or detection limits.
[4] U.S. Environmental Protection Agency Region III BTAG Screening Levels, (USEPA, 1995).
[5] Average of sample and duplicate.

Notes: Bold indicates at least one sample exceeds Naval Air Station Cecil Field screening criteria.

FDEP = Florida Department of Environmental Protection.
BTAG = biological technical assistance group.
mg/kg = milligrams per kilogram.
NG = none given.
J = estimated value.

Chromium, lead, and manganese were detected in each of the five surface soil samples at concentrations greater than BTAG flora and fauna criteria (Table 5-2). Chromium concentrations ranged from 1.6 J mg/kg to 3 mg/kg. The BTAG flora and fauna criteria are 0.02 and 0.0075 mg/kg, respectively. Lead concentrations ranged from 1.6 mg/kg to 9.0 mg/kg; the BTAG flora and fauna criteria are 2 mg/kg and 0.01 mg/kg, respectively. Manganese concentrations ranged from 2.3 J mg/kg to 8.2 mg/kg; the BTAG flora and fauna criteria are both 0.058 mg/kg. Iron concentrations ranged from 363 mg/kg to 1,029 mg/kg and are greater than the BTAG fauna criterion of 12 mg/kg. Zinc was detected in one sample, CF4SS5, at 27 mg/kg, which is greater than the BTAG flora criterion of 10 mg/kg. Expect for iron, the greatest concentrations were detected in sample CF4SS5, which is located in the southwestern part of the site, near Perimeter Road. The greatest iron concentration was detected in sample CF4SS3, which is located in the southwestern part of the site, near the site access road (Figure 5-1).

5.2 SUBSURFACE SOIL. Eight confirmatory subsurface soil samples (CF4SB1 through CF4SB8) were collected between 3 and 4 feet bls. Summaries of the confirmatory analytical results for subsurface soil samples are presented on Figure 5-2 and in Tables 5-3 and 5-4. A complete analytical data set for PSC 4 confirmatory samples is presented in Appendix C.

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

Organics in Subsurface Soil. No VOCs were detected in PSC 4 subsurface soil samples.

No SVOCs were detected in PSC 4 subsurface soil samples.

Three pesticides, aldrin, methoxychlor, and 4,4'-dichlorodiphenyltrichloroethane (DDT), were detected in PSC 4 subsurface soil samples. Aldrin was detected in six of the eight samples at concentrations ranging from 0.0000081 J mg/kg to 0.0003 J mg/kg (CF4SB7). Aldrin was also detected in five of the reextraction samples with concentrations ranging from 0.00013 J mg/kg to 0.00021 J mg/kg (CF4SB2RE). These concentrations are below the FDEP industrial-based soil cleanup value for aldrin of 0.2 mg/kg. Methoxychlor was detected in six of the eight samples with concentrations ranging from 0.0021 J mg/kg to 0.027 J mg/kg (CF4SB2). These concentrations are the below FDEP industrial-based soil cleanup value for methoxychlor of 7,800 mg/kg but slightly exceed the BTAG criteria. 4,4'-DDT was detected in three samples with concentrations ranging from 0.00057 J mg/kg to 0.0036 J mg/kg (CF4SB2). These concentration are below the FDEP industrial-based soil cleanup value for 4,4'-DDT of 12 mg/kg. The Dutch soil cleanup value for total pesticides of 0.1 mg/kg is not exceeded.

TRPH was detected in two of the eight subsurface soil samples at PSC 4: sample CF4SB1 at a concentration of 15 mg/kg and CF4SB2 at a concentration of 14 mg/kg. These concentrations are below the FDEP soil cleanup goal for TRPH of 350 mg/kg.

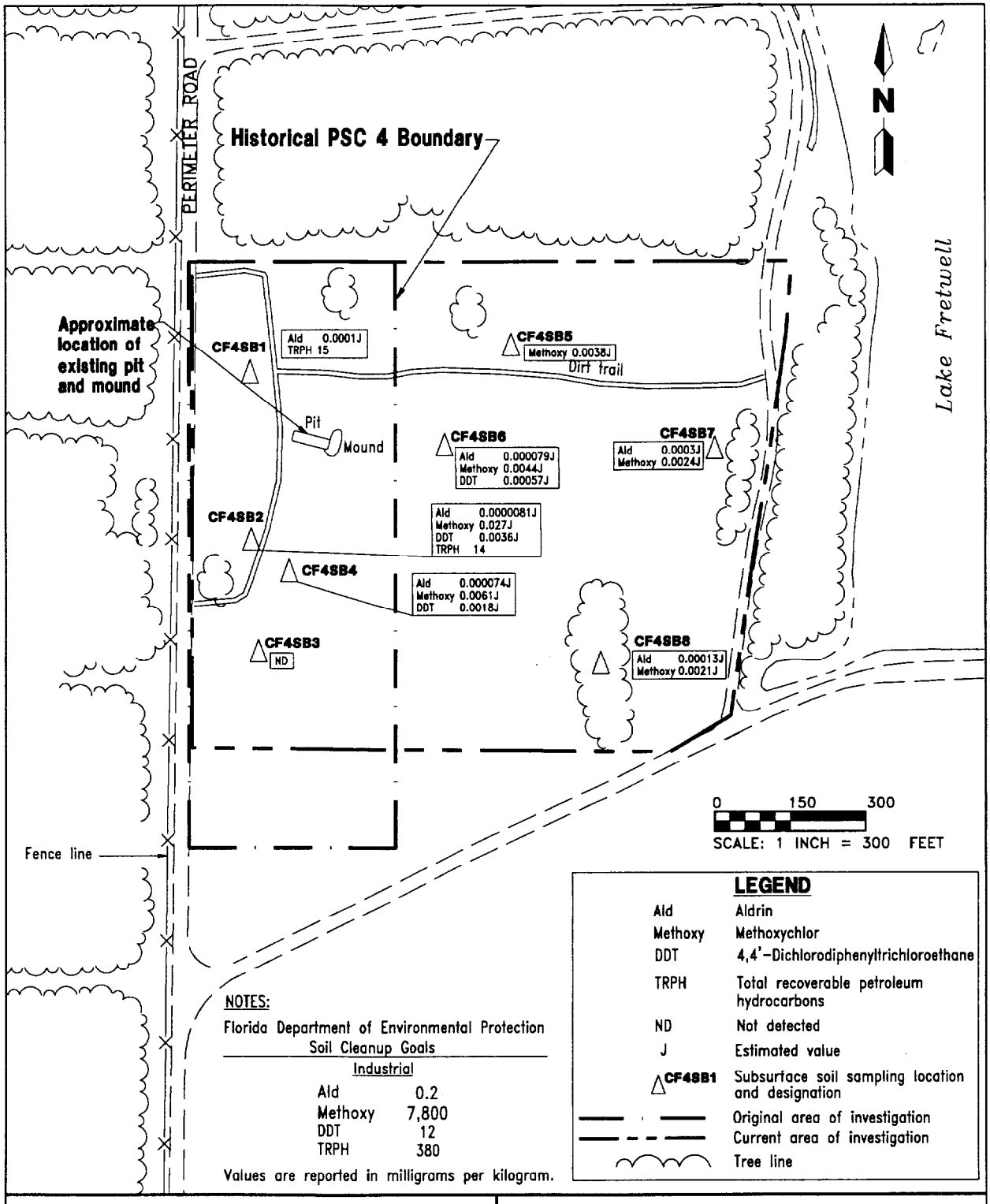

FIGURE 5-2
ORGANICS IN SUBSURFACE SOIL

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TECHNICAL MEMORANDUM FOR NO FURTHER ACTION, POTENTIAL SOURCE OF CONTAMINATION 4

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

Table 5-3
Organics in Subsurface Soil

Technical Memorandum For No Further Action
Potential Source of Contamination 4
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[3]
Subsurface Soil						
TRPH (mg/kg)	2/8	11 to 13	14 to 15	380	380	NG
Pesticides and PCBs (mg/kg)						
Aldrin	6/8	0.002	0.0000081 J to 0.0003 J	0.2	0.05	NG[4]
4,4'-DDT	3/8	0.0038 to 0.0043	0.00057 J to 0.0036 J	12	0.5	NG[4]
Methoxychlor	6/8	0.019 to 0.022	0.0021 J to 0.027 J	7,800	62	NG[4]

[1] Frequency of detection is the number of samples in which the analyte was detected over the total number of samples analyzed (4SB1, 4SB2, 4SB3, 4SB4, 4SB5, 4SB6, 4SB7, and 4SB8, including a duplicate at (4SB4).
[2] FDEP memorandum dated September 29, 1995 (FDEP, 1995). Values presented are based on an industrial land-use scenario.
[3] FDEP memorandum dated September 29, 1995. Values presented are based on soil leaching.
[4] Dutch Soil Cleanup (Interim) Act from Richardson, G.M., 1982, as reported in the U.S. Fish and Wildlife Service, Biological Report 1990(2), "Evaluating Soil Contamination," (Beyer, 1990). Values presented are based on the lesser of the cleanup goals based on background concentrations in soil or detection limits.
[5] No value was given for individual pesticides; however, total pesticide criterion is 0.1 mg/kg. The total pesticide concentration is less than the Dutch criterion.

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

FDEP = Florida Department of Environmental Protection.
TRPH = total recoverable petroleum hydrocarbons.
mg/kg = milligrams per kilogram.
NG = none given.
PCB = polychlorinated biphenyl.
J = estimated value.
DDT = dichlorodiphenyltrichloroethane.

Table 5-4
Inorganics in Subsurface Soil

Technical Memorandum For No Further Action
Potential Source of Contamination 4
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	8/8	40	1,170 to 14,900	1E+06	NC	NG
Barium	8/8	40	2 J to 7.2 J	84,000	NC	200
Calcium	8/8	1,000	41.8 J to 201 J	NG	NG	NG
Chromium	8/8	2	1.2 J to 17.2	430	NC	100
Cobalt	2/8	10	0.34 J to 0.39 J	110,000	NC	20
Copper	5/8	5	0.25 J to 0.91 J	NG	NG	50
Iron	8/8	20	234 to 677	NG	NG	NG
Lead	8/8	0.6	1.3 to 12.3	1,000	NC	50
Magnesium	8/8	1,000	30.2 J to 119 J	NG	NG	NG
Manganese	8/8	3	1.7 J to 6.4	5,500	NC	NG
Mercury	1/8	0.1	0.07 J	480	NC	0.5
Nickel	6/8	8	0.54 J to 2.7 J	26,000	NC	50
Potassium	7/8	1,000	24.6 J to 138 J	NG	NC	NG
Silver	1/8	2	1.1 J	9,000	NC	NG
Vanadium	8/8	10	1.2 J to 10.4 J	4,800	NC	NG
Zinc	6/8	4	0.62 J to 2.1 J	560,000	NC	200
Cyanide	2/8	0.5	0.07 J to 0.1 J	40,000	NC	1

[1] Frequency of detection is the number of samples in which the analyte was detected over the total number of samples analyzed (4SB1, 4SB2, 4SB3, 4SB4, 4SB5, 4SB6, 4SB7, and 4SB8, including a duplicate at 4SB4).
[2] FDEP memorandum dated September 29, 1995 (FDEP, 1995). Values presented are based on an industrial land-use scenario.
[3] FDEP memorandum dated September 29, 1995. Values presented are based on soil leaching.
[4] Dutch Soil Cleanup (Interim) Act from Richardson, G.M., 1982, as reported in the U.S. Fish and Wildlife Service. Biological Report 1990(2), "Evaluating Soil Contamination," (Beyer, 1990). Values presented are the lesser of the cleanup goals based on background concentrations in soil or detection limits.

Notes: FDEP = Florida Department of Environmental Protection.
mg/kg = milligrams per kilogram.
* = number exceeds 1E+06.
NG = none given.
J = estimated value.

Inorganics in Subsurface Soil. Seventeen inorganic analytical parameters were detected in the confirmatory subsurface soil samples collected at PSC 4. The confirmatory inorganic analytical results for subsurface soil are summarized in Table 5-4. None of these inorganic concentrations were greater than FDEP industrial-land use soil cleanup goals, Dutch screening criteria, or NAS Cecil Field screening criteria; therefore, a figure of detected inorganics is not presented.

5.3 GROUNDWATER. Thirteen confirmatory groundwater samples (CF4MW1, CF4MW1S, CF4MW2, CF4MW2S, CF4MW3, CF4MW3S, CF4MW4S, CF4MW5S, CF4MW6S, CF4MW7I, CF4MW8S, CF4MW9I and CFBKMW5S) were collected at PSC 4. The groundwater data were compared to (1) State and Federal drinking water standards, and (2) 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 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. Only data collected from monitoring well CF4MW5S were compared to BTAG surface water criteria due to its proximity to Lake Fretwell. Summaries of the confirmatory analytical results for groundwater samples are presented on Figures 5-3 and 5-4, and in Tables 5-5 and 5-6. A complete analytical data set for PSC 4 confirmatory samples is presented in Appendix C.

Organics in Groundwater. One VOC, 4-methyl-2-pentanone, was detected in only one groundwater sample, CF4MW6S, at a concentration of 9 J $\mu g/\ell$. The State of Florida guidance concentration for 4-methyl-2-pentanone is 350 $\mu g/\ell$. CF4MW6S is located in the western part of the site, approximately 50 feet downgradient of the existing pit.

Three SVOCs, 4-methylphenol, naphthalene, and bis(2-ethylhexyl)phthalate, were detected in groundwater samples at PSC 4. 4-Methylphenol was detected in only one groundwater sample, CF4MW6S, at a concentration of 3 J $\mu g/\ell$. Naphthalene was detected in only one groundwater sample, CF4MW1S (approximately 150 feet and cross gradient of the pit), at a concentration of 2 J $\mu g/\ell$. Bis(2-ethylhexyl)-phthalate was detected in two groundwater samples, CF4MW1S (2 J $\mu g/\ell$) and CF4MW6S (1 J $\mu g/\ell$). These concentrations are below State and Federal drinking water criteria. The State of Florida guidance concentrations for 4-methylphenol, naphthalene, and bis(2-ethylhexyl)phthalate are 35 $\mu g/\ell$, 6.8 $\mu g/\ell$, and 6 $\mu g/\ell$, respectively.

Two pesticides, heptachlor and heptachlor epoxide, were detected in groundwater samples from the western part of PSC 4. Heptachlor was detected in samples collected from monitoring well CF4MW2S adjacent to the pit and CF4MW6S at concentrations of 0.015 J $\mu g/\ell$ and 0.00091 J $\mu g/\ell$, respectively. Heptachlor epoxide was detected in samples collected from monitoring wells CF4MW1S and CF4MW2S at concentrations of 0.0051 J $\mu g/\ell$ and 0.0039 J $\mu g/\ell$, respectively. These concentrations are below State and Federal drinking water standards of 0.4 $\mu g/\ell$ for heptachlor and 0.2 $\mu g/\ell$ for heptachlor epoxide. Heptachlor and heptachlor epoxide were not detected in the two most downgradient monitoring wells (CF4MW4S and CF4MW5S), which are the closest to Lake Fretwell.

TRPH was not detected in any of the groundwater samples collected at PSC 4.

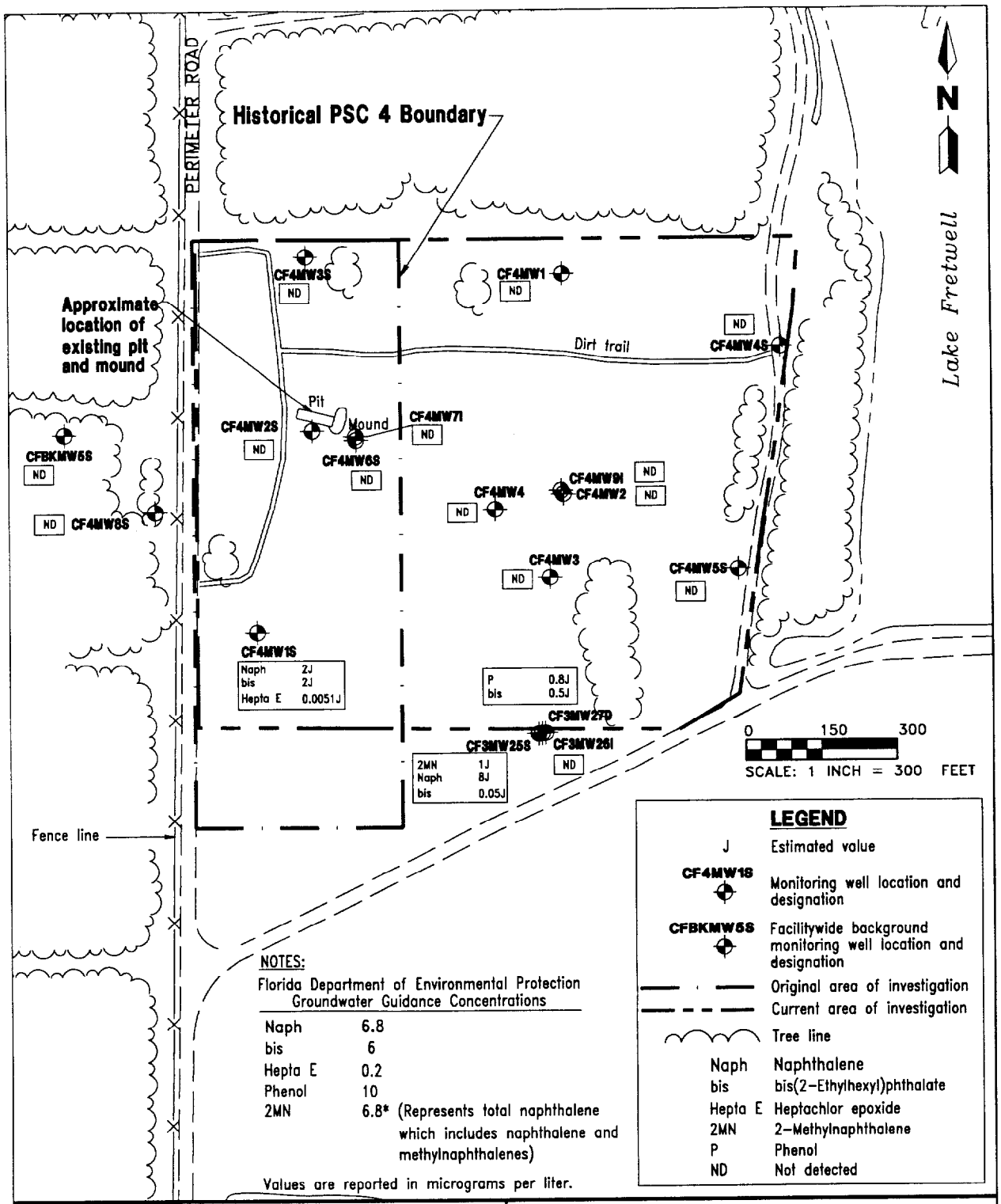

FIGURE 5-3
ORGANICS IN GROUNDWATER

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TECHNICAL MEMORANDUM FOR NO FURTHER ACTION, POTENTIAL SOURCE OF CONTAMINATION 4

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

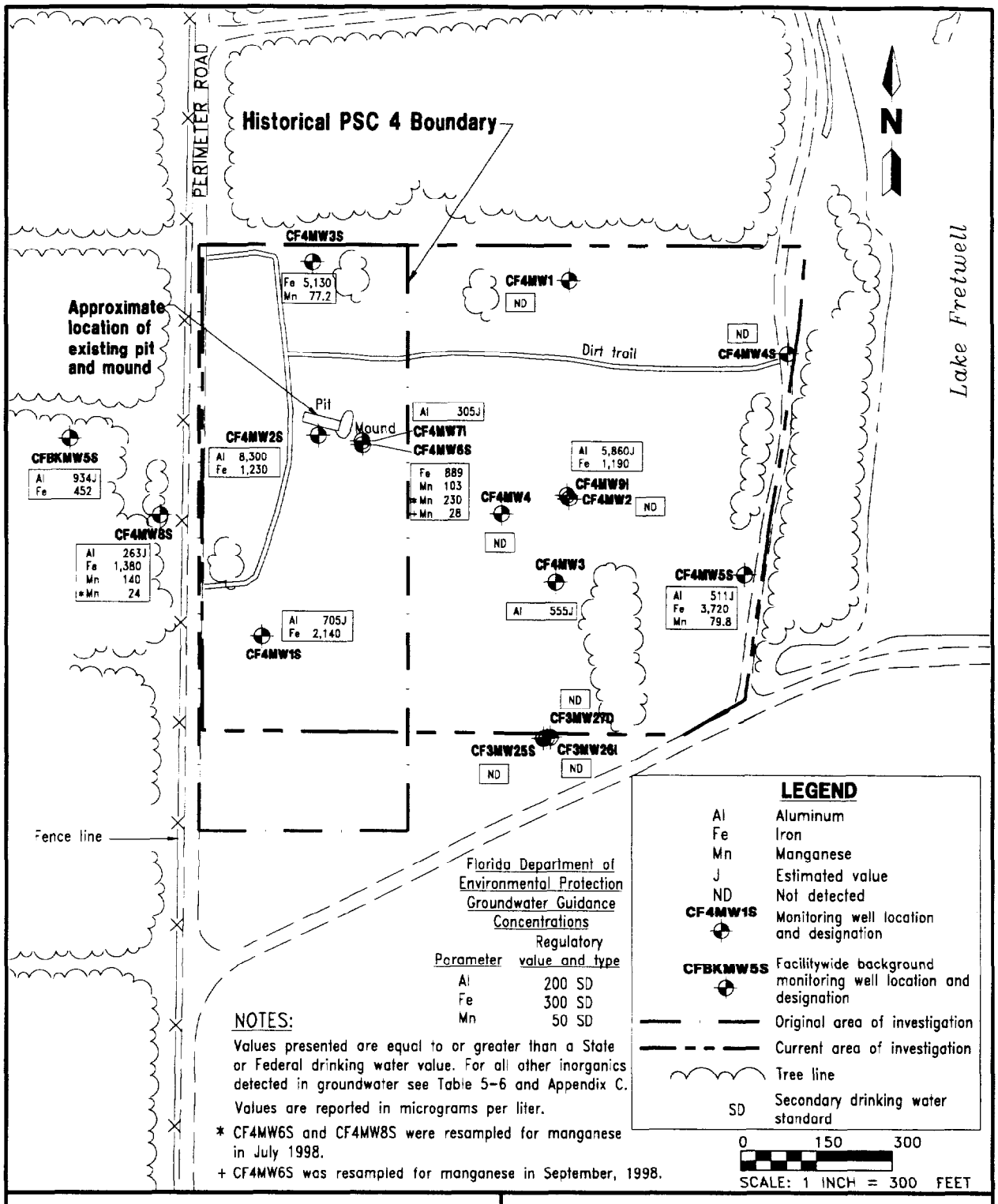

FIGURE 5-4
INORGANICS IN GROUNDWATER

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TECHNICAL MEMORANDUM FOR NO FURTHER ACTION, POTENTIAL SOURCE OF CONTAMINATION 4

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

Table 5-5
Organics in Groundwater

Technical Memorandum For No Further Action
Potential Source of Contamination 4
Naval Air Station Cecil Field
Jacksonville, Florida

Analytical Parameter	Frequency of Detection[1]	Range of Reporting Limits	Range of Detected Concentrations	FDEP Criteria[2]
Groundwater				
Volatile Organic Compounds (μg/ℓ)				
4-Methyl-2-pentanone	1/13	10	9 J	350 G
Semivolatile Organic Compounds (μg/ℓ)				
4-Methylphenol	1/13	10	3 J	35 G
Naphthalene	1/13	10	2 J	6.8 G
bis(2-Ethylhexyl)phthalate	2/13	10	1 J to 2 J	6 PD
Pesticides and PCBs (μg/ℓ)				
Heptachlor	2/13	0.50	0.00091 J to 0.015 J	0.4 PD
Heptachlor epoxide	2/13	0.50	0.0039 J to 0.0051 J	0.2 PD

[1] Frequency of detection is the number of samples in which the analyte was detected over the total number of samples analyzed (4MW1, 4MW1S, 4MW2, 4MW2S, 4MW3, 4MW3S, 4MW4S, 4MW5S, 4MW6S, 4MW7I, 4MW8S, 4MW9I, and CFBKMW5S, including duplicates at 4MW3S and 4MW9I).
[2] Values represent regulatory drinking water standards or guidance values from either State or Federal agencies.
[3] U.S. Environmental Protection Agency Region III BTAG Screening Levels, August 1995 (USEPA, 1995).

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

Table 5-6
Inorganics in Groundwater

Technical Memorandum For No Further Action
Potential Source of Contamination 4
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 Criteria[2]	BTAG Criteria[3] Fresh Water Flora/Fauna
Groundwater						
Inorganic Analytes (μg/ℓ)						
Aluminum	11/13	200	74 J to 8,300	13,100	200 SD	460pH/25pH[4]
Barium	12/13	200	5.1 J to 48.5 J	88.2	2,000 PD	10,000 A/10,000 A
Cadmium	4/13	5	0.2 J to [5]0.28 J	6.0	5 PD	1.1 H[6] C/0.53 H[6] C
Calcium	12/13	5,000	812 J to 73,500 J	81,100	NG	NG/NG
Chromium	1/13	10	[5]3.7 J	18.1	100 PD	2 C/11 C
Copper	3/13	25	4.4 J to 18.6 J	12.5	1,000 SD	NG/6.5 C
Iron	10/13	100	34.8 J to [5]5,130 J	7,760	300 SD	NG/320 C
Lead	1/13	3	4.9	5.35	15 PD	NG/3.2pH[4] C
Magnesium	12/13	5,000	293 J to 10,400	10,000	NG	NG/NG
Manganese	12/13	15	0.49 J to 140	96.2	50 SD	NG/14,500pH C
Manganese[7]	2/2	15	24 to 230	96.2	50 SD	NG/14,500pH C
Manganese[8]	1/1	15	28	96.2	50 SD	NG/14,500pH C
Mercury	3/13	0.2	0.1 J to 0.11 J	0.34	2 PD	0.012pH[4] H[6] C/ 0.012pH[4] H[6] C
Nickel	2/13	40	4.2 J to 8.8 J	24.5	100 PD	340/160 H C
Potassium	10/13	5,000	[5]281 J to 1,770 J	4,330	NG	NG/NG
Sodium	12/13	5,000	1,670 J to 12,200	16,500	160,000 PD	NG/NG
Vanadium	3/13	50	1.8 J to 8.3 J	20.2	49 G	NG/<10,000
Zinc	10/13	20	6 J to [5]75.8	76.8	5,000 SD	30 H[6] C/110 H[6] C
Cyanide	2/13	10	1.8 J to [5]130	22.0	200 PD	5.2 C/5.2 C
Cyanide[9]	0/1	10	ND	22.0	200 PD	5.2 C/5.2 C

[1] Frequency of detection is the number of samples in which the analyte was detected over the total number of samples analyzed (4MW1, 4MW1S, 4MW2, 4MW2S, 4MW3, 4MW3S, 4MW4S, 4MW5S, 4MW6S, 4MW7I, 4MW8S, 4MW9I, and CFBKMW5S, including duplicates at 4MW3S and 4MW9I).
[2] Values represent regulatory drinking water standards or guidance values from either State or Federal agencies.
[3] U.S. Environmental Protection Agency Region III BTAG Screening Levels, August 1995 (USEPA, 1995) only CF4MW5S was compared to BTAG Surface Water Criteria due to its proximity to Lake Fretwell.
[4] Value is dependent on pH.
[5] Average of sample and duplicate.
[6] Value is dependent on hardness.
[7] CF4MW6S and CF4MW8S were resampled for manganese in July 1998.
[8] CF4MW6S was resampled for manganese in September 1998.
[9] CF4MW3S was resampled for cyanide in July 1998.

Notes: Bold indicates at least one sample exceeds Naval Air Station Cecil Field screening criteria.

FDEP = Florida Department of Environmental Protection.
BTAG = biological technical assistance group.
μg/ℓ = micrograms per liter.
J = estimated value.
SD = secondary drinking water standard not a health-based criterion.
A = acute.
PD = primary drinking water standard.
C = chronic.
NG = none given.
G = guidance value.
< = less than.
ND = not detected.

Inorganics in Groundwater. Eighteen inorganic analytical parameters were detected in the confirmatory groundwater samples collected at PSC 4. The confirmatory inorganic analytical results for groundwater are summarized in Table 5-6.

Only aluminum and iron were detected at concentrations above State or Federal drinking water standards in groundwater. However, aluminum and iron were below the NAS Cecil Field screening criteria of 13,100 μg/ℓ for aluminum and 7,760 μg/ℓ for iron, as established by the NAS Cecil Field partnering team. The distributions of aluminum and iron concentrations for groundwater samples are presented on Figure 5-4. Aluminum was detected in 11 of the 13 groundwater samples collected. Concentrations ranged from 74 J μg/ℓ (CF4MW1) to 8,300 μg/ℓ (CF4MW2S). Iron was detected in 10 of the 13 groundwater samples collected at concentrations ranging from 34.8 J μg/ℓ to 5,130 μg/ℓ (CF4MW3S). The State of Florida secondary drinking water standards for aluminum and iron are 200 μg/ℓ and 300 μg/ℓ, respectively. Manganese was detected in 12 of the 13 groundwater samples at concentrations ranging from 0.49 to 140 μg/ℓ. Four of these samples were above the State of Florida secondary drinking water standard for manganese of 50 μg/ℓ. These were CF4MW3S (77.2 μg/ℓ), CF4MW5S (79.8 μg/ℓ), CF4MW6S (103 μg/ℓ), and CF4MW8S (140 μg/ℓ). Two of the groundwater samples, CF4MW6S and CF4MW8S, were above the NAS Cecil Field screening criterion for manganese of 96.2 μg/ℓ. Monitoring wells CF4MW6S and CF4MW8S were resampled for manganese in July 1998. Detected concentrations were 230 μg/ℓ (CF4MW6S) and 24 μg/ℓ (CF4MW8S). Monitoring well CF4MW6S was again resampled for manganese in September 1998. The detected concentration was 28 μg/ℓ, which is below the NAS Cecil Field screening criterion and State of Florida secondary drinking water standard for manganese. Cyanide was detected above NAS Cecil Field screening criteria in the sample collected from CF4MW3S. CF4MW3S was resampled for cyanide in July 1998, but was not detected.

6.0 PRELIMINARY RISK EVALUATION

A PRE was performed to evaluate the potential risks to human health and the environment posed by chemicals detected at PSC 4. This evaluation is not as comprehensive as a risk assessment due to the limited information available on the nature and extent of the chemicals present in soil and groundwater at PSC 4. To compensate for the limited amount of information, stringent criteria (both regulatory and guidance) were used in the PRE to identify whether or not site conditions can be expected to pose significant risk to warrant more detailed investigation and assessment.

6.1 PUBLIC HEALTH PRE. A human health PRE was conducted to evaluate the potential risks to human receptors at PSC 4. The PRE assumed residential exposures to surface soil and an industrial exposure to the subsurface soil at PSC 4. The human health PRE methodology is described in Appendix D.

6.1.1 Site Description and Human Health Exposure Pathways PSC 4 is presently not developed. Potential receptors include trespassers, site maintenance workers, and excavation workers.

6.1.2 Surface and Subsurface Soil No VOCs, SVOCs, pesticides, or PCBs were detected above soil cleanup goals. No inorganics were detected above NAS Cecil Field screening criteria. Therefore, a human health PRE was not required for surface soil and subsurface soil.

6.1.3 Groundwater

6.1.3.1 Organics No VOCs, SVOCs, pesticides, or PCBs were detected in groundwater above State or Federal drinking water standards.

6.1.3.2 Inorganics Three inorganics (copper, cyanide, and manganese) were detected in groundwater above NAS Cecil Field screening criteria (Table 6-1). A human health PRE was conducted for these inorganics. The inorganics detected at PSC 4 above the NAS Cecil Field screening criteria, with the exception of cyanide, have 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, presenting a ratio of maximum detected groundwater concentration of an analyte to the secondary drinking water standard can be useful. This is presented in Table 6-1 as an exceedance ratio. Table 6-1 also provides the USEPA classification of carcinogen or noncarcinogen for the analyte.

The exceedance ratios for copper, cyanide, and manganese are 0.02, 0.65, and 2.8, respectively. All of these analytes are considered noncarcinogens by the USEPA. Although copper exceeded NAS Cecil Field screening criteria, it did not exceed the secondary drinking water standards of 1,000 $\mu g/\ell$. Cyanide also exceeded NAS Cecil Field screening criteria, but did not exceed the primary drinking water standard for cyanide of 200 $\mu g/\ell$. CF4MW3S was resampled for cyanide in July 1998, but was not detected. Manganese exceeded the secondary drinking water standard of 50 $\mu g/\ell$ and the NAS Cecil Field screening criterion of 96.2 $\mu g/\ell$. However, the resampling in September 1998 indicated that manganese was detected

Table 6-1
Groundwater Analytes Detected Above Screening Criteria

Technical Memorandum For No Further Action
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Jacksonville, Florida

Analyte	Frequency of Detection[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.						
Inorganics, Unfiltered (µg/ℓ)						
Copper	3/13	18.6	12.5	1,000 SD	0.02	N
Cyanide	2/13	259	22.0	200 PD	1.3	N
Cyanide[7]	0/1	ND	22.0	200 PD	NC	N
Manganese	12/13	140	96.2	50 SD	2.8	N
Manganese[8]	2/2	230	96.2	50 SD	4.6	N
Manganese[9]	1/1	28	96.2	50 SD	0.6	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 4MW1, 4MW1S, 4MW2, 4MW2S, 4MW3, 4MW3S, 4MW4S, 4MW5S, 4MW6S, 4MW7I, 4MW8S, 4MW9I, and CFBKMW5S, including duplicates at 4MW3S and 4MW9I.
[2] Maximum detected concentration selected for screening criteria.
[3] NAS Cecil Field screening criteria established by the NAS Cecil Field partnering team.
[4] Primary or secondary drinking water standards from State or Federal standards.
[5] Ratio of exceedance is the maximum detected concentration over the regulatory standard. This is not a risk ratio, as secondary groundwater standards and some primary standards are not risk based.
[6] C = the analyte is considered by the USEPA as a carcinogen. N = the analyte is considered by the USEPA as a noncarcinogen.
[7] CF4MW3S was resampled for cyanide in July 1998.
[8] CF4MW6S and CF4MW8S were resampled for manganese in July 1998.
[9] CF4MW6S was resampled for manganese in September 1998.

Notes: NAS = Naval Air Station.
µg/ℓ = micrograms per liter.
PCB = polychlorinated biphenyl.
SD = secondary drinking water standard.
PD = primary drinking water standard.
ND = not detected.
NC = not calculated.
USEPA = U.S. Environmental Protection Agency.

at a concentration below the NAS Cecil Field screening criterion and Florida secondary drinking water standard for manganese. The NAS Cecil Field screening criterion exceedance ratios for manganese are 2.8, 4.6, and 0.6 (see Table 6-1).

6.1.4 Human Health PRE Conclusions This PRE analysis indicates that no adverse health effects would be expected in human receptors who come in contact with either the soil or groundwater at PSC 4. This conclusion is based on conservative exposure assumptions that are 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 4 following the methodology presented in Appendix D. Ecological habitats and receptors, and exposure pathways were characterized during site walk-overs conducted by HLA ecological risk assessors in September 1995 and October 1997.

6.2.1 Study-Area Characterization The ecological communities identified at PSC 4 included disturbed uplands, planted pine flatwoods, mixed pine/hardwoods, scrub-shrub marsh, forested swamp, and dry prairie. These habitats are likely of high value to terrestrial and semi-aquatic 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 the cotton mouse (*Peromyscus gossypinus*). Additional wildlife species that may use the site would include the short-tailed shrew (*Blarina brevicauda*), and the red fox (*Vulpes vulpes*). In addition, invertebrate and plant receptors are also present.

6.2.2 Identification of Potential Exposure Pathways Surface soil, subsurface soil, and groundwater samples were collected to support the PRE at PSC 4. All of these media, except subsurface soil, were evaluated in this PRE. 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 may have bioaccumulated contaminants in tissue, and direct contact and incidental ingestion of surface soil 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 groundwater. For this PRE, groundwater is assumed to be discharging to surface water and, therefore, the direct contact and incidental exposure pathways are being evaluated.

6.2.3 Contaminant Evaluation Tables 5-1, 5-2, 5-5, and 5-6 summarize the chemicals detected in surface soil and in groundwater. The maximum detected concentrations were compared to the NAS Cecil Field screening criteria (inorganics only), the Dutch Soil Cleanup values (Richardson, 1987), and USEPA Region III BTAG Screening Levels 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 at concentrations that exceeded their Tier I screening values. As a part of the Tier II evaluation, risk ratios were calculated for each of the screening criteria provided.

Table 6-2
Tier II Ecological Risk Ratios for Surface Soil

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Analyte	Frequency of Detection[1]	Maximum Detected Concentration	Plant Screening Value (mg/kg)[2]	Invertebrate Screening Value (mg/kg)[3]	Wildlife Screening Value (mg/kg)[4]	Risk Ratios (P,I,W)[5]
Semivolatile Organic Compounds (mg/kg)						
bis(2-Ethylhexyl)phthalate	1/5	0.046	1,000	NA	500,000	0.00005 P 0.0000009 W
TRPH	5/5	45	NA	NA	NA	NC

[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 CF4SS1, CF4SS2, CF4SS3, CF4SS4, and CF4SS5, including a duplicate at CF4SS3.
[2] 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).
[3] Invertebrate screening values are from Neuhauser et al., 1985, and others. (See Appendix D, Table D-2).
[4] 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.
[5] 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.

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

mg/kg = milligrams per kilogram.
NA = not available.
TRPH = total recoverable petroleum hydrocarbons.
NC = not calculated.

6.2.3.1 Surface Soil Tables 5-1 and 5-2 present the Tier I screening for organics and inorganics, respectively, and Table 6-2 presents the Tier II risk ratios for organics. One SVOC (bis(2-ethylhexyl)phthalate) and TRPH were lacking Dutch and BTAG screening values. No invertebrate screening value was available for bis(2-ethylhexyl)phthalate, and there were no screening values available to evaluate TRPH. The risk ratios calculated for plants and wildlife were well below 1 for bis(2-ethylhexyl)phthalate, indicating no potential for toxicity to these receptors. Risk ratios were not calculated for TRPH.

Calcium was detected at a concentration that exceeded its Tier I screening value; however, this analyte is an essential nutrient and would not likely present a risk to terrestrial receptors. None of the remaining inorganic analytes detected in surface soil exceeded the Tier I screening criteria. Therefore, there was no need for a Tier II evaluation for inorganics. Table 6-2 presents the Tier II risk ratios for organics.

6.2.3.2 Groundwater Tables 5-5 and 5-6 present the Tier I screening for organic and inorganics detected in groundwater. One VOC (4-methyl-2-pentanone) and one SVOC (4-methylphenol) were lacking screening values. In addition, two pesticides (heptachlor and heptachlor epoxide) were detected at concentrations that exceeded Tier I screening criteria. 4-Methyl-2-pentanone had a risk ratio of 0.0012 based on the Aquatic Information Retrieval (AQUIRE) lowest observed adverse effect concentration. No other ecological screening values were identified for this analyte. No risk ratio was calculated for 4-methylphenol, as ecological screening values were unavailable for this analyte. Heptachlor and heptachlor epoxide had risk ratios for Region IV, ambient water quality criteria (AWQC), and Florida ecological screening values of 4 and 1.3, respectively. No AQUIRE ecological screening values were available for these analytes.

Two inorganic analytes (copper and cyanide) were detected in groundwater at concentrations that exceeded Tier I screening criteria. Table 6-3 presents the Tier II risk ratios for organics and inorganics.

Copper had a risk ratio of 0.78 for Region IV, AWQC, and Florida ecological screening values. The risk ratio for copper was 12.4 (based on water flea reproduction and chronic mortality) for AQUIRE. The risk ratio for cyanide was 49.8 for Region IV, AWQC, and Florida ecological screening values. The risk ratio for cyanide was 1.4 for AQUIRE.

It is unlikely that there would be any risks to aquatic receptors from exposure to organic analytes detected in groundwater, based on low frequency of detection and low risk ratios. The inorganic analytes copper and cyanide were not detected in filtered groundwater and, therefore, would not likely be available to aquatic receptors. Risk ratios calculated for these analytes were relatively low, and they were detected at a low frequency; therefore, it is unlikely that these analytes would pose a risk to aquatic receptors. In addition, estimated risks for organics and inorganics are based on a comparison of maximum detected concentrations in groundwater to surface water screening benchmarks. This comparison assumes that the analytes detected in groundwater discharge to surface water without any dilution or attenuation, and is therefore likely to overestimate risks.

Table 6-3
Tier II Ecological Risk Ratios for Groundwater

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Analyte	Frequency of Detection[1]	Maximum Detected Concentration	Region IV Chronic Water Quality Screening Value[2]	Ambient Water Quality Criteria[3]	Florida Class III Surface Water Quality Standards[4]	AQUIRE LOAEC[5]	Risk Ratios (a,b,c,d)[6]
Volatile Organic Compounds (μg/ℓ)							
4-Methyl-2-pentanone	1/13	9	NA	NA	NA	7,800	0.0012 d
Semivolatile Organic Compounds (μg/ℓ)							
4-Methylphenol	1/13	3	NA	NA	NA	NA	NC
Pesticides and PCBs (μg/ℓ)							
Heptachlor	2/13	0.015	0.0038	0.0038	0.0038	NA	4 a,b,c
Heptachlor Epoxide	2/13	0.0051	0.0038	0.0038	0.0038	NA	1.3 a,b,c
Inorganics, Unfiltered (μg/ℓ)							
Copper	3/13	18.6	[7]24	[7]24	[7]24	1.5	0.78 a,b,c 12.4 d
Cyanide	2/13	259	5.2	5.2	5.2	180	49.8 a,b,c 1.4 d
Cyanide[8]	0/1	ND	5.2	5.2	5.2	180	NC

[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 4MW1, 4MW1S, 4MW2, 4MW2S, 4MW3, 4MW3S, 4MW4S, 4MW5S, 4MW6S, 4MW7I, 4MW8S, 4MW9I, and CFBKMW5S, including duplicates at 4MW3S and 4MW9I. Filtered groundwater was collected from well 4MW2S and 4MW9I, including a duplicate at 4MW9I.
[2] USEPA Region IV Waste Management Division Chronic Freshwater Surface Water Screening Values for Hazardous Waste Sites, November 1985.
[3] Federal Ambient Water Quality Criteria (USEPA, 1991; 1988).
[4] Chapter 62-302, Florida Administrative Code Surface Water Quality Standards, 1995.
[5] Reported toxicity values are from the USEPA AQUIRE database.
[6] The screening value is exceeded, as represented by the following letter code:
- a = Region IV screening value
- b = AWQC screening value
- c = Florida screening value
- d = AQUIRE screening value

[7] Hardness dependent criteria. Values were adjusted to site-specific hardness, based on site-specific calcium and magnesium concentrations.
[8] CF4MW3S was resampled for cyanide in July 1998.

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

AQUIRE = Aquatic Information Retrieval.
LOAEC = lowest observed adverse effect concentration.
μg/ℓ = micrograms per liter.
NA = not available.
NC = not calculated.
PCB = polychlorinated biphenyl.
USEPA = U.S. Environmental Protection Agency.
AWQC = ambient water quality criteria.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 CONCLUSIONS. Disposal activities were conducted at PSC 4 from the mid-1950s to the late 1980s. Materials disposed of included waste oil, sludge, kitchen grease, and possibly paint, paint thinners, and solvents. Conclusions pertaining to PSC 4 are listed below.

- The soil is relatively permeable, fine-grained sand, with some silt and clay.
- The surficial aquifer exists in the sandy materials from the water table to approximately 100 feet bls.
- Horizontal groundwater flow in the surficial aquifer is east toward Lake Fretwell; vertical flow is downward in the western part of the site and upward in the eastern part of the site, near Lake Fretwell.
- No VOCs, SVOCs, pesticides and PCBs, TRPH, and inorganics were detected in surface and subsurface soils above FDEP cleanup goals.
- Aluminum, iron, and manganese were detected in groundwater above State and Federal secondary (not health-based) drinking water standards. However, concentrations of aluminum and iron did not exceed the NAS Cecil Field screening criteria. The concentration of manganese slightly exceeded the NAS Cecil Field screening criterion; however, the concentration was below this criterion during the September 1998 resampling.

7.2 RECOMMENDATIONS. In accordance with USEPA and FDEP risk assessment guidance, evaluation of the data gathered during the field investigation at PSC 4 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

ANALYTICAL DATA FROM PREVIOUS INVESTIGATIONS

TECHNICAL SERVICES, INC.

ENVIRONMENTAL CONSULTANTS — INDUSTRIAL CHEMISTS
OFFICE 2471 SWAN ST. — P.O. BOX 52329
LABORATORIES 103-107 STOCKTON STREET
JACKSONVILLE, FLORIDA 32201
(904) 353-5761

Laboratory No. 58413 May 23, 1984

Sample of WATER

Date Received April 13, 1984

For GERAGHTY & MILLER, INC., Post Office Box 271173, Tampa, Florida 33688 ATTN: Mr. Fred Seguiti

Marks: S-2, Cecil Field

CERTIFICATE OF ANALYSIS OR TESTS

Arsenic, mg/l	<0.002
Barium, mg/l	0.005
Cadmium, mg/l	<0.005
Chromium, mg/l	<0.010
Lead, mg/l	<0.030
Mercury, mg/l	<0.0002
Selenium, mg/l	<0.003
Silver, mg/l	<0.006
Copper, mg/l	<0.003
Iron, mg/l	0.029
Manganese, mg/l	0.007
Zinc, mg/l	0.030
Nitrate, mg/l N	0.002
Hydrogen Sulfide, mg/l	<0.1
Chloride, mg/l	2.5
Fluoride, mg/l	0.045
pH	5.7
Sulfate, mg/l	2.8
Total Dissolved Solids, mg/l	15
Endrin, ppm	<0.00002
Lindane, ppm	<0.00001
Methoxychlor, ppm	<0.0001
Toxaphene, ppm	<0.0002
2,4-D, ppm	<0.001
2,4,5TP (Silvex) ppm	<0.0005
Gross Alpha, pCi/liter	<2
Gross Beta, pCi/liter	<3
*Total Organic Halide	40 ug/l

*Supplemental report

Respectfully submitted,

TECHNICAL SERVICES, INC.

By Harvey C. Gray, Jr.

TECHNICAL SERVICES, INC.

ENVIRONMENTAL CONSULTANTS — INDUSTRIAL CHEMISTS
OFFICE 2471 SWAN ST. — P.O. BOX 52329
LABORATORIES 103-107 STOCKTON STREET
JACKSONVILLE, FLORIDA 32201
(904) 353-5761

Laboratory No. 58414

May 23, 1984

Sample of WATER

Date Received April 13, 1984

For GERAGHTY & MILLER, INC., Post Office Box 271173, Tampa, Florida 33688 ATTN: Mr. Fred Seguiti

Marks: S-3, Cecil Field

CERTIFICATE OF ANALYSIS OR TESTS

Arsenic, mg/l	<0.002
Barium, mg/l	0.019
Cadmium, mg/l	<0.005
Chromium, mg/l	<0.010
Lead, mg/l	0.040
Mercury, mg/l	<0.0002
Selenium, mg/l	<0.003
Silver, mg/l	<0.006
Copper, mg/l	<0.003
Iron, mg/l	0.210
Manganese, mg/l	<0.002
Zinc, mg/l	<0.010
Nitrate, mg/l N	0.403
Hydrogen Sulfide, mg/l	<0.1
Chloride, mg/l	5.2
Fluoride, mg/l	0.054
pH	5.8
Sulfate, mg/l	6.3
Total Dissolved Solids, mg/l	23
Endrin, ppm	<0.00002
Lindane, ppm	<0.00001
Methoxychlor, ppm	<0.0001
Toxaphene, ppm	<0.0002
2,4-D, ppm	<0.001
2,4,5TP (Silvex) ppm	<0.0005
Gross Alpha, pCi/liter	<2
Gross Beta, pCi/liter	<3
*Total Organic Halide	52 ug/l

*Supplemental report

Respectfully submitted,

TECHNICAL SERVICES, INC.

By Harvey C. Gray, Jr.

CAMBRIDGE ANALYTICAL ASSOCIATES, INC.

Table 2 (cont'd.). Concentrations of Volatile Organic Compounds (Method 601[1])

Client: Geraghty and Miller - Tampa Report No.: 84-439

Compound	Sample ID: CAA ID:	Concentration ug/l (ppb)[2] S-1 8401955	S-2 8401956	S-3 8401957
chloromethane				
dichlorodifluoromethane				
vinyl chloride				
chloroethane				
methylene chloride				
trichlorofluoromethane				
1,1-dichloroethene				
1,1-dichloroethane				
trans-1,2-dichloroethene				
chloroform				
1,2-dichloroethane				
1,1,1-trichloroethane				
carbon tetrachloride				
bromodichloromethane				
1,2-dichloropropane				
trans-1,3-dichloropropane				
trichloroethene				
dibromochloromethane				
1,1,2-trichloroethane				
cis-1,3 dichloropropene				
2-chloroethylvinyl ether				
bromoform				
1,1,2,2-tetrachloroethane				
tetrachloroethene				
chlorobenzene				
Detection Limit		0.1	0.1	0.1

[1]U.S. EPA. 1982. Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater. EPA 600/4-82-057. EPA/EMSL, Cincinnati, Ohio.

[2]Concentrations less than the detection limit are left blank.

TECHNICAL SERVICES, INC.

ENVIRONMENTAL CONSULTANTS — INDUSTRIAL CHEMISTS
OFFICE 2471 SWAN ST. — P.O. BOX 52329
LABORATORIES 103-107 STOCKTON STREET
JACKSONVILLE, FLORIDA 32201
(904) 353-5761

Laboratory No. 58410 May 23, 1984

Sample of WATER

Date Received April 13, 1984

For GERAGHTY & MILLER, INC., Post Office Box 271173, Tampa, Florida 33688 ATTN: Mr. Fred Seguiti

Marks: SA-1, Cecil Field

CERTIFICATE OF ANALYSIS OR TESTS

Arsenic, mg/l	<0.002
Barium, mg/l	0.063
Cadmium, mg/l	<0.005
Chromium, mg/l	<0.010
Lead, mg/l	<0.030
Mercury, mg/l	0.0002
Selenium, mg/l	<0.003
Silver, mg/l	<0.006
Copper, mg/l	<0.003
Iron, mg/l	0.042
Manganese, mg/l	0.003
Zinc, mg/l	<0.010
Nitrate, mg/l N	0.003
Hydrogen Sulfide, mg/l	0.1
Chloride, mg/l	8.3
Fluoride, mg/l	0.268
pH	7.5
Sulfate, mg/l	4.2
Total Dissolved Solids, mg/l	251
Endrin, ppm	<0.00002
Lindane, ppm	<0.00001
Methoxychlor, ppm	<0.0001
Toxaphene, ppm	<0.0002
2,4-D, ppm	<0.001
2,4,5TP (Silvex) ppm	<0.0005
Gross Alpha, pCi/Liter	<2
Gross Beta, pCi/Liter	<3
*Total Organic Halide	50 ug/l

*Supplemental report

Respectfully submitted,

TECHNICAL SERVICES, INC.

Harvey C. Gray, Jr.

CAMBRIDGE ANALYTICAL ASSOCIATES, INC.

Table 2. Concentrations of Volatile Organic Compounds (Method 601[1])

Client: Geraghty and Miller - Tampa Report No.: 84-439

Compound	Sample ID: CAA ID:	Concentration ug/l (ppb)[2] SA-1 8401952
chloromethane		
dichlorodifluoromethane		
vinyl chloride		
chloroethane		
methylene chloride		
trichlorofluoromethane		
1,1-dichloroethene		
1,1-dichloroethane		
trans-1,2-dichloroethene		
chloroform		
1,2-dichloroethane		
1,1,1-trichloroethane		
carbon tetrachloride		
bromodichloromethane		
1,2-dichloropropane		
trans-1,3-dichloropropane		
trichloroethene		
dibromochloromethane		
1,1,2-trichloroethane		
cis-1,3 dichloropropene		
2-chloroethyl-vinyl ether		
bromoform		
1,1,2,2-tetrachloroethane		
tetrachloroethene		
chlorobenzene		
Detection Limit		0.1

[1]U.S. EPA. 1982. Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater. EPA 600/4-82-057. EPA/EMSL, Cincinnati, Ohio.

[2]Concentrations less than the detection limit are left blank.

CAMBRIDGE ANALYTICAL ASSOCIATES, INC.

Table 3. Concentration of Acid Extractables (Method 625[1])

Client: Geraghty and Miller - Tampa Report No.: 84-439

Compound	Sample ID: CAA ID:	Concentration - ug/l (ppb)[2] SA-1 8401952	S-2 8401956	S-3 8401957
ACID COMPOUNDS				
(21A) 2,4,6-trichlorophenol				
(22A) p-chloro-m-cresol				
(24A) 2-chlorophenol				
(31A) 2,4-dichlorophenol				
(34A) 2,4-dimethylphenol				
(57A) 2-nitrophenol				
(58A) 4-nitrophenol				
(59A) 2,4-dinitrophenol				
(60A) 4,6-dinitro-2-methylphenol				
(64A) pentachlorophenol				
(65A) phenol				
Detection Limit		2	2	2

Soil Analytical Summary, Site 4

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

Identifier:	BOR4-1-1		BOR4-1-2		BOR4-2-1		BOR4-2-2		BOR4-3-1		BOR4-3-2	
Sample Depth (feet, bls):	0-2'		2-4'		0-2'		2-4'		0-2'		2-4'	
Volatiles (µg/kg)												
Acetone	35	U	10	U	11	U	12	U	11	U	12	U
Benzene	5	U	6	U	5	U	6	U	6	U	6	U
2-Butanone	11	U	12	U	11	U	12	U	11	U	12	U
Carbon Disulfide	5	U	6	U	5	U	6	U	6	U	6	U
Chloroform	5	U	6	U	5	U	6	U	6	U	6	U
1,2-Dichloroethene (total)	5	U	6	U	5	U	6	U	6	U	6	U
Ethylbenzene	5	U	6	U	5	U	6	U	6	U	6	U
2-Hexanone	11	U	12	U	11	U	12	U	11	U	12	U
4-Methyl-2-pentanone	11	U	12	U	11	U	12	U	11	U	12	U
Methylene chloride	9	U	15	U	8	U	15	U	10	U	11	U
Toluene	5	U	6	U	5	U	6	U	6	U	6	U
Trichloroethene	5	U	6	U	5	U	6	U	6	U	6	U
Xylenes (total)	3	J	6	U	5	U	6	U	6	U	6	U
Semivolatiles (µg/kg)												
4-Methylphenol	360	U	380	U	360	U	12,000	U	390	U	400	U
2,4-Dimethylphenol	360	U	380	U	360	U	12,000	U	390	U	400	U
Benzoic acid	1,700	U	1,800	U	1,800	U	56,000	U	1,900	U	1,900	U
Dibenzofuran	360	U	380	U	360	U	12,000	U	390	U	400	U
Fluoranthene	360	U	380	U	360	U	12,000	U	390	U	400	U
Fluorene	360	U	380	U	360	U	12,000	U	390	U	400	U
Naphthalene	360	U	380	U	360	U	1,200	J	390	U	400	U

See notes at end of table.

Soil Analytical Summary, Site 4

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

Identifier:	BOR4-1-1		BOR4-1-2		BOR4-2-1		BOR4-2-2		BOR4-3-1		BOR4-3-2	
Sample Depth (feet, bls):	0-2'		2-4'		0-2'		2-4'		0-2'		2-4'	
Semivolatiles (continued)												
Pentachlorophenol	1,700	U	1,800	U	1,800	U	56,000	U	1,900	U	1,900	U
Phenanthrene	360	U	380	U	360	U	12,000	U	390	U	400	U
Phenol	360	U	380	U	360	U	12,000	U	390	U	400	U
Pyrene	360	U	380	U	360	U	12,000	U	390	U	400	U
2-Methylphenol	360	U	380	U	360	U	12,000	U	390	U	400	U
Benzo (g,h,i) perylene	360	U	380	U	360	U	12,000	U	390	U	400	U
2-Methylnaphthalene	360	U	380	U	360	U	3,200	J	390	UJ	400	U
Diethylphthalate	360	U	380	U	360	U	12,000	U	390	U	400	U
Benzo (a) anthracene	360	U	380	U	360	U	12,000	U	390	U	400	U
bis(2-Ethylhexyl)phthalate	62	J	380	U	360	U	12,000	U	390	U	130	J
Di-n-octylphthalate	360	U	380	U	360	U	12,000	U	390	U	400	U
Benzo (b) fluoranthene	360	U	380	U	360	U	12,000	U	390	U	400	U
Benzo (k) fluoranthene	360	U	380	U	360	U	12,000	U	390	U	400	U
Benzo (a) pyrene	360	U	380	U	360	U	12,000	U	390	U	400	U
Indeno (1,2,3-cd) pyrene	360	U	380	U	360	U	12,000	U	390	U	400	U
Pesticides (µg/kg)												
beta-BHC	4.3	U	9.2	U	8.8	U	9.3	U	9.4	U	9.6	U
Aroclor 1260	170	U	180	U	180	U	190	U	190	U	190	U

See notes at end of table.

Soil Analytical Summary, Site 4

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

Identifier:	BOR4-1-1		BOR4-1-2		BOR4-2-1		BOR4-2-2		BOR4-3-1		BOR4-3-2	
Sample Depth (feet, bls):	0-2'		2-4'		0-2'		2-4'		0-2'		2-4'	
Inorganics (mg/kg)												
Aluminum	*2,690		*5,140		*2,260		*3,190		*2,180		*2,380	
Antimony	8.74	UJ	9.58	UJ	9.08	UJ	9.08	UJ	9.08	UJ	9.75	UJ
Barium	7.69	U	6.11	U	3.29	U	4.08	U	2.88	U	3.27	U
Beryllium	0.02	U	0.03	U	0.02	U	0.02	U	0.02	U	0.03	U
Cadmium	0.35	U	0.39	U	0.37	U	0.37	U	0.37	U	0.39	U
Calcium	*441	UJ	*253	UJ	*347	UJ	*170	UJ	*217	UJ	*214	UJ
Chromium	3.25	J	8.31	J	1.77	J	4.05	J	1.63	J	3.42	J
Copper	7.19	J	0.34	UJ	0.32	UJ	0.48	J	0.32	UJ	0.35	UJ
Iron	*866	J	*1,000	J	*443	J	*1,354	J	*493	J	*524	J
Lead	5.03	J	2.79	J	2.58	J	4.78	J	0.69	UJ	1.84	J
Magnesium	*106	UJ	*170	UJ	*62.0	UJ	*72.8	UJ	*49.8	UJ	*56.4	UJ
Manganese	3.48	J	2.85	J	4.16	J	2.38	J	1.55	J	1.41	J
Mercury	0.09	UJ	0.11	UJ	0.1	UJ	0.1	UJ	0.08	UJ	0.1	UJ
Nickel	1.53	U	1.67	U	1.58	U	1.58	U	1.58	U	1.7	U
Potassium	*38.6	U	*45.7	U	*40.1	U	*40.1	U	*40.1	U	43	U
Selenium	0.49	UJ	0.36	UJ	0.26	UJ	0.27	UJ	0.27	UJ	0.31	UJ
Thallium	0.31	UJ	0.34	U	0.32	UJ	0.32	U	0.32	UJ	0.34	U
Vanadium	1.63	U	3.56	U	1.21	U	3.28	U	1.59	U	1.86	U
Zinc	*19.6	J	5.76	J	9.23	J	*14.4	J	6.78	J	4.79	J
Total Petroleum Hydrocarbons (mg/kg)	13		2	U	4.6		4,880		1.8	U	2	U

See notes at end of table.

Soil Analtyical Summary, Site 4

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

Identifier:	BOR4-4-1		BOR4-4-1-D		BOR4-4-2		BOR4-5-1		BOR4-5-2		BOR4-6-1		BOR4-6-2	
			Dup of BOR4-4-1											
Sample Depth (feet, bls):	0-2'				2-4'		0-2'		2-4		0-2'		2-4'	
Volatiles (µg/kg)														
Acetone	11	U	12	UJ	12	U	11	U	12	U	11	U	12	U
Benzene	5	U	5	UJ	6	U	5	U	6	U	5	U	6	U
2-Butanone	11	U	11	UJ	12	U	11	U	12	U	11	U	12	U
Carbon Disulfide	5	U	5	UJ	6	U	5	U	6	U	5	U	6	U
Chloroform	5	U	5	UJ	6	U	5	U	6	U	5	U	6	U
1,2-Dichloroethene (total)	5	U	5	UJ	6	U	5	U	6	U	1	J	6	U
Ethyl benzene	5	U	2	J	6	U	5	U	6	U	5	U	6	U
2-Hexanone	11	U	2	J	12	U	11	U	12	U	11	U	12	U
4-Methyl-2-pentanone	11	U	11	UJ	12	U	11	U	12	U	11	U	12	U
Methylene chloride	14	U	29	UJ	12	U	13	U	15	U	10	U	12	U
Toluene	5	U	1	J	6	U	5	U	6	U	5	U	6	U
Trichloroethene	5	U	5	UJ	6	U	5	U	6	U	5	U	6	U
Xylenes (total)	5	U	4	J	6	U	1	J	6	U	2	J	6	U
Semivolatiles (µg/kg)														
4-Methylphenol	360	U	360	U	400	U	360	U	400	U	380	U	390	U
2,4-Dimethylphenol	360	U	360	U	400	U	360	U	400	U	380	U	390	U
Benzoic acid	1,700	U	1,700	U	1,900	U	1,800	U	1,900	U	1,900	U	1,900	U
Dibenzofuran	360	U	360	U	400	U	360	U	400	U	380	U	390	U
Fluoranthene	360	U	360	U	400	U	360	U	400	U	380	U	390	U
Fluorene	360	U	360	U	400	U	360	U	400	U	380	U	390	U

See notes at end of table.

Soil Analtyical Summary, Site 4

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

Identifier:	BOR4-4-1		BOR4-4-1-D Dup of BOR4-4-1		BOR4-4-2		BOR4-5-1		BOR4-5-2		BOR4-6-1		BOR4-6-2	
Sample Depth (feet, bls):	0-2'				2-4'		0-2'		2-4		0-2'		2-4'	
Inorganics (mg/kg)														
Aluminum	*1,920		*1,720		*1,040		*2,910		*5,730		*1,920		*1,470	
Antimony	8.83	UJ	8.76	UJ	9.63	UJ	8.77	UJ	9.92	UJ	8.6	UJ	9.35	UJ
Barium	7.78	U	5.44	U	2.29	U	3.66	U	4.47	U	2.47	U	2.62	U
Beryllium	0.02	U	0.02	U	0.03	U	0.02	U	0.03	U	0.02	U	0.02	U
Cadmium	0.41	U	0.35	U	0.39	U	0.35	U	0.4	U	0.35	U	0.38	U
Calcium	*53,900	J	*25,100	J	*680	UJ	*269	UJ	*223	UJ	*206	UJ	*196	UJ
Chromium	4.91	J	2.03	J	1.24	J	1.59	J	6.64	J	1.14	J	1.78	J
Copper	0.76	J	0.31	UJ	0.34	UJ	0.31	UJ	0.35	UJ	0.31	UJ	0.33	UJ
Iron	*643	J	*460	J	*497	J	*504	J	*624	J	*530	J	*409	J
Lead	2.43	J	2.21	J	0.76	UJ	1.61	J	1.93	J	1.39	UJ	0.94	UJ
Magnesium	*385	UJ	*190	UJ	38.9	UJ	*64.7	UJ	*89.4	UJ	*47.4	UJ	*50.3	UJ
Manganese	*12.46	J	7.65	J	4.48	J	3.48	J	2.16	J	4.37	J	1.86	J
Mercury	0.09	UJ	0.09	UJ	0.11	UJ	0.09	UJ	0.09	UJ	0.08	UJ	0.09	UJ
Nickel	1.54	U	1.53	U	1.68	U	1.53	U	1.73	U	1.5	U	1.71	U
Potassium	*39.0	U	38.9	U	*42.5	U	*55.2	U	*43.8	U	*38.0	U	*41.2	U
Selenium	0.29	UJ	0.53	UJ	0.27	UJ	0.41	UJ	0.28	UJ	0.31	UJ	0.32	UJ
Thallium	0.31	U	0.31	UJ	0.34	U	0.31	U	0.35	U	0.3	U	0.33	U
Vanadium	3.98	U	1.71	U	1.13	U	1.92	U	2.71	U	1.13	U	1.02	U
Zinc	6.33	J	4.03	UJ	2.21	UJ	2.56	UJ	*11.6	J	6.08	J	5.01	J
Total Petroleum Hydrocarbons (mg/kg)	1.8	U	1.8	U	2	U	1.8	U	2.1	U	3.5		1.9	U

* Corrected for significant figures from Technical Memorandum for Supplemental Sampling (TMSS).

Notes: µg/kg = micrograms per kilogram.
mg/kg = milligrams per kilogram.
bls = below land surface.

U = undetected.
J = estimated.
UJ = quantitation estimated.

Soil Analtyical Summary, Site 4

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

Identifier:	BOR4-4-1		BOR4-4-1-D Dup of BOR4-4-1		BOR4-4-2		BOR4-5-1		BOR4-5-2		BOR4-6-1		BOR4-6-2	
Sample Depth (feet, bls):	0-2'				2-4'		0-2'		2-4		0-2'		2-4'	
Semivolatiles (continued)														
Naphthalene	360	U	360	U	400	U	360	U	400	U	380	U	390	U
Pentachlorophenol	1,700	U	1,700	U	1,900	U	1,800	U	1,900	U	1,900	U	1,900	U
Phenanthrene	360	U	360	U	400	U	360	U	400	U	380	U	390	U
Phenol	360	U	360	U	400	U	360	U	400	U	380	U	390	U
Pyrene	360	U	360	U	400	U	360	U	400	U	380	U	390	U
2-Methylphenol	360	U	360	U	400	U	360	U	400	U	380	U	390	U
Benzo (g,h,I) perylene	360	U	360	U	400	U	360	U	400	U	380	U	390	U
2-Methylnaphthalene	360	UJ	360	UJ	400	UJ	360	UJ	400	UJ	380	UJ	390	U J
Diethylphthalate	360	U	360	U	400	U	360	U	43	J	380	U	41	J
Benzo (a) anthracene	360	U	360	U	400	U	360	U	400	U	380	U	390	U
bis(2-Ethylhexyl)phthalate	360	U	360	U	400	U	360	U	400	U	56	J	390	U
Di-n-octylphthalate	360	U	360	U	400	U	360	U	400	U	380	U	390	U
Benzo (b) fluoranthene	360	U	360	U	400	U	360	U	400	U	380	U	390	U
Benzo (k) fluoranthene	360	U	360	U	400	U	360	U	400	U	380	U	390	U
Benzo (a) pyrene	360	U	360	U	400	U	360	U	400	U	380	U	390	U
Indeno (1,2,3-cd) pyrene	360	U	360	U	400	U	360	U	400	U	380	U	390	U
Pesticides (µg/kg)														
beta-BHC	8.7	U	8.7	U	9.6	U	8.8	U	9.6	U	9.3	U	9.4	U
Aroclor 1260	170	U	170	U	190	U	180	U	190	U	190	U	190	U

See notes at end of table.

TITLE: NAS Cecil Field PSC Investigation	**LOG of WELL:** CEF-4-2S	**BORING NO.** CEF-4-2S
CLIENT: SOUTHDIVNAVFACENGCOM		**PROJECT NO:** 07537-03

CONTRACTOR: Groundwater Protection, Inc.		**DATE STARTED:** 10-22-91	**COMPLTD:** 10-22-91
METHOD: H.S.A.	**CASE SIZE:** 2 in.	**SCR. INT.:** 3 - 13 ft.	**PROTECTION LEVEL:**
TOC ELEV.: ft.	**MONITOR INST.:** PID	**TOT DPTH:** 13.5ft.	**DPTH TO ∇** 2.50 ft.
LOGGED BY: Creed King	**WELL DEVELOPMENT DATE:** 10-23-91		**SITE:** #4

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					SILTY SAND (SM): Fine-grained, light gray.		SM		
					CLAYEY SAND (SC): Dark brown.		SC		
5									
10									
15									
20									

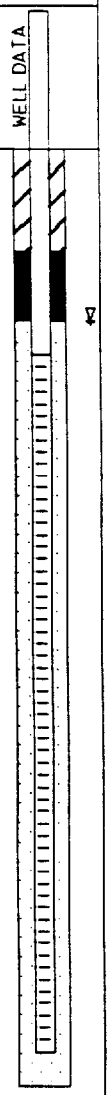

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Cecil Field PSC Investigation		**LOG of WELL:** CEF-4-3S	**BORING NO.** CEF-4-3S
CLIENT: SOUTHDIVNAVFACENGCOM			**PROJECT NO:** 08544-78
CONTRACTOR: Alliance Environmental, Inc.		**DATE STARTED:** 4-1-87	**COMPLTD:** 4-1-87
METHOD: Auger	**CASE SIZE:** 2 in.	**SCR. INT.:** 6 - 18 ft.	**PROTECTION LEVEL:** D
TOC ELEV.: ft.	**MONITOR INST.:** PID	**TOT DPTH:** 19ft.	**DPTH TO ∇** 3.17 ft.
LOGGED BY: R. Holloway	**WELL DEVELOPMENT DATE:** 4-30-87		**SITE:** PSC 4

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

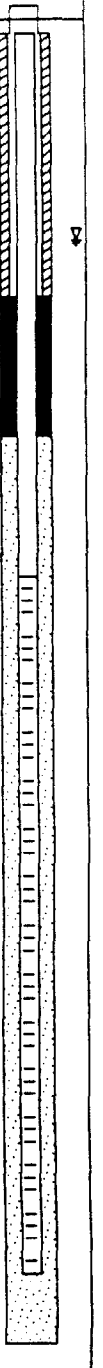

ABB ENVIRONMENTAL SERVICES, INC.

Groundwater Target Analyte List (TAL) and Target Compound List (TCL) Summary, Site 4

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

Identifier:	CEF-4-1S		CEF-4-2S	
Screen Interval (feet, bls):	3-13'		3-13'	
Volatiles (µg/l)				
Acetone	11	U	14	U
Benzene	5	U	5	U
2-Butanone	10	U	10	U
Chloroethane	10	U	10	U
1,1-Dichloroethene	5	U	5	U
1,1-Dichloroethane	5	U	5	U
1,2-Dichloroethene (total)	5	U	5	U
Ethyl benzene	5	U	5	U
4-Methyl-2-pentanone	2	J	10	U
Toluene	5	U	5	U
1,1,1-Trichloroethane	5	U	5	U
1,1,2-Trichloroethane	5	U	5	U
Trichloroethene	5	U	5	U
Xylenes	6	U	5	U
Semivolatiles (µg/l)				
bis(2-Ethylhexyl)phthalate	2	J	2	J
Di-n-butylphthalate	10	U	10	U
2-Methylnaphthalene	4	J	10	U
4-Methylphenol	10	U	10	U
Naphthalene	11		10	U
Phenol	10	U	10	U
Dibenzofuran	10	U	10	U
1,2-Dichlorobenzene	10	U	10	U
2,4-Dimethylphenol	10	U	10	U
2-Methylphenol	10	U	10	U
Benzoic acid	50	U	50	U
Pesticides (µg/l)				
beta-BHC	0.05	U	0.05	U

See notes at end of table.

Groundwater Target Analyte List (TAL) and Target Compound List (TCL) Summary, Site 4

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

Identifier:	CEF-4-1S		CEF-4-2S	
Screen Interval (feet, bls):	3-13'		3-13'	
Inorganics (μg/ℓ)				
Aluminum	*32,400		*82,800	
Antimony	*40.0	U	*40.0	U
Arsenic	0.76	U	0.83	U
Barium	*43.2	J	65.9	J
Calcium	*5,790		*3,890	U
Chromium	*24.4		*74.1	
Cobalt	5.12	U	5.12	U
Copper	4.65	J	8.95	J
Iron	*4,600		*5,620	
Lead	5.66		19.2	
Magnesium	*1,400	U	*1,580	U
Manganese	*37.0		*22.8	
Mercury	0.16	U	0.33	
Nickel	6.97	U	14.49	U
Potassium	*1,370	U	*1,560	U
Selenium	1.14	U	1.14	UJ
Sodium	*7,970	J	*1,940	UJ
Thallium	1.4	UJ	1.4	UJ
Vanadium	*17.0	U	*33.5	U
Zinc	*11.4	U	*18.8	U
Cyanide	1.8	U	1.8	U
Total Petroleum Hydrocarbons (mg/ℓ)	0.05	U	0.07	

* Corrected for significant figures from Technical Memorandum for Supplemental Sampling (TMSS).

Notes: μg/ℓ = micrograms per liter. U = undetected.
mg/ℓ = milligrams per liter. J = estimated.
bls = below land surface. UJ = quantitation estimated.

APPENDIX B

BORING LOGS AND WATER-LEVEL MEASUREMENTS

TITLE: NAS Cecil Field PSC Investigation	**LOG of WELL:** CEF-4-6S	**BORING NO.** CEF-4-6S
CLIENT: SOUTHDIVNAVFACENGCOM		**PROJECT NO:** 08544-78
CONTRACTOR: Alliance Environmental, Inc.	**DATE STARTED:** 4-2-97	**COMPLTD:** 4-2-97
METHOD: Auger	**CASE SIZE:** 2 in.	**SCR. INT.:** 7 - 17 ft.	**PROTECTION LEVEL:** D
TOC ELEV.: ft.	**MONITOR INST.:** PID	**TOT DPTH:** 18ft.	**DPTH TO ∇** 3.32 ft.
LOGGED BY: R. Holloway	**WELL DEVELOPMENT DATE:** 4-30-97	**SITE:** PSC 4

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
				350	SILTY SAND (SM): 100%, quartz, light gray, fine-grained, sub-rounded to sub-angular.		SM	posthole
				340				posthole
5				310				2,4,3,6
				285	CLAYEY SAND (SC): 100%, quartz, brownish gray, very fine-grained, sub-rounded to sub-angular, moist.		SC	9,8,11,16
				240				7,10,14,19
10					SILTY SAND (SM): 100%, quartz, light gray, fine-grained, sub-rounded to sub-angular.		SM	
15								
20								

WELL DATA

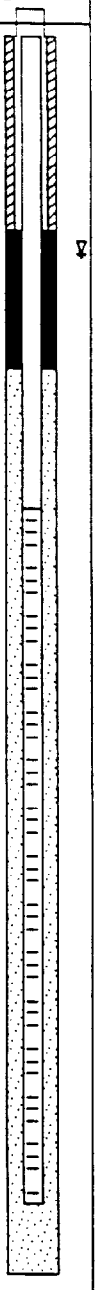

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Cecil Field PSC Investigation		**LOG of WELL:** CEF-4-7I	**BORING NO.** CEF-4-7I
CLIENT: SOUTHDIVNAVFACENGCOM			**PROJECT NO:** 08544-78
CONTRACTOR: Alliance Environmental, Inc.		**DATE STARTED:** 4-21-97	**COMPLTD:** 4-21-97
METHOD: Auger	**CASE SIZE:** 2 in.	**SCR. INT.:** 30 - 40 ft.	**PROTECTION LEVEL:** D
TOC ELEV.: ft.	**MONITOR INST.:** PID	**TOT DPTH:** 41ft.	**DPTH TO ∇** 3.47 ft.
LOGGED BY: R. Holloway	**WELL DEVELOPMENT DATE:** 5-5-97		**SITE:** PSC 4

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
				0	SILTY SAND (SM): 100%, quartz, light gray, fine-grained, sub-rounded to sub-angular.		SM	posthole
				0				posthole
5								
					CLAYEY SAND (SC): 100%, quartz, brownish gray, very fine-grained, sub-rounded to sub-angular, moist.		SC	
10							SM	
15								
20					SILTY SAND (SM): 100%, quartz, grayish brown, fine- to very fine- grained, sub-angular to sub-rounded.			
25								
30								
35								
40								
45								
50								

WELL DATA

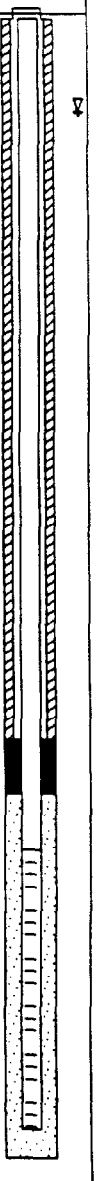

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Cecil Field PSC Investigation	**LOG of WELL:** CEF-4-8S	**BORING NO.** CEF-4-8S
CLIENT: SOUTHDIVNAVFACENGCOM		**PROJECT NO:** 08544-78

CONTRACTOR: Alliance Environmental, Inc.		**DATE STARTED:** 4-2-97	**COMPLTD:** 4-2-97
METHOD: Auger	**CASE SIZE:** 2 in.	**SCR. INT.:** 8 - 18 ft.	**PROTECTION LEVEL:** D
TOC ELEV.: ft.	**MONITOR INST.:** PID	**TOT DPTH:** 17ft.	**DPTH TO ∇** 3.58 ft.
LOGGED BY: R. Holloway	**WELL DEVELOPMENT DATE:** 5-8-97		**SITE:** PSC 4

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
				53	SILTY SAND (SM): 100%, quartz, light to dark gray, fine-grained, sub- rounded to sub-angular.		SM	posthole
				0				posthole
5				11				5,1,1,8
				0	CLAYEY SAND (SC): 100%, quartz, reddish brown, very fine-grained, sub- angular to sub-rounded, moist.		SC	18,24,32,60+
				0			SM	N/A
10					SILTY SAND (SM): 100%, quartz, brown, fine- to very fine-grained, sub- angular to sub-rounded.			
15								
20								

WELL DATA

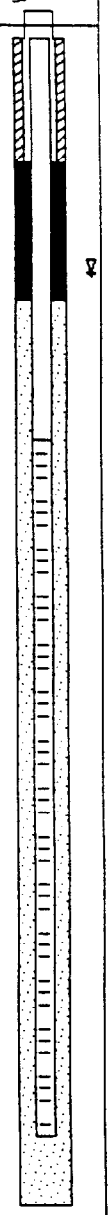

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Cecil Field PSC Investigation		**LOG of WELL:** CEF-4-9I	**BORING NO.** CEF-4-9I
CLIENT: SOUTHDIVNAVFACENGCOM			**PROJECT NO:** 08544-76
CONTRACTOR: Alliance Environmental, Inc.		**DATE STARTED:** 4-22-97	**COMPLTD:** 4-22-97
METHOD: Auger	**CASE SIZE:** 2 in.	**SCR. INT.:** 40 - 50 ft.	**PROTECTION LEVEL:** D
TOC ELEV.: ft.	**MONITOR INST.:** PID	**TOT DPTH:** 51ft.	**DPTH TO ∇** 3.03 ft.
LOGGED BY: R. Holloway	**WELL DEVELOPMENT DATE:** 4-30-97		**SITE:** PSC 4

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0			SM	posthole	
				0				posthole	∇
5					SILTY SAND (SM): 100%, quartz, grayish brown, fine- to very fine- grained, sub-angular to sub-rounded.				
10									
15									
20									
25									
30									
35									
40									
45									
50									
55									
60									

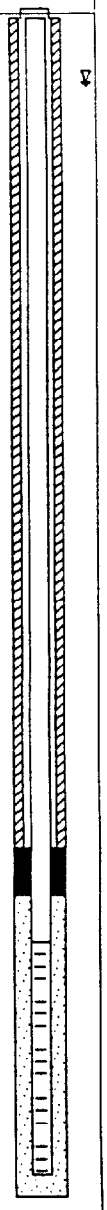

ABB ENVIRONMENTAL SERVICES, INC.

PSC Monitoring Wells – Water Levels

Date	Time	PSC – Monitoring Well	(TOC) Elevation (ft, msl)	Depth-to Water (ft, btoc)	Total Depth (ft)	Comments	
		PSC 4					
9/12/97	1055	CEF-4-1	73.70	7.09	16.07		66.61
	1100	CEF-4-2	73.19	5.88	114.25		67.31
	1105	CEF-4-3	72.49	5.85	14.49		66.64
	1108	CEF-4-4	75.10	7.53	40.41		67.57
	1045	CEF-4-1S	77.84	7.65	16.15		70.19
	1050	CEF-4-2S	77.27	7.52	15.84		69.75
	1125	CEF-4-3S	76.87	7.61	20.99		69.26*
	1110	CEF-4-4S	66.85	4.40	15.19		62.45
	1113	CEF-4-5S	68.34	5.85	15.21		62.49
	1123	CEF-4-6S	77.02	7.84	19.88		69.18
	1120	CEF-4-7I	77.08	8.13	42.59		68.95
	1000	CEF-4-8S	79.50	7.48	19.12		71.02
	1058	CEF-4-9I	74.70	8.27	53.12		66.43
	0950	CEF-BK-5S	76.97	6.61	18.30		70.36

PSC Monitoring Wells – Water Levels

Date	Time	PSC – Monitoring Well	Elevation (ft, msl)	Depth-to Water (ft, btoc)	Total Depth (ft)	Comments
		PSC 4				
8/21/97	0912	CEF-4-1		5.65	16.07	
	0916	CEF-4-2		4.39	114.25	
	0920	CEF-4-3		4.15	14.49	
	0921	CEF-4-4		5.94	40.41	
	0900	CEF-4-1S		6.10	16.15	
	0905	CEF-4-2S		6.06	15.84	
	0909	CEF-4-3S		6.20	20.99	
	0931	CEF-4-4S		2.90	15.19	
	0929	CEF-4-5S		3.62	15.21	
	0906	CEF-4-6S		6.39	19.88	
	0907	CEF-4-7I		6.68	42.59	
	0845	CEF-4-8S		5.85	19.12	
	0916	CEF-4-9I		6.68	53.12	
	0850	CEF-BK-5S		5.03	18.30	

PSC Monitoring Wells – Water Levels

Date	Time	PSC – Monitoring Well	Elevation (ft, msl)	Depth-to Water (ft, btoc)	Total Depth (ft)	Comments
		PSC 4				
7/25/97	1236	CEF-4-1		6.09	16.07	
	1227	CEF-4-2		4.75	114.25	
	1230	CEF-4-3		4.85	14.49	
	1233	CEF-4-4		6.60	40.41	
	1208	CEF-4-1S		6.78	16.15	
	1212	CEF-4-2S		6.69	15.84	
	1221	CEF-4-3S		6.75	20.99	
	1239	CEF-4-4S		3.17	15.19	
	1244	CEF-4-5S		4.37	15.21	
	1215	CEF-4-6S		7.08	19.88	
	1217	CEF-4-7I		7.25	42.59	
	1300	CEF-4-8S		6.61	19.12	
	1225	CEF-4-9I		7.25	53.12	
	1304	CEF-BK-5S		5.70	18.30	

PSC Monitoring Wells – Water Levels

Date	Time	PSC – Monitoring Well	Elevation (ft, msl)	Depth-to Water (ft, btoc)	Total Depth (ft)	Comments
		PSC 4				
6/26/97	1350	CEF-4-1		6.07	16.07	
	1339	CEF-4-2		4.73	114.25	
	1343	CEF-4-3		4.85	14.49	
	1346	CEF-4-4		6.58	40.41	
	1326	CEF-4-1S		6.78	16.15	
	1332	CEF-4-2S		6.69	15.84	
	1334	CEF-4-3S		6.74	20.99	
	1353	CEF-4-4S		3.14	15.19	
	1400	CEF-4-5S		4.35	15.21	
	1329	CEF-4-6S		7.11	19.88	
	1330	CEF-4-7I		7.25	42.59	
	1114	CEF-4-8S		6.60	19.12	
	1338	CEF-4-9I		7.22	53.12	
	1118	CEF-BK-5S		5.67	18.30	

PSC Monitoring Wells – Water Levels

Date	Time	PSC – Monitoring Well	Elevation (ft, msl)	Depth–to Water (ft, btoc)	Total Depth (ft)	Comments
		PSC 4				
5/7/97	1510	CEF–4–1		4.75	16.07	
	1517	CEF–4–2		4.67	114.25	
	1525	CEF–4–3		4.56	14.49	
	1520	CEF–4–4		6.23	N/A	
	1450	CEF–4–1S		6.54	4.62	
	1452	CEF–4–2S		6.44	15.84	
	1505	CEF–4–3S		6.54	20.99	
	1530	CEF–4–4S		3.35	15.19	
	1535	CEF–4–5S		4.76		
	1457	CEF–4–6S		6.70	19.88	
	1503	CEF–4–7I		6.96		
	1615	CEF–4–8S		6.44	19.12	
	1515	CEF–4–9I		6.89	53.12	
	1610	CEF–BK–5S		5.51	18.30	

TITLE: NAS Cecil Field PSC Investigation	**LOG of WELL:** CEF-4-4S	**BORING NO.** CEF-4-4S
_IENT: SOUTHDIVNAVFACENGCOM		**PROJECT NO:** 08544-78
CONTRACTOR: Alliance Environmental, Inc.	**DATE STARTED:** 4-2-97	**COMPLTD:** 4-2-97
METHOD: Auger	**CASE SIZE:** 2 in. / **SCR. INT.:** 2 - 12 ft.	**PROTECTION LEVEL:** D
TOC ELEV.: ft.	**MONITOR INST.:** PID / **TOT DPTH:** 13ft.	**DPTH TO ∇** 0.40 ft.
LOGGED BY: R. Holloway	**WELL DEVELOPMENT DATE:** 5-5-97	**SITE:** PSC 4

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

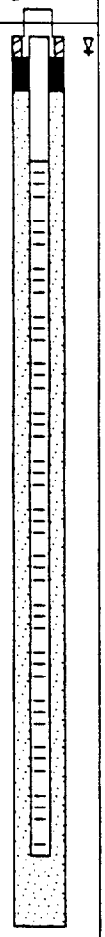

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Cecil Field PSC Investigation	**LOG of WELL:** CEF-4-5S	**BORING NO.** CEF-4-5S
CLIENT: SOUTHDIVNAVFACENGCOM		**PROJECT NO:** 08544-78
CONTRACTOR: Alliance Environmental, Inc.	**DATE STARTED:** 4-3-97	**COMPLTD:** 4-3-97
METHOD: Auger	**CASE SIZE:** 2 in.	**SCRL INT.:** 2 - 12 ft.	**PROTECTION LEVEL:** D
TOC ELEV.: ft.	**MONITOR INST.:** PID	**TOT DPTH:** 13ft.	**DPTH TO ▽** 1.73 ft.
LOGGED BY: R. Holloway	**WELL DEVELOPMENT DATE:** 5-8-97	**SITE:** PSC 4

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-angular to sub-rounded.		SM	posthole	
				0				posthole	
5									
10									
15									
20									

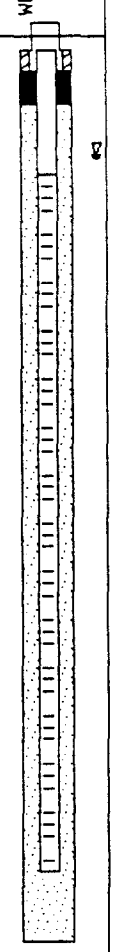

ABB ENVIRONMENTAL SERVICES, INC.

APPENDIX C

CONFIRMATORY ANALYTICAL DATA

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SURFACE SOIL -- VOLATILES -- REPORT NO. 9371

Lab Sample Number:	C85MX				C852G				C852K				C852L			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4SS1				CF4SS2				CF4SS3				CF4SS3D			
Collect Date:	13-FEB-97				13-FEB-97				13-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW																
Chloromethane	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
Bromomethane	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
Vinyl chloride	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
Chloroethane	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
Methylene chloride	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
Acetone	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
Carbon disulfide	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
1,1-Dichloroethene	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
1,1-Dichloroethane	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
1,2-Dichloroethene (total)	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
Chloroform	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
1,2-Dichloroethane	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
2-Butanone	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
1,1,1-Trichloroethane	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
Carbon tetrachloride	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
Bromodichloromethane	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
1,2-Dichloropropane	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
cis-1,3-Dichloropropene	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
Trichloroethene	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
Dibromochloromethane	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
1,1,2-Trichloroethane	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
Benzene	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
trans-1,3-Dichloropropene	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
Bromoform	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
4-Methyl-2-pentanone	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
2-Hexanone	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
Tetrachloroethene	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
Toluene	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
1,1,2,2-Tetrachloroethane	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
Chlorobenzene	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
Ethylbenzene	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
Styrene	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11
Xylenes (total)	10	U	ug/kg	10	10	U	ug/kg	10	11	U	ug/kg	11	11	U	ug/kg	11

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) 4
SURFACE SOIL -- VOLATILES -- REPORT NO. 9371

Lab Sample Number:	C8530				C8531			
Site	PSC4				PSC4			
Locator	CF4SS4				CF4SS5			
Collect Date:	12-FEB-97				12-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW								
Chloromethane	10	U	ug/kg	10	11	U	ug/kg	11
Bromomethane	10	U	ug/kg	10	11	U	ug/kg	11
Vinyl chloride	10	U	ug/kg	10	11	U	ug/kg	11
Chloroethane	10	U	ug/kg	10	11	U	ug/kg	11
Methylene chloride	10	U	ug/kg	10	11	U	ug/kg	11
Acetone	10	U	ug/kg	10	11	U	ug/kg	11
Carbon disulfide	10	U	ug/kg	10	11	U	ug/kg	11
1,1-Dichloroethene	10	U	ug/kg	10	11	U	ug/kg	11
1,1-Dichloroethane	10	U	ug/kg	10	11	U	ug/kg	11
1,2-Dichloroethene (total)	10	U	ug/kg	10	11	U	ug/kg	11
Chloroform	10	U	ug/kg	10	11	U	ug/kg	11
1,2-Dichloroethane	10	U	ug/kg	10	11	U	ug/kg	11
2-Butanone	10	U	ug/kg	10	11	U	ug/kg	11
1,1,1-Trichloroethane	10	U	ug/kg	10	11	U	ug/kg	11
Carbon tetrachloride	10	U	ug/kg	10	11	U	ug/kg	11
Bromodichloromethane	10	U	ug/kg	10	11	U	ug/kg	11
1,2-Dichloropropane	10	U	ug/kg	10	11	U	ug/kg	11
cis-1,3-Dichloropropene	10	U	ug/kg	10	11	U	ug/kg	11
Trichloroethene	10	U	ug/kg	10	11	U	ug/kg	11
Dibromochloromethane	10	U	ug/kg	10	11	U	ug/kg	11
1,1,2-Trichloroethane	10	U	ug/kg	10	11	U	ug/kg	11
Benzene	10	U	ug/kg	10	11	U	ug/kg	11
trans-1,3-Dichloropropene	10	U	ug/kg	10	11	U	ug/kg	11
Bromoform	10	U	ug/kg	10	11	U	ug/kg	11
4-Methyl-2-pentanone	10	U	ug/kg	10	11	U	ug/kg	11
2-Hexanone	10	U	ug/kg	10	11	U	ug/kg	11
Tetrachloroethene	10	U	ug/kg	10	11	U	ug/kg	11
Toluene	10	U	ug/kg	10	11	U	ug/kg	11
1,1,2,2-Tetrachloroethane	10	U	ug/kg	10	11	U	ug/kg	11
Chlorobenzene	10	U	ug/kg	10	11	U	ug/kg	11
Ethylbenzene	10	U	ug/kg	10	11	U	ug/kg	11
Styrene	10	U	ug/kg	10	11	U	ug/kg	11
Xylenes (total)	10	U	ug/kg	10	11	U	ug/kg	11

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) 4
SURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9372

Lab Sample Number:	C8530				C8531			
Site	PSC4				PSC4			
Locator	CF4SS4				CF4SS5			
Collect Date:	12-FEB-97				12-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW								
Phenol	340	U	ug/kg	340	350	U	ug/kg	350
bis(2-Chloroethyl) ether	340	U	ug/kg	340	350	U	ug/kg	350
2-Chlorophenol	340	U	ug/kg	340	350	U	ug/kg	350
1,3-Dichlorobenzene	340	U	ug/kg	340	350	U	ug/kg	350
1,4-Dichlorobenzene	340	U	ug/kg	340	350	U	ug/kg	350
1,2-Dichlorobenzene	340	U	ug/kg	340	350	U	ug/kg	350
2-Methylphenol	340	U	ug/kg	340	350	U	ug/kg	350
2,2-oxybis(1-Chloropropane)	340	U	ug/kg	340	350	U	ug/kg	350
4-Methylphenol	340	U	ug/kg	340	350	U	ug/kg	350
N-Nitroso-di-n-propylamine	340	U	ug/kg	340	350	U	ug/kg	350
Hexachloroethane	340	U	ug/kg	340	350	U	ug/kg	350
Nitrobenzene	340	U	ug/kg	340	350	U	ug/kg	350
Isophorone	340	U	ug/kg	340	350	U	ug/kg	350
2-Nitrophenol	340	U	ug/kg	340	350	U	ug/kg	350
2,4-Dimethylphenol	340	U	ug/kg	340	350	U	ug/kg	350
bis(2-Chloroethoxy) methane	340	U	ug/kg	340	350	U	ug/kg	350
2,4-Dichlorophenol	340	U	ug/kg	340	350	U	ug/kg	350
1,2,4-Trichlorobenzene	340	U	ug/kg	340	350	U	ug/kg	350
Naphthalene	340	U	ug/kg	340	350	U	ug/kg	350
4-Chloroaniline	340	U	ug/kg	340	350	U	ug/kg	350
Hexachlorobutadiene	340	U	ug/kg	340	350	U	ug/kg	350
4-Chloro-3-methylphenol	340	U	ug/kg	340	350	U	ug/kg	350
2-Methylnaphthalene	340	U	ug/kg	340	350	U	ug/kg	350
Hexachlorocyclopentadiene	340	U	ug/kg	340	350	U	ug/kg	350
2,4,6-Trichlorophenol	340	U	ug/kg	340	350	U	ug/kg	350
2,4,5-Trichlorophenol	820	U	ug/kg	820	860	U	ug/kg	860
2-Chloronaphthalene	340	U	ug/kg	340	350	U	ug/kg	350
2-Nitroaniline	820	U	ug/kg	820	860	U	ug/kg	860
Dimethylphthalate	340	U	ug/kg	340	350	U	ug/kg	350
Acenaphthylene	340	U	ug/kg	340	350	U	ug/kg	350
2,6-Dinitrotoluene	340	U	ug/kg	340	350	U	ug/kg	350
3-Nitroaniline	820	U	ug/kg	820	860	U	ug/kg	860
Acenaphthene	340	U	ug/kg	340	350	U	ug/kg	350
2,4-Dinitrophenol	820	U	ug/kg	820	860	U	ug/kg	860
4-Nitrophenol	820	U	ug/kg	820	860	U	ug/kg	860
Dibenzofuran	340	U	ug/kg	340	350	U	ug/kg	350
2,4-Dinitrotoluene	340	U	ug/kg	340	350	U	ug/kg	350
Diethylphthalate	340	U	ug/kg	340	350	U	ug/kg	350
4-Chlorophenyl-phenylether	340	U	ug/kg	340	350	U	ug/kg	350
Fluorene	340	U	ug/kg	340	350	U	ug/kg	350

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9372

Lab Sample Number:	C8530				C8531			
Site	PSC4				PSC4			
Locator	CF4SS4				CF4SS5			
Collect Date:	12-FEB-97				12-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	820	U	ug/kg	820	860	U	ug/kg	860
4,6-Dinitro-2-methylphenol	820	U	ug/kg	820	860	U	ug/kg	860
N-Nitrosodiphenylamine	340	U	ug/kg	340	350	U	ug/kg	350
4-Bromophenyl-phenylether	340	U	ug/kg	340	350	U	ug/kg	350
Hexachlorobenzene	340	U	ug/kg	340	350	U	ug/kg	350
Pentachlorophenol	820	U	ug/kg	820	860	U	ug/kg	860
Phenanthrene	340	U	ug/kg	340	350	U	ug/kg	350
Anthracene	340	U	ug/kg	340	350	U	ug/kg	350
Carbazole	340	U	ug/kg	340	350	U	ug/kg	350
Di-n-butylphthalate	340	U	ug/kg	340	350	U	ug/kg	350
Fluoranthene	340	U	ug/kg	340	350	U	ug/kg	350
Pyrene	340	U	ug/kg	340	350	U	ug/kg	350
Butylbenzylphthalate	340	U	ug/kg	340	350	U	ug/kg	350
3,3-Dichlorobenzidine	340	U	ug/kg	340	350	U	ug/kg	350
Benzo (a) anthracene	340	U	ug/kg	340	350	U	ug/kg	350
Chrysene	340	U	ug/kg	340	350	U	ug/kg	350
bis(2-Ethylhexyl) phthalate	340	U	ug/kg	340	350	U	ug/kg	350
Di-n-octylphthalate	340	U	ug/kg	340	350	U	ug/kg	350
Benzo (b) fluoranthene	340	U	ug/kg	340	350	U	ug/kg	350
Benzo (k) fluoranthene	340	U	ug/kg	340	350	U	ug/kg	350
Benzo (a) pyrene	340	U	ug/kg	340	350	U	ug/kg	350
Indeno (1,2,3-cd) pyrene	340	U	ug/kg	340	350	U	ug/kg	350
Dibenzo (a,h) anthracene	340	U	ug/kg	340	350	U	ug/kg	350
Benzo (g,h,i) perylene	340	U	ug/kg	340	350	U	ug/kg	350

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) 4
SURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9372

Lab Sample Number:	C85MX				C852G				C852K				C852L			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4SS1				CF4SS2				CF4SS3				CF4SS3D			
Collect Date:	13-FEB-97				13-FEB-97				13-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW																
Phenol	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
bis(2-Chloroethyl) ether	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
2-Chlorophenol	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
1,3-Dichlorobenzene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
1,4-Dichlorobenzene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
1,2-Dichlorobenzene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
2-Methylphenol	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
2,2-oxybis(1-Chloropropane)	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
4-Methylphenol	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
N-Nitroso-di-n-propylamine	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Hexachloroethane	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Nitrobenzene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Isophorone	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
2-Nitrophenol	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
2,4-Dimethylphenol	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
bis(2-Chloroethoxy) methane	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
2,4-Dichlorophenol	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
1,2,4-Trichlorobenzene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Naphthalene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
4-Chloroaniline	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Hexachlorobutadiene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
4-Chloro-3-methylphenol	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
2-Methylnaphthalene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Hexachlorocyclopentadiene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
2,4,6-Trichlorophenol	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
2,4,5-Trichlorophenol	840	U	ug/kg	840	840	U	ug/kg	840	880	U	ug/kg	880	870	U	ug/kg	870
2-Chloronaphthalene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
2-Nitroaniline	840	U	ug/kg	840	840	U	ug/kg	840	880	U	ug/kg	880	870	U	ug/kg	870
Dimethylphthalate	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Acenaphthylene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
2,6-Dinitrotoluene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
3-Nitroaniline	840	U	ug/kg	840	840	U	ug/kg	840	880	U	ug/kg	880	870	U	ug/kg	870
Acenaphthene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
2,4-Dinitrophenol	840	U	ug/kg	840	840	U	ug/kg	840	880	U	ug/kg	880	870	U	ug/kg	870
4-Nitrophenol	840	U	ug/kg	840	840	U	ug/kg	840	880	U	ug/kg	880	870	U	ug/kg	870
Dibenzofuran	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
2,4-Dinitrotoluene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Diethylphthalate	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
4-Chlorophenyl-phenylether	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Fluorene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
4-Nitroaniline	840	U	ug/kg	840	840	U	ug/kg	840	880	U	ug/kg	880	870	U	ug/kg	870
4,6-Dinitro-2-methylphenol	840	U	ug/kg	840	840	U	ug/kg	840	880	U	ug/kg	880	870	U	ug/kg	870
N-Nitrosodiphenylamine	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
4-Bromophenyl-phenylether	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Hexachlorobenzene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Pentachlorophenol	840	U	ug/kg	840	840	U	ug/kg	840	880	U	ug/kg	880	870	U	ug/kg	870
Phenanthrene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Anthracene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Carbazole	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Di-n-butylphthalate	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9372

Lab Sample Number:	C85MX				C852G				C852K				C852L			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4SS1				CF4SS2				CF4SS3				CF4SS3D			
Collect Date:	13-FEB-97				13-FEB-97				13-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluoranthene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Pyrene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Butylbenzylphthalate	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
3,3-Dichlorobenzidine	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Benzo (a) anthracene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Chrysene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
bis(2-Ethylhexyl) phthalate	46	J	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Di-n-octylphthalate	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Benzo (b) fluoranthene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Benzo (k) fluoranthene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Benzo (a) pyrene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Indeno (1,2,3-cd) pyrene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Dibenzo (a,h) anthracene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360
Benzo (g,h,i) perylene	350	U	ug/kg	350	340	U	ug/kg	340	360	U	ug/kg	360	360	U	ug/kg	360

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) 4
SURFACE SOIL -- PESTICIDES AND PCBs -- REPORT NO. 9373

Lab Sample Number:	C85MX				C85MXRE				C852G				C852K			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4SS1				CF4SS1RE				CF4SS2				CF4SS3			
Collect Date:	13-FEB-97				13-FEB-97				13-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	1.7	U	ug/kg	1.7	1.8	U	ug/kg	1.8
beta-BHC	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	1.7	U	ug/kg	1.7	1.8	U	ug/kg	1.8
delta-BHC	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	1.7	U	ug/kg	1.7	1.8	U	ug/kg	1.8
gamma-BHC (Lindane)	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	1.7	U	ug/kg	1.7	1.8	U	ug/kg	1.8
Heptachlor	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	1.7	U	ug/kg	1.7	1.8	U	ug/kg	1.8
Aldrin	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	1.7	U	ug/kg	1.7	1.8	U	ug/kg	1.8
Heptachlor epoxide	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	1.7	U	ug/kg	1.7	1.8	U	ug/kg	1.8
Endosulfan I	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	1.7	U	ug/kg	1.7	1.8	U	ug/kg	1.8
Dieldrin	3.5	U	ug/kg	3.5	3.5	U	ug/kg	3.5	3.5	U	ug/kg	3.5	3.6	U	ug/kg	3.6
4,4-DDE	3.5	U	ug/kg	3.5	3.5	U	ug/kg	3.5	3.5	U	ug/kg	3.5	3.6	U	ug/kg	3.6
Endrin	3.5	U	ug/kg	3.5	3.5	U	ug/kg	3.5	3.5	U	ug/kg	3.5	3.6	U	ug/kg	3.6
Endosulfan II	3.5	U	ug/kg	3.5	3.5	U	ug/kg	3.5	3.5	U	ug/kg	3.5	3.6	U	ug/kg	3.6
4,4-DDD	3.5	U	ug/kg	3.5	3.5	U	ug/kg	3.5	3.5	U	ug/kg	3.5	3.6	U	ug/kg	3.6
Endosulfan sulfate	3.5	U	ug/kg	3.5	3.5	U	ug/kg	3.5	3.5	U	ug/kg	3.5	3.6	U	ug/kg	3.6
4,4-DDT	3.5	U	ug/kg	3.5	3.5	U	ug/kg	3.5	3.5	U	ug/kg	3.5	3.6	U	ug/kg	3.6
Methoxychlor	18	U	ug/kg	18	18	U	ug/kg	18	17	U	ug/kg	17	3.8	J	ug/kg	19
Endrin ketone	.25	J	ug/kg	3	3.5	U	ug/kg	3.5	3.5	U	ug/kg	3.5	3.6	U	ug/kg	3.6
Endrin aldehyde	3.5	U	ug/kg	3.5	3.5	U	ug/kg	3.5	3.5	U	ug/kg	3.5	3.6	U	ug/kg	3.6
alpha-Chlordane	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	1.7	U	ug/kg	1.7	1.8	U	ug/kg	1.8
gamma-Chlordane	1.8	U	ug/kg	1.8	1.8	U	ug/kg	1.8	1.7	U	ug/kg	1.7	1.8	U	ug/kg	1.8
Toxaphene	180	U	ug/kg	180	180	U	ug/kg	180	170	U	ug/kg	170	180	U	ug/kg	180
Aroclor-1016	35	U	ug/kg	35	35	U	ug/kg	35	35	U	ug/kg	35	36	U	ug/kg	36
Aroclor-1221	70	U	ug/kg	70	70	U	ug/kg	70	70	U	ug/kg	70	73	U	ug/kg	73
Aroclor-1232	35	U	ug/kg	35	35	U	ug/kg	35	35	U	ug/kg	35	36	U	ug/kg	36
Aroclor-1242	35	U	ug/kg	35	35	U	ug/kg	35	35	U	ug/kg	35	36	U	ug/kg	36
Aroclor-1248	35	U	ug/kg	35	35	U	ug/kg	35	35	U	ug/kg	35	36	U	ug/kg	36
Aroclor-1254	35	U	ug/kg	35	35	U	ug/kg	35	35	U	ug/kg	35	36	U	ug/kg	36
Aroclor-1260	35	U	ug/kg	35	35	U	ug/kg	35	35	U	ug/kg	35	36	U	ug/kg	36

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SURFACE SOIL -- PESTICIDES AND PCBs -- REPORT NO. 9373

Lab Sample Number:	C852L			C853O			C853ORE			C8531		
Site	PSC4			PSC4			PSC4			PSC4		
Locator	CF4SS3D			CF4SS4			CF4SS4RE			CF4SS5		
Collect Date:	13-FEB-97			12-FEB-97			12-FEB-97			12-FEB-97		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW												
alpha-BHC	1.8 U	ug/kg	1.8	1.7 U	ug/kg	1.7	1.7 U	ug/kg	1.7	1.8 U	ug/kg	1.8
beta-BHC	1.8 U	ug/kg	1.8	1.7 U	ug/kg	1.7	1.7 U	ug/kg	1.7	1.8 U	ug/kg	1.8
delta-BHC	1.8 U	ug/kg	1.8	1.7 U	ug/kg	1.7	1.7 U	ug/kg	1.7	1.8 U	ug/kg	1.8
gamma-BHC (Lindane)	1.8 U	ug/kg	1.8	1.7 U	ug/kg	1.7	1.7 U	ug/kg	1.7	1.8 U	ug/kg	1.8
Heptachlor	1.8 U	ug/kg	1.8	1.7 U	ug/kg	1.7	1.7 U	ug/kg	1.7	1.8 U	ug/kg	1.8
Aldrin	1.8 U	ug/kg	1.8	1.7 U	ug/kg	1.7	1.7 U	ug/kg	1.7	1.8 U	ug/kg	1.8
Heptachlor epoxide	1.8 U	ug/kg	1.8	1.7 U	ug/kg	1.7	1.7 U	ug/kg	1.7	1.8 U	ug/kg	1.8
Endosulfan I	1.8 U	ug/kg	1.8	1.7 U	ug/kg	1.7	1.7 U	ug/kg	1.7	1.8 U	ug/kg	1.8
Dieldrin	3.6 U	ug/kg	3.6	3.4 U	ug/kg	3.4	3.4 U	ug/kg	3.4	3.6 U	ug/kg	3.6
4,4-DDE	3.6 U	ug/kg	3.6	3.4 U	ug/kg	3.4	3.4 U	ug/kg	3.4	3.6 U	ug/kg	3.6
Endrin	3.6 U	ug/kg	3.6	3.4 U	ug/kg	3.4	3.4 U	ug/kg	3.4	3.6 U	ug/kg	3.6
Endosulfan II	3.6 U	ug/kg	3.6	3.4 U	ug/kg	3.4	3.4 U	ug/kg	3.4	3.6 U	ug/kg	3.6
4,4-DDD	3.6 U	ug/kg	3.6	3.4 U	ug/kg	3.4	3.4 U	ug/kg	3.4	3.6 U	ug/kg	3.6
Endosulfan sulfate	3.6 U	ug/kg	3.6	3.4 U	ug/kg	3.4	3.4 U	ug/kg	3.4	3.6 U	ug/kg	3.6
4,4-DDT	3.6 U	ug/kg	3.6	3.4 U	ug/kg	3.4	3.4 U	ug/kg	3.4	3.6 U	ug/kg	3.6
Methoxychlor	18 U	ug/kg	18	17 U	ug/kg	17	2.4 J	ug/kg	17	18 U	ug/kg	18
Endrin ketone	3.6 U	ug/kg	3.6	3.4 U	ug/kg	3.4	3.4 U	ug/kg	3.4	3.6 U	ug/kg	3.6
Endrin aldehyde	3.6 U	ug/kg	3.6	3.4 U	ug/kg	3.4	3.4 U	ug/kg	3.4	3.6 U	ug/kg	3.6
alpha-Chlordane	1.8 U	ug/kg	1.8	1.7 U	ug/kg	1.7	1.7 U	ug/kg	1.7	1.8 U	ug/kg	1.8
gamma-Chlordane	1.8 U	ug/kg	1.8	1.7 U	ug/kg	1.7	1.7 U	ug/kg	1.7	1.8 U	ug/kg	1.8
Toxaphene	180 U	ug/kg	180	170 U	ug/kg	170	170 U	ug/kg	170	180 U	ug/kg	180
Aroclor-1016	36 U	ug/kg	36	34 U	ug/kg	34	34 U	ug/kg	34	36 U	ug/kg	36
Aroclor-1221	73 U	ug/kg	73	69 U	ug/kg	69	68 U	ug/kg	68	72 U	ug/kg	72
Aroclor-1232	36 U	ug/kg	36	34 U	ug/kg	34	34 U	ug/kg	34	36 U	ug/kg	36
Aroclor-1242	36 U	ug/kg	36	34 U	ug/kg	34	34 U	ug/kg	34	36 U	ug/kg	36
Aroclor-1248	36 U	ug/kg	36	34 U	ug/kg	34	34 U	ug/kg	34	36 U	ug/kg	36
Aroclor-1254	36 U	ug/kg	36	34 U	ug/kg	34	34 U	ug/kg	34	36 U	ug/kg	36
Aroclor-1260	36 U	ug/kg	36	34 U	ug/kg	34	34 U	ug/kg	34	36 U	ug/kg	36

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SURFACE SOIL -- PESTICIDES AND PCBs -- REPORT NO. 9373

Lab Sample Number:	C8531RE			
Site	PSC4			
Locator	CF4SS5RE			
Collect Date:	12-FEB-97			
	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW				
alpha-BHC	1.8	U	ug/kg	1.8
beta-BHC	1.8	U	ug/kg	1.8
delta-BHC	1.8	U	ug/kg	1.8
gamma-BHC (Lindane)	1.8	U	ug/kg	1.8
Heptachlor	1.8	U	ug/kg	1.8
Aldrin	1.8	U	ug/kg	1.8
Heptachlor epoxide	1.8	U	ug/kg	1.8
Endosulfan I	1.8	U	ug/kg	1.8
Dieldrin	3.6	U	ug/kg	3.6
4,4-DDE	3.6	U	ug/kg	3.6
Endrin	3.6	U	ug/kg	3.6
Endosulfan II	3.6	U	ug/kg	3.6
4,4-DDD	3.6	U	ug/kg	3.6
Endosulfan sulfate	3.6	U	ug/kg	3.6
4,4-DDT	3.6	U	ug/kg	3.6
Methoxychlor	18	U	ug/kg	18
Endrin ketone	.12	J	ug/kg	4
Endrin aldehyde	3.6	U	ug/kg	3.6
alpha-Chlordane	1.8	U	ug/kg	1.8
gamma-Chlordane	1.8	U	ug/kg	1.8
Toxaphene	180	U	ug/kg	180
Aroclor-1016	36	U	ug/kg	36
Aroclor-1221	71	U	ug/kg	71
Aroclor-1232	36	U	ug/kg	36
Aroclor-1242	36	U	ug/kg	36
Aroclor-1248	36	U	ug/kg	36
Aroclor-1254	36	U	ug/kg	36
Aroclor-1260	36	U	ug/kg	36

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SURFACE SOIL -- INORGANICS -- REPORT NO. 9374

Lab Sample Number:	C85MX				C852G				C852K				C852L			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4SS1				CF4SS2				CF4SS3				CF4SS3D			
Collect Date:	13-FEB-97				13-FEB-97				13-FEB-97				13-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	1620		mg/kg	40	1880		mg/kg	40	2410		mg/kg	40	2170		mg/kg	40
Antimony	.72	J	mg/kg	12	.63	U	mg/kg	12	.66	U	mg/kg	12	.65	U	mg/kg	12
Arsenic	.42	U	mg/kg	2	.42	U	mg/kg	2	.44	U	mg/kg	2	.44	U	mg/kg	2
Barium	2.1	J	mg/kg	40	2.1	J	mg/kg	40	2.5	J	mg/kg	40	2.6	J	mg/kg	40
Beryllium	.21	U	mg/kg	1	.21	U	mg/kg	1	.22	U	mg/kg	1	.22	U	mg/kg	1
Cadmium	.21	U	mg/kg	1	.21	U	mg/kg	1	.22	U	mg/kg	1	.22	U	mg/kg	1
Calcium	55.6	J	mg/kg	1000	125	J	mg/kg	1000	74.6	J	mg/kg	1000	64.8	J	mg/kg	1000
Chromium	1.6	J	mg/kg	2	1.6	J	mg/kg	2	2.2		mg/kg	2	1.9	J	mg/kg	2
Cobalt	.26	J	mg/kg	10	.21	U	mg/kg	10	.22	U	mg/kg	10	.22	U	mg/kg	10
Copper	1.3	U	mg/kg	5	.34	J	mg/kg	5	.22	U	mg/kg	5	.29	J	mg/kg	5
Iron	362	J	mg/kg	20	515		mg/kg	20	1480		mg/kg	20	578		mg/kg	20
Lead	1.6		mg/kg	.6	2		mg/kg	.6	3		mg/kg	.6	2.6		mg/kg	.6
Magnesium	51.5	J	mg/kg	1000	49.1	J	mg/kg	1000	48.6	J	mg/kg	1000	58.2	J	mg/kg	1000
Manganese	5.2		mg/kg	3	3.3		mg/kg	3	2.1	J	mg/kg	3	2.5	J	mg/kg	3
Mercury	.05	U	mg/kg	.1	.05	U	mg/kg	.1	.05	U	mg/kg	.1	.05	U	mg/kg	.1
Nickel	.77	J	mg/kg	8	.57	J	mg/kg	8	.52	J	mg/kg	8	.65	J	mg/kg	8
Potassium	9.9	U	mg/kg	1000	13.8	J	mg/kg	1000	10.3	U	mg/kg	1000	12.8	J	mg/kg	1000
Selenium	.84	U	mg/kg	1	.93	J	mg/kg	1	.88	U	mg/kg	1	.87	U	mg/kg	1
Silver	.21	U	mg/kg	2	.21	U	mg/kg	2	.22	U	mg/kg	2	.22	U	mg/kg	2
Sodium	23.4	U	mg/kg	1000	23.2	U	mg/kg	1000	24.4	U	mg/kg	1000	24.2	U	mg/kg	1000
Thallium	.63	U	mg/kg	2	.63	U	mg/kg	2	.66	U	mg/kg	2	.65	U	mg/kg	2
Vanadium	1.6	J	mg/kg	10	1.7	J	mg/kg	10	3.3	J	mg/kg	10	2	J	mg/kg	10
Zinc	.75	J	mg/kg	4	1.1	J	mg/kg	4	1.1	J	mg/kg	4	1.2	J	mg/kg	4
Cyanide	.06	U	mg/kg	.5	.06	U	mg/kg	.5	.06	U	mg/kg	.5	.06	U	mg/kg	.5

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SURFACE SOIL -- INORGANICS -- REPORT NO. 9374

Lab Sample Number:	C8530				C8531			
Site	PSC4				PSC4			
Locator	CF4SS4				CF4SS5			
Collect Date:	12-FEB-97				12-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE								
Aluminum	1490		mg/kg	40	1590		mg/kg	40
Antimony	.65	J	mg/kg	12	.64	U	mg/kg	12
Arsenic	.41	U	mg/kg	2	.43	U	mg/kg	2
Barium	2.5	J	mg/kg	40	2.8	J	mg/kg	40
Beryllium	.21	U	mg/kg	1	.21	U	mg/kg	1
Cadmium	.21	U	mg/kg	1	.21	U	mg/kg	1
Calcium	51.8	J	mg/kg	1000	539	J	mg/kg	1000
Chromium	1.9	J	mg/kg	2	3		mg/kg	2
Cobalt	.39	J	mg/kg	10	.36	J	mg/kg	10
Copper	1.2	U	mg/kg	5	1.3	U	mg/kg	5
Iron	474	J	mg/kg	20	365	J	mg/kg	20
Lead	1.8		mg/kg	.6	9		mg/kg	.6
Magnesium	59.4	J	mg/kg	1000	99.4	J	mg/kg	1000
Manganese	6.1		mg/kg	3	8.2		mg/kg	3
Mercury	.05	U	mg/kg	.1	.05	U	mg/kg	.1
Nickel	.79	J	mg/kg	8	.74	J	mg/kg	8
Potassium	9.7	U	mg/kg	1000	10.1	U	mg/kg	1000
Selenium	.82	U	mg/kg	1	.86	U	mg/kg	1
Silver	.21	U	mg/kg	2	.21	U	mg/kg	2
Sodium	22.8	U	mg/kg	1000	23.8	U	mg/kg	1000
Thallium	.62	U	mg/kg	2	.64	U	mg/kg	2
Vanadium	2	J	mg/kg	10	1.8	J	mg/kg	10
Zinc	1.2	J	mg/kg	4	27		mg/kg	4
Cyanide	.06	U	mg/kg	.5	.06	U	mg/kg	.5

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SURFACE SOIL -- TOTAL PETROLEUM HYDROCARBONS -- REPORT NO. 9375

Lab Sample Number:	A7B1301660			A7B1301660		
Site	PSC4			PSC4		
Locator	CF4SS4			CF4SS5		
Collect Date:	12-FEB-97			12-FEB-97		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
TPH						
Total petroleum hydrocarbons	26	mg/kg	10	33	mg/kg	11

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R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SURFACE SOIL -- TOTAL PETROLEUM HYDROCARBONS -- REPORT NO. 9375

Lab Sample Number:	A7B1401620			A7B1301640			A7B1301640			A7B1301640		
Site	PSC4			PSC4			PSC4			PSC4		
Locator	CF4SS1			CF4SS2			CF4SS3			CF4SS3D		
Collect Date:	13-FEB-97			12-FEB-97			12-FEB-97			12-FEB-97		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
TPH												
Total petroleum hydrocarbons	37	mg/kg	11	45	mg/kg	10	32	mg/kg	11	44	mg/kg	11

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SUBSURFACE SOIL -- VOLATILES -- REPORT NO. 9376

Lab Sample Number:	C86PA				C86PK				C86PT				C86PL			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4SB1				CF4SB2				CF4SB3				CF4SB4			
Collect Date:	15-FEB-97				15-FEB-97				17-FEB-97				15-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW																
Chloromethane	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
Bromomethane	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
Vinyl chloride	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
Chloroethane	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
Methylene chloride	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
Acetone	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
Carbon disulfide	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
1,1-Dichloroethene	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
1,1-Dichloroethane	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
1,2-Dichloroethene (total)	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
Chloroform	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
1,2-Dichloroethane	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
2-Butanone	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
1,1,1-Trichloroethane	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
Carbon tetrachloride	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
Bromodichloromethane	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
1,2-Dichloropropane	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
cis-1,3-Dichloropropene	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
Trichloroethene	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
Dibromochloromethane	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
1,1,2-Trichloroethane	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
Benzene	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
trans-1,3-Dichloropropene	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
Bromoform	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
4-Methyl-2-pentanone	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
2-Hexanone	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
Tetrachloroethene	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
Toluene	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
1,1,2,2-Tetrachloroethane	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
Chlorobenzene	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
Ethylbenzene	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
Styrene	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	12	U	ug/kg	12
Xylenes (total)	11	U	ug/kg	11	13	U	ug/kg	13	13	U	ug/kg	13	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 -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SUBSURFACE SOIL -- VOLATILES -- REPORT NO. 9376

Lab Sample Number:	C86PM				C86PF				C86PG				C86PD			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4SB4D				CF4SB5				CF4SB6				CF4SB7			
Collect Date:	15-FEB-97				15-FEB-97				15-FEB-97				15-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW																
Chloromethane	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
Bromomethane	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
Vinyl chloride	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
Chloroethane	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
Methylene chloride	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
Acetone	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
Carbon disulfide	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
1,1-Dichloroethene	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
1,1-Dichloroethane	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
1,2-Dichloroethene (total)	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
Chloroform	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
1,2-Dichloroethane	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
2-Butanone	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
1,1,1-Trichloroethane	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
Carbon tetrachloride	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
Bromodichloromethane	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
1,2-Dichloropropane	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
cis-1,3-Dichloropropene	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
Trichloroethene	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
Dibromochloromethane	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
1,1,2-Trichloroethane	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
Benzene	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
trans-1,3-Dichloropropene	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
Bromoform	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
4-Methyl-2-pentanone	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
2-Hexanone	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
Tetrachloroethene	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
Toluene	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
1,1,2,2-Tetrachloroethane	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
Chlorobenzene	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
Ethylbenzene	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
Styrene	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	13	U	ug/kg	13
Xylenes (total)	12	U	ug/kg	12	12	U	ug/kg	12	13	U	ug/kg	13	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 -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SUBSURFACE SOIL -- VOLATILES -- REPORT NO. 9376

Lab Sample Number:	C86PE			
Site	PSC4			
Locator	CF4SB8			
Collect Date:	15-FEB-97			
	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW				
Chloromethane	12	U	ug/kg	12
Bromomethane	12	U	ug/kg	12
Vinyl chloride	12	U	ug/kg	12
Chloroethane	12	U	ug/kg	12
Methylene chloride	12	U	ug/kg	12
Acetone	12	U	ug/kg	12
Carbon disulfide	12	U	ug/kg	12
1,1-Dichloroethene	12	U	ug/kg	12
1,1-Dichloroethane	12	U	ug/kg	12
1,2-Dichloroethene (total)	12	U	ug/kg	12
Chloroform	12	U	ug/kg	12
1,2-Dichloroethane	12	U	ug/kg	12
2-Butanone	12	U	ug/kg	12
1,1,1-Trichloroethane	12	U	ug/kg	12
Carbon tetrachloride	12	U	ug/kg	12
Bromodichloromethane	12	U	ug/kg	12
1,2-Dichloropropane	12	U	ug/kg	12
cis-1,3-Dichloropropene	12	U	ug/kg	12
Trichloroethene	12	U	ug/kg	12
Dibromochloromethane	12	U	ug/kg	12
1,1,2-Trichloroethane	12	U	ug/kg	12
Benzene	12	U	ug/kg	12
trans-1,3-Dichloropropene	12	U	ug/kg	12
Bromoform	12	U	ug/kg	12
4-Methyl-2-pentanone	12	U	ug/kg	12
2-Hexanone	12	U	ug/kg	12
Tetrachloroethene	12	U	ug/kg	12
Toluene	12	U	ug/kg	12
1,1,2,2-Tetrachloroethane	12	U	ug/kg	12
Chlorobenzene	12	U	ug/kg	12
Ethylbenzene	12	U	ug/kg	12
Styrene	12	U	ug/kg	12
Xylenes (total)	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 -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SUBSURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9377

Lab Sample Number:	C86PA			C86PK			C86PT			C86PL		
Site	PSC4			PSC4			PSC4			PSC4		
Locator	CF4SB1			CF4SB2			CF4SB3			CF4SB4		
Collect Date:	15-FEB-97			15-FEB-97			17-FEB-97			15-FEB-97		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP SEMIVOLATILES 90-SOW												
Phenol	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
bis(2-Chloroethyl) ether	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
2-Chlorophenol	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
1,3-Dichlorobenzene	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
1,4-Dichlorobenzene	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
1,2-Dichlorobenzene	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
2-Methylphenol	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
2,2-oxybis(1-Chloropropane)	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
4-Methylphenol	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
N-Nitroso-di-n-propylamine	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
Hexachloroethane	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
Nitrobenzene	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
Isophorone	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
2-Nitrophenol	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
2,4-Dimethylphenol	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
bis(2-Chloroethoxy) methane	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
2,4-Dichlorophenol	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
1,2,4-Trichlorobenzene	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
Naphthalene	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
4-Chloroaniline	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
Hexachlorobutadiene	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
4-Chloro-3-methylphenol	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
2-Methylnaphthalene	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
Hexachlorocyclopentadiene	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
2,4,6-Trichlorophenol	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
2,4,5-Trichlorophenol	910 U	ug/kg	910	1000 U	ug/kg	1000	1000 U	ug/kg	1000	980 U	ug/kg	980
2-Chloronaphthalene	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
2-Nitroaniline	910 U	ug/kg	910	1000 U	ug/kg	1000	1000 U	ug/kg	1000	980 U	ug/kg	980
Dimethylphthalate	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
Acenaphthylene	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
2,6-Dinitrotoluene	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
3-Nitroaniline	910 U	ug/kg	910	1000 U	ug/kg	1000	1000 U	ug/kg	1000	980 U	ug/kg	980
Acenaphthene	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
2,4-Dinitrophenol	910 U	ug/kg	910	1000 U	ug/kg	1000	1000 U	ug/kg	1000	980 U	ug/kg	980
4-Nitrophenol	910 U	ug/kg	910	1000 U	ug/kg	1000	1000 U	ug/kg	1000	980 U	ug/kg	980
Dibenzofuran	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
2,4-Dinitrotoluene	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
Diethylphthalate	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
4-Chlorophenyl-phenylether	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
Fluorene	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
4-Nitroaniline	910 U	ug/kg	910	1000 U	ug/kg	1000	1000 U	ug/kg	1000	980 U	ug/kg	980
4,6-Dinitro-2-methylphenol	910 U	ug/kg	910	1000 U	ug/kg	1000	1000 U	ug/kg	1000	980 U	ug/kg	980
N-Nitrosodiphenylamine	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
4-Bromophenyl-phenylether	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
Hexachlorobenzene	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
Pentachlorophenol	910 U	ug/kg	910	1000 U	ug/kg	1000	1000 U	ug/kg	1000	980 U	ug/kg	980
Phenanthrene	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
Anthracene	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
Carbazole	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410
Di-n-butylphthalate	380 U	ug/kg	380	420 U	ug/kg	420	420 U	ug/kg	420	410 U	ug/kg	410

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SUBSURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9377

Lab Sample Number:	C86PA				C86PK				C86PT				C86PL			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4SB1				CF4SB2				CF4SB3				CF4SB4			
Collect Date:	15-FEB-97				15-FEB-97				17-FEB-97				15-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluoranthene	380	U	ug/kg	380	420	U	ug/kg	420	420	U	ug/kg	420	410	U	ug/kg	410
Pyrene	380	U	ug/kg	380	420	U	ug/kg	420	420	U	ug/kg	420	410	U	ug/kg	410
Butylbenzylphthalate	380	U	ug/kg	380	420	U	ug/kg	420	420	U	ug/kg	420	410	U	ug/kg	410
3,3-Dichlorobenzidine	380	U	ug/kg	380	420	U	ug/kg	420	420	U	ug/kg	420	410	U	ug/kg	410
Benzo (a) anthracene	380	U	ug/kg	380	420	U	ug/kg	420	420	U	ug/kg	420	410	U	ug/kg	410
Chrysene	380	U	ug/kg	380	420	U	ug/kg	420	420	U	ug/kg	420	410	U	ug/kg	410
bis(2-Ethylhexyl) phthalate	380	U	ug/kg	380	420	U	ug/kg	420	420	U	ug/kg	420	410	U	ug/kg	410
Di-n-octylphthalate	380	U	ug/kg	380	420	U	ug/kg	420	420	U	ug/kg	420	410	U	ug/kg	410
Benzo (b) fluoranthene	380	U	ug/kg	380	420	U	ug/kg	420	420	U	ug/kg	420	410	U	ug/kg	410
Benzo (k) fluoranthene	380	U	ug/kg	380	420	U	ug/kg	420	420	U	ug/kg	420	410	U	ug/kg	410
Benzo (a) pyrene	380	U	ug/kg	380	420	U	ug/kg	420	420	U	ug/kg	420	410	U	ug/kg	410
Indeno (1,2,3-cd) pyrene	380	U	ug/kg	380	420	U	ug/kg	420	420	U	ug/kg	420	410	U	ug/kg	410
Dibenzo (a,h) anthracene	380	U	ug/kg	380	420	U	ug/kg	420	420	U	ug/kg	420	410	U	ug/kg	410
Benzo (g,h,i) perylene	380	U	ug/kg	380	420	U	ug/kg	420	420	U	ug/kg	420	410	U	ug/kg	410

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R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SUBSURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9377

Lab Sample Number:	C86PM			C86PF			C86PG			C86PD		
Site	PSC4			PSC4			PSC4			PSC4		
Locator	CF4SB4D			CF4SB5			CF4SB6			CF4SB7		
Collect Date:	15-FEB-97			15-FEB-97			15-FEB-97			15-FEB-97		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP SEMIVOLATILES 90-SOW												
Phenol	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
bis(2-Chloroethyl) ether	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
2-Chlorophenol	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
1,3-Dichlorobenzene	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
1,4-Dichlorobenzene	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
1,2-Dichlorobenzene	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
2-Methylphenol	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
2,2-oxybis(1-Chloropropane)	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
4-Methylphenol	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
N-Nitroso-di-n-propylamine	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
Hexachloroethane	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
Nitrobenzene	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
Isophorone	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
2-Nitrophenol	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
2,4-Dimethylphenol	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
bis(2-Chloroethoxy) methane	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
2,4-Dichlorophenol	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
1,2,4-Trichlorobenzene	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
Naphthalene	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
4-Chloroaniline	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
Hexachlorobutadiene	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
4-Chloro-3-methylphenol	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
2-Methylnaphthalene	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
Hexachlorocyclopentadiene	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
2,4,6-Trichlorophenol	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
2,4,5-Trichlorophenol	990 U	ug/kg	990	980 U	ug/kg	980	1000 U	ug/kg	1000	1000 U	ug/kg	1000
2-Chloronaphthalene	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
2-Nitroaniline	990 U	ug/kg	990	980 U	ug/kg	980	1000 U	ug/kg	1000	1000 U	ug/kg	1000
Dimethylphthalate	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
Acenaphthylene	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
2,6-Dinitrotoluene	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
3-Nitroaniline	990 U	ug/kg	990	980 U	ug/kg	980	1000 U	ug/kg	1000	1000 U	ug/kg	1000
Acenaphthene	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
2,4-Dinitrophenol	990 U	ug/kg	990	980 U	ug/kg	980	1000 U	ug/kg	1000	1000 U	ug/kg	1000
4-Nitrophenol	990 U	ug/kg	990	980 U	ug/kg	980	1000 U	ug/kg	1000	1000 U	ug/kg	1000
Dibenzofuran	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
2,4-Dinitrotoluene	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
Diethylphthalate	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
4-Chlorophenyl-phenylether	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420
Fluorene	410 U	ug/kg	410	410 U	ug/kg	410	420 U	ug/kg	420	420 U	ug/kg	420

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SUBSURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9377

Lab Sample Number:	C86PM				C86PF				C86PG				C86PD			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4SB4D				CF4SB5				CF4SB6				CF4SB7			
Collect Date:	15-FEB-97				15-FEB-97				15-FEB-97				15-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	990	U	ug/kg	990	980	U	ug/kg	980	1000	U	ug/kg	1000	1000	U	ug/kg	1000
4,6-Dinitro-2-methylphenol	990	U	ug/kg	990	980	U	ug/kg	980	1000	U	ug/kg	1000	1000	U	ug/kg	1000
N-Nitrosodiphenylamine	410	U	ug/kg	410	410	U	ug/kg	410	420	U	ug/kg	420	420	U	ug/kg	420
4-Bromophenyl-phenylether	410	U	ug/kg	410	410	U	ug/kg	410	420	U	ug/kg	420	420	U	ug/kg	420
Hexachlorobenzene	410	U	ug/kg	410	410	U	ug/kg	410	420	U	ug/kg	420	420	U	ug/kg	420
Pentachlorophenol	990	U	ug/kg	990	980	U	ug/kg	980	1000	U	ug/kg	1000	1000	U	ug/kg	1000
Phenanthrene	410	U	ug/kg	410	410	U	ug/kg	410	420	U	ug/kg	420	420	U	ug/kg	420
Anthracene	410	U	ug/kg	410	410	U	ug/kg	410	420	U	ug/kg	420	420	U	ug/kg	420
Carbazole	410	U	ug/kg	410	410	U	ug/kg	410	420	U	ug/kg	420	420	U	ug/kg	420
Di-n-butylphthalate	410	U	ug/kg	410	410	U	ug/kg	410	420	U	ug/kg	420	420	U	ug/kg	420
Fluoranthene	410	U	ug/kg	410	410	U	ug/kg	410	420	U	ug/kg	420	420	U	ug/kg	420
Pyrene	410	U	ug/kg	410	410	U	ug/kg	410	420	U	ug/kg	420	420	U	ug/kg	420
Butylbenzylphthalate	410	U	ug/kg	410	410	U	ug/kg	410	420	U	ug/kg	420	420	U	ug/kg	420
3,3-Dichlorobenzidine	410	U	ug/kg	410	410	U	ug/kg	410	420	U	ug/kg	420	420	U	ug/kg	420
Benzo (a) anthracene	410	U	ug/kg	410	410	U	ug/kg	410	420	U	ug/kg	420	420	U	ug/kg	420
Chrysene	410	U	ug/kg	410	410	U	ug/kg	410	420	U	ug/kg	420	420	U	ug/kg	420
bis(2-Ethylhexyl) phthalate	410	U	ug/kg	410	410	U	ug/kg	410	420	U	ug/kg	420	420	U	ug/kg	420
Di-n-octylphthalate	410	U	ug/kg	410	410	U	ug/kg	410	420	U	ug/kg	420	420	U	ug/kg	420
Benzo (b) fluoranthene	410	U	ug/kg	410	410	U	ug/kg	410	420	U	ug/kg	420	420	U	ug/kg	420
Benzo (k) fluoranthene	410	U	ug/kg	410	410	U	ug/kg	410	420	U	ug/kg	420	420	U	ug/kg	420
Benzo (a) pyrene	410	U	ug/kg	410	410	U	ug/kg	410	420	U	ug/kg	420	420	U	ug/kg	420
Indeno (1,2,3-cd) pyrene	410	U	ug/kg	410	410	U	ug/kg	410	420	U	ug/kg	420	420	U	ug/kg	420
Dibenzo (a,h) anthracene	410	U	ug/kg	410	410	U	ug/kg	410	420	U	ug/kg	420	420	U	ug/kg	420
Benzo (g,h,i) perylene	410	U	ug/kg	410	410	U	ug/kg	410	420	U	ug/kg	420	420	U	ug/kg	420

U = NOT DETECTED J = ESTIMATED VALUE
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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SUBSURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9377

Lab Sample Number:	C86PE			
Site	PSC4			
Locator	CF4SB8			
Collect Date:	15-FEB-97			
	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW				
Phenol	400	U	ug/kg	400
bis(2-Chloroethyl) ether	400	U	ug/kg	400
2-Chlorophenol	400	U	ug/kg	400
1,3-Dichlorobenzene	400	U	ug/kg	400
1,4-Dichlorobenzene	400	U	ug/kg	400
1,2-Dichlorobenzene	400	U	ug/kg	400
2-Methylphenol	400	U	ug/kg	400
2,2-oxybis(1-Chloropropane)	400	U	ug/kg	400
4-Methylphenol	400	U	ug/kg	400
N-Nitroso-di-n-propylamine	400	U	ug/kg	400
Hexachloroethane	400	U	ug/kg	400
Nitrobenzene	400	U	ug/kg	400
Isophorone	400	U	ug/kg	400
2-Nitrophenol	400	U	ug/kg	400
2,4-Dimethylphenol	400	U	ug/kg	400
bis(2-Chloroethoxy) methane	400	U	ug/kg	400
2,4-Dichlorophenol	400	U	ug/kg	400
1,2,4-Trichlorobenzene	400	U	ug/kg	400
Naphthalene	400	U	ug/kg	400
4-Chloroaniline	400	U	ug/kg	400
Hexachlorobutadiene	400	U	ug/kg	400
4-Chloro-3-methylphenol	400	U	ug/kg	400
2-Methylnaphthalene	400	U	ug/kg	400
Hexachlorocyclopentadiene	400	U	ug/kg	400
2,4,6-Trichlorophenol	400	U	ug/kg	400
2,4,5-Trichlorophenol	980	U	ug/kg	980
2-Chloronaphthalene	400	U	ug/kg	400
2-Nitroaniline	980	U	ug/kg	980
Dimethylphthalate	400	U	ug/kg	400
Acenaphthylene	400	U	ug/kg	400
2,6-Dinitrotoluene	400	U	ug/kg	400
3-Nitroaniline	980	U	ug/kg	980
Acenaphthene	400	U	ug/kg	400
2,4-Dinitrophenol	980	U	ug/kg	980
4-Nitrophenol	980	U	ug/kg	980
Dibenzofuran	400	U	ug/kg	400
2,4-Dinitrotoluene	400	U	ug/kg	400
Diethylphthalate	400	U	ug/kg	400
4-Chlorophenyl-phenylether	400	U	ug/kg	400
Fluorene	400	U	ug/kg	400

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SUBSURFACE SOIL -- SEMIVOLATILES -- REPORT NO. 9377

Lab Sample Number:	C86PE			
Site	PSC4			
Locator	CF4SB8			
Collect Date:	15-FEB-97			
	VALUE	QUAL	UNITS	DL
4-Nitroaniline	980	U	ug/kg	980
4,6-Dinitro-2-methylphenol	980	U	ug/kg	980
N-Nitrosodiphenylamine	400	U	ug/kg	400
4-Bromophenyl-phenylether	400	U	ug/kg	400
Hexachlorobenzene	400	U	ug/kg	400
Pentachlorophenol	980	U	ug/kg	980
Phenanthrene	400	U	ug/kg	400
Anthracene	400	U	ug/kg	400
Carbazole	400	U	ug/kg	400
Di-n-butylphthalate	400	U	ug/kg	400
Fluoranthene	400	U	ug/kg	400
Pyrene	400	U	ug/kg	400
Butylbenzylphthalate	400	U	ug/kg	400
3,3-Dichlorobenzidine	400	U	ug/kg	400
Benzo (a) anthracene	400	U	ug/kg	400
Chrysene	400	U	ug/kg	400
bis(2-Ethylhexyl) phthalate	400	U	ug/kg	400
Di-n-octylphthalate	400	U	ug/kg	400
Benzo (b) fluoranthene	400	U	ug/kg	400
Benzo (k) fluoranthene	400	U	ug/kg	400
Benzo (a) pyrene	400	U	ug/kg	400
Indeno (1,2,3-cd) pyrene	400	U	ug/kg	400
Dibenzo (a,h) anthracene	400	U	ug/kg	400
Benzo (g,h,i) perylene	400	U	ug/kg	400

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SUBSURFACE SOIL -- PESTICIDES AND PCBs -- REPORT NO. 9378

Lab Sample Number:	C86PA				C86PK				C86PKRE				C86PT			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4SB1				CF4SB2				CF4SB2RE				CF4SB3			
Collect Date:	15-FEB-97				15-FEB-97				15-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																
alpha-BHC	1.9	U	ug/kg	1.9	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1
beta-BHC	1.9	U	ug/kg	1.9	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1
delta-BHC	1.9	U	ug/kg	1.9	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1
gamma-BHC (Lindane)	1.9	U	ug/kg	1.9	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1
Heptachlor	1.9	U	ug/kg	1.9	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1
Aldrin	.1	J	ug/kg	2	.0081	J	ug/kg	2	.21	J	ug/kg	2	2.1	U	ug/kg	2.1
Heptachlor epoxide	1.9	U	ug/kg	1.9	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1
Endosulfan I	1.9	U	ug/kg	1.9	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1
Dieldrin	3.8	U	ug/kg	3.8	4.3	U	ug/kg	4.3	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2
4,4-DDE	3.8	U	ug/kg	3.8	4.3	U	ug/kg	4.3	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2
Endrin	3.8	U	ug/kg	3.8	4.3	U	ug/kg	4.3	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2
Endosulfan II	3.8	U	ug/kg	3.8	4.3	U	ug/kg	4.3	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2
4,4-DDD	3.8	U	ug/kg	3.8	4.3	U	ug/kg	4.3	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2
Endosulfan sulfate	3.8	U	ug/kg	3.8	4.3	U	ug/kg	4.3	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2
4,4-DDT	3.8	U	ug/kg	3.8	3.6	J	ug/kg	4	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2
Methoxychlor	19	U	ug/kg	19	27	J	ug/kg	22	21	U	ug/kg	21	21	U	ug/kg	21
Endrin ketone	3.8	U	ug/kg	3.8	4.3	U	ug/kg	4.3	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2
Endrin aldehyde	3.8	U	ug/kg	3.8	4.3	U	ug/kg	4.3	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2
alpha-Chlordane	1.9	U	ug/kg	1.9	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1
gamma-Chlordane	1.9	U	ug/kg	1.9	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1
Toxaphene	190	U	ug/kg	190	210	U	ug/kg	210	210	U	ug/kg	210	210	U	ug/kg	210
Aroclor-1016	38	U	ug/kg	38	43	U	ug/kg	43	43	U	ug/kg	43	42	U	ug/kg	42
Aroclor-1221	76	U	ug/kg	76	85	U	ug/kg	85	86	U	ug/kg	86	84	U	ug/kg	84
Aroclor-1232	38	U	ug/kg	38	43	U	ug/kg	43	43	U	ug/kg	43	42	U	ug/kg	42
Aroclor-1242	38	U	ug/kg	38	43	U	ug/kg	43	43	U	ug/kg	43	42	U	ug/kg	42
Aroclor-1248	38	U	ug/kg	38	43	U	ug/kg	43	43	U	ug/kg	43	42	U	ug/kg	42
Aroclor-1254	38	U	ug/kg	38	43	U	ug/kg	43	43	U	ug/kg	43	42	U	ug/kg	42
Aroclor-1260	38	U	ug/kg	38	43	U	ug/kg	43	43	U	ug/kg	43	42	U	ug/kg	42

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SUBSURFACE SOIL -- PESTICIDES AND PCBs -- REPORT NO. 9378

Lab Sample Number:	C86PL				C86PM				C86PMRE				C86PLRE			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4SB4				CF4SB4D				CF4SB4DRE				CF4SB4RE			
Collect Date:	15-FEB-97				15-FEB-97				15-FEB-97				15-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	2	U	ug/kg	2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2	U	ug/kg	2
beta-BHC	2	U	ug/kg	2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2	U	ug/kg	2
delta-BHC	2	U	ug/kg	2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2	U	ug/kg	2
gamma-BHC (Lindane)	2	U	ug/kg	2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2	U	ug/kg	2
Heptachlor	2	U	ug/kg	2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2	U	ug/kg	2
Aldrin	.074	J	ug/kg	2	2.1	U	ug/kg	2.1	.13	J	ug/kg	2	2	U	ug/kg	2
Heptachlor epoxide	2	U	ug/kg	2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2	U	ug/kg	2
Endosulfan I	2	U	ug/kg	2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2	U	ug/kg	2
Dieldrin	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1
4,4-DDE	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1
Endrin	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1
Endosulfan II	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1
4,4-DDD	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1
Endosulfan sulfate	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1
4,4-DDT	1.8	J	ug/kg	4	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1
Methoxychlor	6.1	J	ug/kg	21	21	U	ug/kg	21	21	U	ug/kg	21	20	U	ug/kg	20
Endrin ketone	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1
Endrin aldehyde	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1
alpha-Chlordane	2	U	ug/kg	2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2	U	ug/kg	2
gamma-Chlordane	2	U	ug/kg	2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2	U	ug/kg	2
Toxaphene	200	U	ug/kg	200	210	U	ug/kg	210	210	U	ug/kg	210	200	U	ug/kg	200
Aroclor-1016	41	U	ug/kg	41	41	U	ug/kg	41	41	U	ug/kg	41	41	U	ug/kg	41
Aroclor-1221	82	U	ug/kg	82	83	U	ug/kg	83	82	U	ug/kg	82	82	U	ug/kg	82
Aroclor-1232	41	U	ug/kg	41	41	U	ug/kg	41	41	U	ug/kg	41	41	U	ug/kg	41
Aroclor-1242	41	U	ug/kg	41	41	U	ug/kg	41	41	U	ug/kg	41	41	U	ug/kg	41
Aroclor-1248	41	U	ug/kg	41	41	U	ug/kg	41	41	U	ug/kg	41	41	U	ug/kg	41
Aroclor-1254	41	U	ug/kg	41	41	U	ug/kg	41	41	U	ug/kg	41	41	U	ug/kg	41
Aroclor-1260	41	U	ug/kg	41	41	U	ug/kg	41	41	U	ug/kg	41	41	U	ug/kg	41

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SUBSURFACE SOIL -- PESTICIDES AND PCBs -- REPORT NO. 9378

Lab Sample Number:	C86PF				C86PFRE				C86PG				C86PGRE			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4SB5				CF4SB5RE				CF4SB6				CF4SB6RE			
Collect Date:	15-FEB-97				15-FEB-97				15-FEB-97				15-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	2	U	ug/kg	2	2	U	ug/kg	2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1
beta-BHC	2	U	ug/kg	2	2	U	ug/kg	2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1
delta-BHC	2	U	ug/kg	2	2	U	ug/kg	2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1
gamma-BHC (Lindane)	2	U	ug/kg	2	2	U	ug/kg	2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1
Heptachlor	2	U	ug/kg	2	2	U	ug/kg	2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1
Aldrin	2	U	ug/kg	2	.16	J	ug/kg	2	.079	J	ug/kg	2	2.1	U	ug/kg	2.1
Heptachlor epoxide	2	U	ug/kg	2	2	U	ug/kg	2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1
Endosulfan I	2	U	ug/kg	2	2	U	ug/kg	2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1
Dieldrin	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2
4,4-DDE	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2
Endrin	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2
Endosulfan II	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2
4,4-DDD	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2
Endosulfan sulfate	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2
4,4-DDT	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	.57	J	ug/kg	4	4.2	U	ug/kg	4.2
Methoxychlor	3.8	J	ug/kg	21	20	U	ug/kg	20	4.4	J	ug/kg	22	21	U	ug/kg	21
Endrin ketone	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2
Endrin aldehyde	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2
alpha-Chlordane	2	U	ug/kg	2	2	U	ug/kg	2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1
gamma-Chlordane	2	U	ug/kg	2	2	U	ug/kg	2	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1
Toxaphene	200	U	ug/kg	200	200	U	ug/kg	200	210	U	ug/kg	210	210	U	ug/kg	210
Aroclor-1016	41	U	ug/kg	41	41	U	ug/kg	41	43	U	ug/kg	43	42	U	ug/kg	42
Aroclor-1221	82	U	ug/kg	82	82	U	ug/kg	82	85	U	ug/kg	85	85	U	ug/kg	85
Aroclor-1232	41	U	ug/kg	41	41	U	ug/kg	41	43	U	ug/kg	43	42	U	ug/kg	42
Aroclor-1242	41	U	ug/kg	41	41	U	ug/kg	41	43	U	ug/kg	43	42	U	ug/kg	42
Aroclor-1248	41	U	ug/kg	41	41	U	ug/kg	41	43	U	ug/kg	43	42	U	ug/kg	42
Aroclor-1254	41	U	ug/kg	41	41	U	ug/kg	41	43	U	ug/kg	43	42	U	ug/kg	42
Aroclor-1260	41	U	ug/kg	41	41	U	ug/kg	41	43	U	ug/kg	43	42	U	ug/kg	42

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SUBSURFACE SOIL -- PESTICIDES AND PCBs -- REPORT NO. 9378

Lab Sample Number:	C86PD				C86PDRE				C86PE				C86PERE			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4SB7				CF4SB7RE				CF4SB8				CF4SB8RE			
Collect Date:	15-FEB-97				15-FEB-97				15-FEB-97				15-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2	U	ug/kg	2	2	U	ug/kg	2
beta-BHC	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2	U	ug/kg	2	2	U	ug/kg	2
delta-BHC	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2	U	ug/kg	2	2	U	ug/kg	2
gamma-BHC (Lindane)	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2	U	ug/kg	2	2	U	ug/kg	2
Heptachlor	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2	U	ug/kg	2	2	U	ug/kg	2
Aldrin	.3	J	ug/kg	2	.15	J	ug/kg	2	.13	J	ug/kg	2	.17	J	ug/kg	2
Heptachlor epoxide	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2	U	ug/kg	2	2	U	ug/kg	2
Endosulfan I	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2	U	ug/kg	2	2	U	ug/kg	2
Dieldrin	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1
4,4-DDE	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1
Endrin	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1
Endosulfan II	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1
4,4-DDD	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1
Endosulfan sulfate	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1
4,4-DDT	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1
Methoxychlor	2.4	J	ug/kg	22	21	U	ug/kg	21	2.1	J	ug/kg	21	20	U	ug/kg	20
Endrin ketone	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1
Endrin aldehyde	4.3	U	ug/kg	4.3	4.2	U	ug/kg	4.2	4.1	U	ug/kg	4.1	4.1	U	ug/kg	4.1
alpha-Chlordane	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2	U	ug/kg	2	2	U	ug/kg	2
gamma-Chlordane	2.1	U	ug/kg	2.1	2.1	U	ug/kg	2.1	2	U	ug/kg	2	2	U	ug/kg	2
Toxaphene	210	U	ug/kg	210	210	U	ug/kg	210	200	U	ug/kg	200	200	U	ug/kg	200
Aroclor-1016	43	U	ug/kg	43	42	U	ug/kg	42	41	U	ug/kg	41	41	U	ug/kg	41
Aroclor-1221	85	U	ug/kg	85	85	U	ug/kg	85	82	U	ug/kg	82	81	U	ug/kg	81
Aroclor-1232	43	U	ug/kg	43	42	U	ug/kg	42	41	U	ug/kg	41	41	U	ug/kg	41
Aroclor-1242	43	U	ug/kg	43	42	U	ug/kg	42	41	U	ug/kg	41	41	U	ug/kg	41
Aroclor-1248	43	U	ug/kg	43	42	U	ug/kg	42	41	U	ug/kg	41	41	U	ug/kg	41
Aroclor-1254	43	U	ug/kg	43	42	U	ug/kg	42	41	U	ug/kg	41	41	U	ug/kg	41
Aroclor-1260	43	U	ug/kg	43	42	U	ug/kg	42	41	U	ug/kg	41	41	U	ug/kg	41

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SUBSURFACE SOIL -- INORGANICS -- REPORT NO. 9379

Lab Sample Number:	C86PA				C86PK				C86PT				C86PL			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4SB1				CF4SB2				CF4SB3				CF4SB4			
Collect Date:	15-FEB-97				15-FEB-97				17-FEB-97				15-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	1170		mg/kg	40	14900		mg/kg	40	7970		mg/kg	40	10700		mg/kg	40
Antimony	.68	U	mg/kg	12	.77	U	mg/kg	12	5.3	U	mg/kg	12	.74	U	mg/kg	12
Arsenic	.46	U	mg/kg	2	.51	U	mg/kg	2	.51	U	mg/kg	2	.49	U	mg/kg	2
Barium	2.2	J	mg/kg	40	7.2	J	mg/kg	40	3.1	J	mg/kg	40	5.6	J	mg/kg	40
Beryllium	.23	U	mg/kg	1	.26	U	mg/kg	1	.25	U	mg/kg	1	.25	U	mg/kg	1
Cadmium	.23	U	mg/kg	1	.26	U	mg/kg	1	.25	U	mg/kg	1	.25	U	mg/kg	1
Calcium	76.3	J	mg/kg	1000	201	J	mg/kg	1000	45.7	J	mg/kg	1000	76.5	J	mg/kg	1000
Chromium	1.2	J	mg/kg	2	17.2		mg/kg	2	9.8		mg/kg	2	10.5		mg/kg	2
Cobalt	.23	U	mg/kg	10	.34	J	mg/kg	10	1	U	mg/kg	10	.25	U	mg/kg	10
Copper	.25	J	mg/kg	5	.57	J	mg/kg	5	.91	J	mg/kg	5	.25	U	mg/kg	5
Iron	234	J	mg/kg	20	677	J	mg/kg	20	407		mg/kg	20	594	J	mg/kg	20
Lead	2.1		mg/kg	.6	12.3		mg/kg	.6	7.4		mg/kg	.6	9		mg/kg	.6
Magnesium	30.2	J	mg/kg	1000	99	J	mg/kg	1000	53.4	J	mg/kg	1000	119	J	mg/kg	1000
Manganese	4.3		mg/kg	3	3.2	J	mg/kg	3	1.7	J	mg/kg	3	2.8	J	mg/kg	3
Mercury	.06	U	mg/kg	.1	.07	J	mg/kg	.1	.06	U	mg/kg	.1	.06	U	mg/kg	.1
Nickel	.54	J	mg/kg	8	2.7	J	mg/kg	8	1.1	J	mg/kg	8	2	J	mg/kg	8
Potassium	10.7	U	mg/kg	1000	95.6	J	mg/kg	1000	22.7	J	mg/kg	1000	138	J	mg/kg	1000
Selenium	.91	U	mg/kg	1	1	U	mg/kg	1	.76	U	mg/kg	1	.99	U	mg/kg	1
Silver	.23	U	mg/kg	2	.26	U	mg/kg	2	.76	U	mg/kg	2	.25	U	mg/kg	2
Sodium	25.3	U	mg/kg	1000	28.5	U	mg/kg	1000	28	U	mg/kg	1000	27.3	U	mg/kg	1000
Thallium	.68	U	mg/kg	2	.77	U	mg/kg	2	1	U	mg/kg	2	.74	U	mg/kg	2
Vanadium	1.2	J	mg/kg	10	5.2	J	mg/kg	10	2.6	J	mg/kg	10	4.2	J	mg/kg	10
Zinc	1.4	J	mg/kg	4	.51	U	mg/kg	4	2.1	J	mg/kg	4	1.2	J	mg/kg	4
Cyanide	.07	U	mg/kg	.5	.09	J	mg/kg	.5	.08	U	mg/kg	.5	.08	U	mg/kg	.5

U = NOT DETECTED J = ESTIMATED VALUE
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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SUBSURFACE SOIL -- INORGANICS -- REPORT NO. 9379

Lab Sample Number:	C86PM				C86PF				C86PG				C86PD			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4SB4D				CF4SB5				CF4SB6				CF4SB7			
Collect Date:	15-FEB-97				15-FEB-97				15-FEB-97				15-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	8960		mg/kg	40	3890		mg/kg	40	5830		mg/kg	40	1380		mg/kg	40
Antimony	.74	U	mg/kg	12	.74	U	mg/kg	12	.77	U	mg/kg	12	.77	U	mg/kg	12
Arsenic	.5	U	mg/kg	2	.49	U	mg/kg	2	.51	U	mg/kg	2	.51	U	mg/kg	2
Barium	4.8	J	mg/kg	40	3.8	J	mg/kg	40	5.3	J	mg/kg	40	2	J	mg/kg	40
Beryllium	.25	U	mg/kg	1	.25	U	mg/kg	1	.26	U	mg/kg	1	.26	U	mg/kg	1
Cadmium	.25	U	mg/kg	1	.25	U	mg/kg	1	.26	U	mg/kg	1	.26	U	mg/kg	1
Calcium	89.5	J	mg/kg	1000	73.5	J	mg/kg	1000	81.5	J	mg/kg	1000	41.8	J	mg/kg	1000
Chromium	9.4		mg/kg	2	4.9		mg/kg	2	6.7		mg/kg	2	1.4	J	mg/kg	2
Cobalt	.38	J	mg/kg	10	.25	U	mg/kg	10	.26	U	mg/kg	10	.26	U	mg/kg	10
Copper	.34	J	mg/kg	5	.25	U	mg/kg	5	.26	U	mg/kg	5	.26	U	mg/kg	5
Iron	427	J	mg/kg	20	315	J	mg/kg	20	365	J	mg/kg	20	308	J	mg/kg	20
Lead	8.3		mg/kg	.6	3.4		mg/kg	.6	6		mg/kg	.6	1.3		mg/kg	.6
Magnesium	85.5	J	mg/kg	1000	53.9	J	mg/kg	1000	50	J	mg/kg	1000	37.2	J	mg/kg	1000
Manganese	2.6	J	mg/kg	3	1.8	J	mg/kg	3	2.6	J	mg/kg	3	6.4		mg/kg	3
Mercury	.06	U	mg/kg	.1	.06	U	mg/kg	.1	.06	U	mg/kg	.1	.06	U	mg/kg	.1
Nickel	1.7	J	mg/kg	8	.75	J	mg/kg	8	1.2	J	mg/kg	8	.51	U	mg/kg	8
Potassium	109	J	mg/kg	1000	33.6	J	mg/kg	1000	53.3	J	mg/kg	1000	24.6	J	mg/kg	1000
Selenium	.99	U	mg/kg	1	.99	U	mg/kg	1	1	U	mg/kg	1	1	U	mg/kg	1
Silver	.25	U	mg/kg	2	.25	U	mg/kg	2	1.1	J	mg/kg	2	.26	U	mg/kg	2
Sodium	27.5	U	mg/kg	1000	27.3	U	mg/kg	1000	28.5	U	mg/kg	1000	28.4	U	mg/kg	1000
Thallium	.74	U	mg/kg	2	.74	U	mg/kg	2	.77	U	mg/kg	2	.77	U	mg/kg	2
Vanadium	3.5	J	mg/kg	10	4.6	J	mg/kg	10	10.4	J	mg/kg	10	1.5	J	mg/kg	10
Zinc	.69	J	mg/kg	4	.62	J	mg/kg	4	1.1	J	mg/kg	4	.51	U	mg/kg	4
Cyanide	.07	U	mg/kg	.5	.07	U	mg/kg	.5	.07	J	mg/kg	.5	.08	U	mg/kg	.5

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SUBSURFACE SOIL -- INORGANICS -- REPORT NO. 9379

Lab Sample Number:	C86PE			
Site	PSC4			
Locator	CF4SB8			
Collect Date:	15-FEB-97			
	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE				
Aluminum	7310		mg/kg	40
Antimony	.74	U	mg/kg	12
Arsenic	.49	U	mg/kg	2
Barium	6.2	J	mg/kg	40
Beryllium	.25	U	mg/kg	1
Cadmium	.25	U	mg/kg	1
Calcium	51.5	J	mg/kg	1000
Chromium	8.5		mg/kg	2
Cobalt	.39	J	mg/kg	10
Copper	.36	J	mg/kg	5
Iron	671	J	mg/kg	20
Lead	5.4		mg/kg	.6
Magnesium	102	J	mg/kg	1000
Manganese	2.3	J	mg/kg	3
Mercury	.06	U	mg/kg	.1
Nickel	1.8	J	mg/kg	8
Potassium	49	J	mg/kg	1000
Selenium	.98	U	mg/kg	1
Silver	.25	U	mg/kg	2
Sodium	27.3	U	mg/kg	1000
Thallium	.74	U	mg/kg	2
Vanadium	4.8	J	mg/kg	10
Zinc	.69	J	mg/kg	4
Cyanide	.1	J	mg/kg	.5

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SUBSURFACE SOIL -- TOTAL PETROLEUM HYDROCARBONS -- REPORT NO. 9380

Lab Sample Number:	A7B1801330			A7B1801330			A7B1801360			A7B1801330		
Site	PSC4			PSC4			PSC4			PSC4		
Locator	CF4SB1			CF4SB2			CF4SB3			CF4SB4D		
Collect Date:	15-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
TPH												
Total petroleum hydrocarbons	15	mg/kg	11	14	mg/kg	13	13 U	mg/kg	13	12 U	mg/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 -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
SUBSURFACE SOIL -- TOTAL PETROLEUM HYDROCARBONS -- REPORT NO. 9380

Lab Sample Number:	A7B1801330				A7B1801330				A7B1801330				A7B1801330			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4SB5				CF4SB6				CF4SB7				CF4SB8			
Collect Date:	15-FEB-97				17-FEB-97				15-FEB-97				15-FEB-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
TPH																
Total petroleum hydrocarbons	12	U	mg/kg	12	13	U	mg/kg	13	13	U	mg/kg	13	12	U	mg/kg	12

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
GROUNDWATER -- VOLATILES -- REPORT NO. 9381

Lab Sample Number:	CC13G				CC13F				CC13D				CC2VJ			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4MW1				CF4MW1S				CF4MW2S				CF4MW2			
Collect Date:	29-JUL-97				29-JUL-97				28-JUL-97				31-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW																
Chloromethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromomethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Vinyl chloride	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Methylene chloride	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acetone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbon disulfide	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1-Dichloroethene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1-Dichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloroethene (total)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chloroform	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Butanone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1,1-Trichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbon tetrachloride	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromodichloromethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloropropane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
cis-1,3-Dichloropropene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Trichloroethene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibromochloromethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1,2-Trichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
trans-1,3-Dichloropropene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromoform	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Methyl-2-pentanone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Hexanone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Tetrachloroethene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Toluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1,2,2-Tetrachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Ethylbenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Styrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Xylenes (total)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

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) 4
GROUNDWATER -- VOLATILES -- REPORT NO. 9381

Lab Sample Number:	CC139			CC13C			CC1Q8			CC1QC		
Site	PSC4			PSC4			PSC4			PSC4		
Locator	CF4MW3S			CF4MW3SD			CF4MW3			CF4MW4S		
Collect Date:	28-JUL-97			28-JUL-97			30-JUL-97			30-JUL-97		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP VOLATILES 90-SOW												
Chloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromomethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acetone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Toluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

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) 4
GROUNDWATER -- VOLATILES -- REPORT NO. 9381

Lab Sample Number:	CC3VK			CAWX1			CC13E			CC1Q3		
Site	PSC4			PSC4			PSC4			PSC4		
Locator	CF4MW5S			CF4MW6S			CF4MW7I			CF4MW8S		
Collect Date:	04-AUG-97			24-JUL-97			29-JUL-97			30-JUL-97		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP VOLATILES 90-SOW												
Chloromethane	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Bromomethane	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Vinyl chloride	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Chloroethane	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Methylene chloride	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Acetone	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Carbon disulfide	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
1,1-Dichloroethene	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
1,1-Dichloroethane	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
1,2-Dichloroethene (total)	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Chloroform	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
1,2-Dichloroethane	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
2-Butanone	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
1,1,1-Trichloroethane	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Carbon tetrachloride	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Bromodichloromethane	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
1,2-Dichloropropane	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
cis-1,3-Dichloropropene	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Trichloroethene	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Dibromochloromethane	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
1,1,2-Trichloroethane	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Benzene	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
trans-1,3-Dichloropropene	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Bromoform	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
4-Methyl-2-pentanone	10	U ug/l	10	9	J ug/l	10	10	U ug/l	10	10	U ug/l	10
2-Hexanone	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Tetrachloroethene	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Toluene	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
1,1,2,2-Tetrachloroethane	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Chlorobenzene	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Ethylbenzene	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Styrene	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10
Xylenes (total)	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10	10	U ug/l	10

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

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
GROUNDWATER -- VOLATILES -- REPORT NO. 9381

Lab Sample Number:	CC3VM			CC3VN		
Site	PSC4			PSC4		
Locator	CF4MW9I			CF4MW9ID		
Collect Date:	04-AUG-97			04-AUG-97		
	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	10 U	ug/l	10	10 U	ug/l	10
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
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 9382

Lab Sample Number:	CC13G				CC13F				CC13D				CC2VJ			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4MW1				CF4MW1S				CF4MW2S				CF4MW2			
Collect Date:	29-JUL-97				29-JUL-97				28-JUL-97				31-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW																
Phenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethyl) ether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Chlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,3-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,4-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,2-oxybis(1-Chloropropane)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitroso-di-n-propylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Nitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Isophorone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitrophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dimethylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethoxy) methane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2,4-Trichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Naphthalene	10	U	ug/l	10	2	J	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloroaniline	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobutadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloro-3-methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylnaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorocyclopentadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,6-Trichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,5-Trichlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
2-Chloronaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Dimethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acenaphthylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,6-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Acenaphthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
4-Nitrophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Dibenzofuran	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Diethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chlorophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluorene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
N-Nitrosodiphenylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbazole	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 9382

Lab Sample Number:	CC13G				CC13F				CC13D				CC2VJ			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4MW1				CF4MW1S				CF4MW2S				CF4MW2			
Collect Date:	29-JUL-97				29-JUL-97				28-JUL-97				31-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	2	J	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenzo (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

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

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 9382

Lab Sample Number:	CC139				CC13C				CC1Q8				CC1QC			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4MW3S				CF4MW3SD				CF4MW3				CF4MW4S			
Collect Date:	28-JUL-97				28-JUL-97				30-JUL-97				30-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW																
Phenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethyl) ether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Chlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,3-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,4-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,2-oxybis(1-Chloropropane)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitroso-di-n-propylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Nitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Isophorone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitrophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dimethylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethoxy) methane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2,4-Trichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Naphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloroaniline	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobutadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloro-3-methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylnaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorocyclopentadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,6-Trichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,5-Trichlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
2-Chloronaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Dimethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acenaphthylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,6-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Acenaphthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
4-Nitrophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Dibenzofuran	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Diethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chlorophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluorene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 9382

Lab Sample Number:	CC139				CC13C				CC1Q8				CC1QC			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4MW3S				CF4MW3SD				CF4MW3				CF4MW4S			
Collect Date:	28-JUL-97				28-JUL-97				30-JUL-97				30-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
N-Nitrosodiphenylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbazole	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenzo (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

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

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 9382

Lab Sample Number:	CC3VK				CAWX1				CC13E				CC1Q3			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4MW5S				CF4MW6S				CF4MW7I				CF4MW8S			
Collect Date:	04-AUG-97				24-JUL-97				29-JUL-97				30-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP SEMIVOLATILES 90-SOW																
Phenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethyl) ether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Chlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,3-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,4-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,2-oxybis(1-Chloropropane)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Methylphenol	10	U	ug/l	10	3	J	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitroso-di-n-propylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Nitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Isophorone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitrophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dimethylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethoxy) methane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2,4-Trichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Naphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloroaniline	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobutadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloro-3-methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylnaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorocyclopentadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,6-Trichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,5-Trichlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
2-Chloronaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Dimethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acenaphthylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,6-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Acenaphthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
4-Nitrophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Dibenzofuran	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Diethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chlorophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluorene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 9382

Lab Sample Number:	CC3VK				CAWX1				CC13E				CC1Q3			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4MW5S				CF4MW6S				CF4MW7I				CF4MW8S			
Collect Date:	04-AUG-97				24-JUL-97				29-JUL-97				30-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
N-Nitrosodiphenylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbazole	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	1	J	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenzo (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

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

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 9382

Lab Sample Number:	CC3VM				CC3VN			
Site	PSC4				PSC4			
Locator	CF4MW9I				CF4MW9ID			
Collect Date:	04-AUG-97				04-AUG-97			
	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

NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 9382

Lab Sample Number:	CC3VM				CC3VN			
Site	PSC4				PSC4			
Locator	CF4MW9I				CF4MW9ID			
Collect Date:	04-AUG-97				04-AUG-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
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
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) 4
GROUNDWATER -- PESTICIDES AND PCBs -- REPORT NO. 9383

Lab Sample Number:	CC3VK				CAWX1				CC13E				CC1Q3			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4MW5S				CF4MW6S				CF4MW7I				CF4MW8S			
Collect Date:	04-AUG-97				24-JUL-97				29-JUL-97				30-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	U	ug/l	.05	.00091	J	ug/l		.05	U	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1

U = NOT DETECTED J = ESTIMATED VALUE
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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
GROUNDWATER -- PESTICIDES AND PCBs -- REPORT NO. 9383

Lab Sample Number:	CC3VM				CC3VN			
Site	PSC4				PSC4			
Locator	CF4MW9I				CF4MW9ID			
Collect Date:	04-AUG-97				04-AUG-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW								
alpha-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	U	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	U	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	U	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	U	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	U	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	U	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	U	ug/l	1	1	U	ug/l	1

U = NOT DETECTED J = ESTIMATED VALUE
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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
GROUNDWATER -- PESTICIDES AND PCBs -- REPORT NO. 9383

Lab Sample Number:	CC13G				CC13F				CC13D				CC2VJ			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4MW1				CF4MW1S				CF4MW2S				CF4MW2			
Collect Date:	29-JUL-97				29-JUL-97				28-JUL-97				31-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	U	ug/l	.05	.05	U	ug/l	.05	.015	J	ug/l		.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	.0051	J	ug/l		.0039	J	ug/l		.05	U	ug/l	.05
Endosulfan I	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
GROUNDWATER -- PESTICIDES AND PCBs -- REPORT NO. 9383

Lab Sample Number:	CC139				CC13C				CC1Q8				CC1QC			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4MW3S				CF4MW3SD				CF4MW3				CF4MW4S			
Collect Date:	28-JUL-97				28-JUL-97				30-JUL-97				30-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
GROUNDWATER -- INORGANICS -- REPORT NO. 9384

Lab Sample Number:	CC13G				CC13F				CC13D				CC13DF			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4MW1				CF4MW1S				CF4MW2S				CF4MW2SF			
Collect Date:	29-JUL-97				29-JUL-97				28-JUL-97				28-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	74	J	ug/l	200	705	J	ug/l	200	8300	J	ug/l	200	2790	J	ug/l	200
Antimony	3.8	U	ug/l	60	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	4.3	U	ug/l	10
Barium	5.1	J	ug/l	200	9.1	J	ug/l	200	11.4	J	ug/l	200	8.1	J	ug/l	200
Beryllium	.4	U	ug/l	5	.4	U	ug/l	5	.4	U	ug/l	5	.4	U	ug/l	5
Cadmium	.2	U	ug/l	5	.38	J	ug/l	5	.2	U	ug/l	5	.2	U	ug/l	5
Calcium	284	J	ug/l	5000	3230	J	ug/l	5000	7890	J	ug/l	5000	8530	J	ug/l	5000
Chromium	1.7	U	ug/l	10	1.7	U	ug/l	10	6.8	J	ug/l	10	2.3	J	ug/l	10
Cobalt	1.2	U	ug/l	50	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	5.6	J	ug/l	25	3.9	U	ug/l	25
Iron	32.8	U	ug/l	100	2140		ug/l	100	1230		ug/l	100	350		ug/l	100
Lead	2.2	U	ug/l	3	2.2	U	ug/l	3	4.9		ug/l	3	2.2	U	ug/l	3
Magnesium	467	J	ug/l	5000	293	J	ug/l	5000	422	J	ug/l	5000	439	J	ug/l	5000
Manganese	.49	J	ug/l	15	13.7	J	ug/l	15	6.6	J	ug/l	15	4.1	J	ug/l	15
Mercury	.11	J	ug/l	.2	.1	U	ug/l	.2	.1	J	ug/l	.2	.1	U	ug/l	.2
Nickel	2.8	U	ug/l	40	2.8	U	ug/l	40	2.8	U	ug/l	40	5.8	J	ug/l	40
Potassium	66.2	U	ug/l	5000	325	J	ug/l	5000	317	J	ug/l	5000	295	J	ug/l	5000
Selenium	4.1	U	ug/l	5	4.1	U	ug/l	5	4.1	U	ug/l	5	4.1	U	ug/l	5
Silver	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10
Sodium	1670	J	ug/l	5000	4130	J	ug/l	5000	3580	J	ug/l	5000	3970	J	ug/l	5000
Thallium	5.9	U	ug/l	10	5.9	U	ug/l	10	5.9	U	ug/l	10	5.9	U	ug/l	10
Vanadium	1	U	ug/l	50	1.8	J	ug/l	50	8.3	J	ug/l	50	2.5	J	ug/l	50
Zinc	6.2	J	ug/l	20	1.8	U	ug/l	20	1.8	U	ug/l	20	9.7	J	ug/l	20
Cyanide	1.6	U	ug/l	10	1.6	U	ug/l	10	1.8	J	ug/l	10	-			

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
GROUNDWATER -- INORGANICS -- REPORT NO. 9384

Lab Sample Number:	CC2VJ			CC139			CC13C			CC1Q8		
Site	PSC4			PSC4			PSC4			PSC4		
Locator	CF4MW2			CF4MW3S			CF4MW3SD			CF4MW3		
Collect Date:	31-JUL-97			28-JUL-97			28-JUL-97			30-JUL-97		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP METALS AND CYANIDE												
Aluminum	21.9 UJ	ug/l	200	84.6 J	ug/l	200	255 J	ug/l	200	555 J	ug/l	200
Antimony	3.8 U	ug/l	60	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	4.3 U	ug/l	10
Barium	48.5 J	ug/l	200	8.8 J	ug/l	200	9 J	ug/l	200	29.2 J	ug/l	200
Beryllium	.4 U	ug/l	5	.4 U	ug/l	5	.4 U	ug/l	5	.4 U	ug/l	5
Cadmium	.26 J	ug/l	5	.2 U	ug/l	5	.2 U	ug/l	5	.2 U	ug/l	5
Calcium	73500 J	ug/l	5000	1290 J	ug/l	5000	1050 J	ug/l	5000	2950 J	ug/l	5000
Chromium	1.7 U	ug/l	10	1.7 U	ug/l	10	1.7 U	ug/l	10	1.7 U	ug/l	10
Cobalt	1.2 U	ug/l	50	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	3.9 U	ug/l	25
Iron	32.8 U	ug/l	100	4100	ug/l	100	6160	ug/l	100	129	ug/l	100
Lead	2.2 U	ug/l	3	2.2 U	ug/l	3	2.2 U	ug/l	3	2.2 U	ug/l	3
Magnesium	10400	ug/l	5000	390 J	ug/l	5000	368 J	ug/l	5000	2400 J	ug/l	5000
Manganese	4.9 J	ug/l	15	77.2	ug/l	15	72.4	ug/l	15	3.7 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	8.8 J	ug/l	40	2.8 U	ug/l	40	2.8 U	ug/l	40	2.8 U	ug/l	40
Potassium	1770 J	ug/l	5000	265 J	ug/l	5000	296 J	ug/l	5000	404 J	ug/l	5000
Selenium	4.1 U	ug/l	5	4.1 U	ug/l	5	4.1 U	ug/l	5	4.1 U	ug/l	5
Silver	1 U	ug/l	10	1 U	ug/l	10	1 U	ug/l	10	1 U	ug/l	10
Sodium	12200	ug/l	5000	4150 J	ug/l	5000	5480	ug/l	5000	5350	ug/l	5000
Thallium	5.9 U	ug/l	10	5.9 U	ug/l	10	5.9 U	ug/l	10	5.9 U	ug/l	10
Vanadium	1 U	ug/l	50	1 U	ug/l	50	1 U	ug/l	50	1 U	ug/l	50
Zinc	7.8 J	ug/l	20	18.4 J	ug/l	20	9.3 J	ug/l	20	6 J	ug/l	20
Cyanide	1.6 U	ug/l	10	1.6 U	ug/l	10	259	ug/l	10	1.6 U	ug/l	10

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
GROUNDWATER -- INORGANICS -- REPORT NO. 9384

Lab Sample Number:	CC1QC				CC3VK				CAWX1				CC13E			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4MW4S				CF4MW5S				CF4MW6S				CF4MW7I			
Collect Date:	30-JUL-97				04-AUG-97				24-JUL-97				29-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	124	J	ug/l	200	511	J	ug/l	200	109	J	ug/l	200	305	J	ug/l	200
Antimony	3.8	U	ug/l	60	3.8	U	ug/l	60	23.8	U	ug/l	60	3.8	U	ug/l	60
Arsenic	4.3	U	ug/l	10	4.3	U	ug/l	10	4.4	U	ug/l	10	4.3	U	ug/l	10
Barium	5.8	J	ug/l	200	17.5	J	ug/l	200	12.8	J	ug/l	200	8.4	J	ug/l	200
Beryllium	.4	U	ug/l	5	.4	U	ug/l	5	.4	U	ug/l	5	.4	U	ug/l	5
Cadmium	.2	U	ug/l	5	.2	U	ug/l	5	.3	U	ug/l	5	.2	U	ug/l	5
Calcium	1340	J	ug/l	5000	3900	J	ug/l	5000	1580	J	ug/l	5000	812	J	ug/l	5000
Chromium	1.7	U	ug/l	10	1.7	U	ug/l	10	1.8	U	ug/l	10	1.7	U	ug/l	10
Cobalt	1.2	U	ug/l	50	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	18.6	J	ug/l	25	4.4	J	ug/l	25	3.9	U	ug/l	25
Iron	34.8	J	ug/l	100	3720		ug/l	100	889		ug/l	100	309		ug/l	100
Lead	2.2	U	ug/l	3	2.2	U	ug/l	3	2.2	U	ug/l	3	2.2	U	ug/l	3
Magnesium	462	J	ug/l	5000	1480	J	ug/l	5000	564	J	ug/l	5000	576	J	ug/l	5000
Manganese	2.4	J	ug/l	15	79.8		ug/l	15	103		ug/l	15	4.1	J	ug/l	15
Mercury	.1	U	ug/l	.2	.1	U	ug/l	.2	.11	J	ug/l	.2	.1	U	ug/l	.2
Nickel	2.8	U	ug/l	40	4.2	J	ug/l	40	2.8	U	ug/l	40	2.8	U	ug/l	40
Potassium	86.3	J	ug/l	5000	234	J	ug/l	5000	66.1	U	ug/l	5000	147	J	ug/l	5000
Selenium	4.1	U	ug/l	5	4.1	U	ug/l	5	4.1	U	ug/l	5	4.1	U	ug/l	5
Silver	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10
Sodium	1730	J	ug/l	5000	7600		ug/l	5000	2680	J	ug/l	5000	5580		ug/l	5000
Thallium	5.9	U	ug/l	10	5.9	U	ug/l	10	5.9	U	ug/l	10	5.9	U	ug/l	10
Vanadium	1	U	ug/l	50	1	U	ug/l	50	1	U	ug/l	50	1	U	ug/l	50
Zinc	14.9	J	ug/l	20	48.2		ug/l	20	14.9	J	ug/l	20	12.3	J	ug/l	20
Cyanide	1.6	U	ug/l	10	1.6	U	ug/l	10	1.5	U	ug/l	10	1.6	U	ug/l	10

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
GROUNDWATER -- INORGANICS -- REPORT NO. 9384

Lab Sample Number:	CC1Q3				CC3VM				CC3VN				CC3VNF			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4MW8S				CF4MW9I				CF4MW9ID				CF4MW9IDF			
Collect Date:	30-JUL-97				04-AUG-97				04-AUG-97				04-AUG-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE																
Aluminum	263	J	ug/l	200	6780	J	ug/l	200	4940	J	ug/l	200	2700	J	ug/l	200
Antimony	3.8	U	ug/l	60	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	4.3	U	ug/l	10
Barium	20.7	J	ug/l	200	22.7	J	ug/l	200	21.7	J	ug/l	200	18.3	J	ug/l	200
Beryllium	.4	U	ug/l	5	.4	U	ug/l	5	.4	U	ug/l	5	.4	U	ug/l	5
Cadmium	.2	J	ug/l	5	.32	J	ug/l	5	.24	J	ug/l	5	.26	J	ug/l	5
Calcium	5730	J	ug/l	5000	1450	J	ug/l	5000	1520	J	ug/l	5000	1310	J	ug/l	5000
Chromium	1.7	U	ug/l	10	4.5	J	ug/l	10	2.9	J	ug/l	10	1.7	U	ug/l	10
Cobalt	1.2	U	ug/l	50	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	3.9	U	ug/l	25
Iron	1380		ug/l	100	1330		ug/l	100	1050		ug/l	100	629		ug/l	100
Lead	2.2	U	ug/l	3	2.2	U	ug/l	3	2.2	U	ug/l	3	2.8	J	ug/l	3
Magnesium	695	J	ug/l	5000	1410	J	ug/l	5000	1330	J	ug/l	5000	1140	J	ug/l	5000
Manganese	140		ug/l	15	10.6	J	ug/l	15	10.3	J	ug/l	15	8.5	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	2.8	U	ug/l	40	2.8	U	ug/l	40	2.8	U	ug/l	40	2.8	U	ug/l	40
Potassium	116	J	ug/l	5000	465	J	ug/l	5000	461	J	ug/l	5000	344	J	ug/l	5000
Selenium	4.1	U	ug/l	5	4.1	U	ug/l	5	4.1	U	ug/l	5	4.1	U	ug/l	5
Silver	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10	1	U	ug/l	10
Sodium	8750		ug/l	5000	7210		ug/l	5000	7500		ug/l	5000	7230		ug/l	5000
Thallium	5.9	U	ug/l	10	5.9	U	ug/l	10	5.9	U	ug/l	10	5.9	U	ug/l	10
Vanadium	1	U	ug/l	50	4.8	J	ug/l	50	3.5	J	ug/l	50	1.9	J	ug/l	50
Zinc	18.6	J	ug/l	20	77.4		ug/l	20	74.3		ug/l	20	79.1		ug/l	20
Cyanide	1.6	U	ug/l	10	1.6	U	ug/l	10	1.6	U	ug/l	10	-			

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
GROUNDWATER -- INORGANICS -- REPORT NO. 9384

Lab Sample Number:	CC3VMF			
Site	PSC4			
Locator	CF4MW9IF			
Collect Date:	04-AUG-97			
	VALUE	QUAL	UNITS	DL
CLP METALS AND CYANIDE				
Aluminum	292	J	ug/l	200
Antimony	4.1	J	ug/l	60
Arsenic	4.3	U	ug/l	10
Barium	14.8	J	ug/l	200
Beryllium	.4	U	ug/l	5
Cadmium	.3	J	ug/l	5
Calcium	953	J	ug/l	5000
Chromium	1.7	U	ug/l	10
Cobalt	1.2	U	ug/l	50
Copper	3.9	U	ug/l	25
Iron	122		ug/l	100
Lead	2.2	U	ug/l	3
Magnesium	965	J	ug/l	5000
Manganese	7.9	J	ug/l	15
Mercury	.1	U	ug/l	.2
Nickel	2.8	U	ug/l	40
Potassium	214	J	ug/l	5000
Selenium	4.1	U	ug/l	5
Silver	1	U	ug/l	10
Sodium	5820		ug/l	5000
Thallium	5.9	U	ug/l	10
Vanadium	1	U	ug/l	50
Zinc	113		ug/l	20
Cyanide	-			

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NAS CECIL FIELD -- PSC 4
GROUNWATER -- RESAMPLING OF CYANIDE -- REPORT REQ NO. 10251

Lab Sample Number:	JR24123			
Site	PSC4			
Locator	CF4MW3S			
Collect Date:	20-JUL-98			
	VALUE	QUAL	UNITS	DL
Cyanide, Total	10	U	ug/l	10

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NAS CECIL FIELD -- PSC 4
GROUNWATER -- RESAMPLING OF MANGANESE -- REPORT REQ NO. 10252

Lab Sample Number:	JR24124			JR31621			JR31622			JR24127		
Site	PSC4			PSC4			PSC4			PSC4		
Locator	CF4MW6S			CF4MW6S			CF4MW6SF			CF4MW8S		
Collect Date:	20-JUL-98			09-SEP-98			09-SEP-98			21-JUL-98		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Manganese	230	ug/l	10	28	ug/l	10	24	ug/l	10	24	ug/l	10

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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
GROUNDWATER -- TOTAL PETROLEUM HYDROCARBONS -- REPORT NO. 9385

Lab Sample Number:	A7G3001620				A7G3001620				A7G3001600				A7H0201230			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4MW1				CF4MW1S				CF4MW2S				CF4MW2			
Collect Date:	29-JUL-97				29-JUL-97				28-JUL-97				31-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
TPH																
Total petroleum hydrocarbons	.5	U	mg/l	.5	.5	U	mg/l	.5	.5	U	mg/l	.5	.5	U	mg/l	.5

U = NOT DETECTED J = ESTIMATED VALUE
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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
GROUNDWATER -- TOTAL PETROLEUM HYDROCARBONS -- REPORT NO. 9385

Lab Sample Number:	A7G3001600				A7G3001600				A7G3101410				A7G3101410			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4MW3S				CF4MW3SD				CF4MW3				CF4MW4S			
Collect Date:	28-JUL-97				28-JUL-97				30-JUL-97				30-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
TPH																
Total petroleum hydrocarbons	.5	U	mg/l	.5	.5	U	mg/l	.5	.5	U	mg/l	.5	.6	U	mg/l	.6

U = NOT DETECTED J = ESTIMATED VALUE
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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
GROUNDWATER -- TOTAL PETROLEUM HYDROCARBONS -- REPORT NO. 9385

Lab Sample Number:	A7H0501130				A7G2501500				A7G3001620				A7G3101410			
Site	PSC4				PSC4				PSC4				PSC4			
Locator	CF4MW5S				CF4MW6S				CF4MW7I				CF4MW8S			
Collect Date:	04-AUG-97				24-JUL-97				29-JUL-97				30-JUL-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
TPH																
Total petroleum hydrocarbons	.5	U	mg/l	.5	.5	U	mg/l	.5	.5	U	mg/l	.5	.5	U	mg/l	.5

U = NOT DETECTED J = ESTIMATED VALUE
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NAS CECIL FIELD -- POTENTIAL SOURCE OF CONTAMINATION (PSC) 4
GROUNDWATER -- TOTAL PETROLEUM HYDROCARBONS -- REPORT NO. 9385

Lab Sample Number:	A7H0501130				A7H0501130			
Site	PSC4				PSC4			
Locator	CF4MW9I				CF4MW9ID			
Collect Date:	04-AUG-97				04-AUG-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
TPH								
Total petroleum hydrocarbons	.5	U	mg/l	.5	.5	U	mg/l	.5

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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 $1x10^{-6}$ 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
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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 ABB-ES 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 ABB-ES biologist, and near runways at the facility (Cochran, 1995)
Sherman's fox squirrel (*Sciurus niger shermani*)	SSC	C2		Possible resident near Site 18 (ABB-ES 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
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Common Name	FGFWFC[1]	USFWS[2]	FDA[3]	Comments
Hooded pitcher plant (*Sarracenia minor*)			T	Observed in wetlands associated with Sites 3 and 17 (ABB-ES), 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 (ABB-ES 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 (ABB-ES 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 (ABB-ES ecologist).
Grass pink (*Calopogon tuberosus*)			T	Observed at Site 17 by ABB-ES 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 (ABB-ES 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

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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 (ABB-ES 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.
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).

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

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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

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Potential Source of Contamination 18
Naval Air Station Cecil Field
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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.

- 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.
- 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

Table D-3
Surface Water Screening Values

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Naval Air Station Cecil Field
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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.

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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.

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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.

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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.

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Table D-3 (Continued)
Surface Water Screening Values

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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.

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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.

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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.

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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.

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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.

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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.

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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 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.

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.

Table D-6
Ingestion Toxicity Information for Wildlife Receptors

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

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

See notes at end of table.

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

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

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

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

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

See notes at end of table.

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

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

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

See notes at end of table.

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

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Potential Source of Contamination 18
Naval Air Station Cecil Field
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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

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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	
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

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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	
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

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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	
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_{60}	>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

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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)							
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

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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

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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

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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)							
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

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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)							
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

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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		16	ATSDR, 1992c
	Mouse	Oral	NR	LD_{50}	145		RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		3.36	RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		152	RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		7	RTECS, 1994
	Mouse	Oral	NR	LOAEL for reproductive effects		3.04	RTECS, 1994
	Rabbit	Single oral dose		LD_{50}	300		Allen et al., 1979
	Rabbit	Single oral dose		LD_{50}	100		RTECS, 1994
	Hamster	Oral	NR	LD_{50}	1,720		RTECS, 1994
	Dog	Single oral dose		LD_{50}	200		Allen et al., 1979
	Domestic mammal	Oral	NR	LD_{50}	50		RTECS, 1994

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

See notes at end of table.

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

Technical Memorandum For No Further Action
Potential Source of Contamination 18
Naval Air Station Cecil Field
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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)	Mallard	Oral	NR	LD_{50}	381 [3]		RTECS, 1994
	Mallard	Single oral dose		LD_{50}	381		USFWS, 1984
Endosulfan I (and surrogate for endosulfan II and endosulfan sulfate)	Mouse	Oral (chronic)	76 weeks	LOAEL for mortality		0.9	ATSDR, 1991c
	Mouse	Oral (chronic)	78 weeks	LOAEL for ovarian cyst development		0.26	ATSDR, 1991c
	Rat	Single oral dose	1 dose	LD_{50}	24		ATSDR, 1991c
	Rat	Oral (chronic)	2 years	LOAEL for renal tubular damage		100	USEPA, 1980b
	Rat	Oral (chronic)	2 years	LOAEL for reduced testes weight		10	USEPA, 1980b
	Rat	Oral (chronic)	2 generations	LOAEL for kidney toxicity		0.15	IRIS, 1991
	Mallard	Single oral dose	1 dose	LD_{50}	33		USFWS, 1984
	Mallard	Single oral dose	1 dose	LD_{50}	31.2		USFWS, 1984
	Pheasant	Single oral dose	1 dose	LD_{50}	80		USFWS, 1984
Endrin (surrogate for endrin aldehyde and endrin ketone)	Mouse	Oral (chronic)	80 weeks	LOAEL for mortality	0.53		ATSDR, 1990e
	Dog	Oral (chronic)	19 months	LOAEL for decreased weight gain		0.1	USEPA, 1985c
	Rat	Single oral dose	1 dose	LD_{50}	3		Sax, 1984
	Bird	Single oral dose	1 dose	LD_{50}	1.8		Sax, 1984

See notes at end of table.

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

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

See notes at end of table.

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

Technical Memorandum For No Further Action
Potential Source of Contamination 18
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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

See notes at end of table.

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

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

See notes at end of table.

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

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

See notes at end of table.

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

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

See notes at end of table.

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

Technical Memorandum For No Further Action
Potential Source of Contamination 18
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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.

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

Technical Memorandum For No Further Action
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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.

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

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

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

See notes at end of table.

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

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

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

See notes on following page.

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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.

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

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Naval Air Station Cecil Field
Jacksonville, Florida

Estimation of Contaminant Exposures Related to Surface Soil

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

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

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

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

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

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

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

Estimation of Contaminant Exposures Related to Surface Water and Sediment

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

Contaminant Concentration: Same as described above for soil.

where

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

BAF = bioaccumulation factor (see note above).

Sediment Exposure:

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

Surface Water Exposure:

$$\text{Surface Water Contaminant Exposure (mg/day)} = \text{Surface Water Contaminant Concentration (mg/ℓ)} \times \text{Water Ingestion Rate (ℓ/day)}$$

Aquatic Prey Exposure:

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

where

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

Total Exposure Related to Surface Water and Sediment.

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

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.

DRAFT

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.
μg/kg = micrograms per kilogram.
μg/ℓ = micrograms per liter.
Log K_{ow} = Logarithm transformation of the octanol/water partitioning coefficient.
PAH = polynuclear aromatic hydrocarbon.
% = percent.
> = greater than.
< = less than.
mg = milligram.

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